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ABSTRACTS OF SUBMISSIONS ACCEPTED FOR PRESENTATION

SCIENTIFIC ABSTRACTS

A COLLECTIVE LOOK IN THE MIRROR: USING AN AUDIENCE RESPONSE SYSTEM TO HELP MEDICAL STUDENTS RECOGNIZE THEIR OWN BIASES TOWARDS PATIENTS OF DIFFERENT SOCIOCULTURAL BACKGROUNDS. M. Mintz[1]. [1]George Washington University, Washington, DC. *(Tracking ID # 154097)*

BACKGROUND: Physician bias (discrimination, prejudice, stereotyping) towards patients of different socio-cultural backgrounds then their own contributes significantly to health care disparities. Teaching health care professionals to recognize their own biases is therefore important, but difficult due to the personal and sensitive nature of the topic. Our purpose was to determine the usefulness of an audience response system (ARS) in helping learners recognize their own biases and how their biases might contribute to health care disparities.
METHODS: All third year medical students from our institution attended a day long workshop on health care disparities. Part of the workshop included a session where five brief videotaped patient vignettes were shown to the entire class, and students were then asked to guess each patient's age, level of education, annual income, race, religion and sexual orientation by using individual keypads. Anonymous results were then displayed to the entire class in aggregate along with correct information to demonstrate variation, discrepancy and bias. Large and small group discussions followed. Students completed a pre and post-session survey which used a 5-point Likert scale. Data was analyzed using the paired student *t*-test.
RESULTS: 160 students attended the workshop. 120 (75%) agreed to participate in the study and completed both the pre and post-workshop survey. Awareness of the role of culture in healthcare (mean = 4.47), socio-cultural influence on health care disparities (4.35) and the contribution of physician discrimination (biases, stereotyping, prejudice) to health care disparities (3.95) were high prior to the workshop, and did not change significantly. However, both students' belief that they had their own personal biases towards patients of different socio-cultural backgrounds (pre = 2.433, post = 2.875 p = < .0001) and that their own discrimination might lead to health care disparities (pre = 2.75, post = 3.08, p = 0.012) were initially low, but had a modest and statistically significant increase after the workshop. In general, many students believed that use of the ARS allowed them to express their own personal biases anonymously (3.87), permitted the class to express biases that might not otherwise have been verbalized openly (3.59) and helped to stimulate discussion about biases and health care disparities (3.55). Technical limitations (not all students were able to use keypads) had no impact on the results. Comments on the post-session survey indicated that most students enjoyed the interactive nature of the ARS, but a few also felt that forcing them to make decisions on patient sociodemographics with only a brief encounter was artificial.
CONCLUSIONS: Using an ARS was effective in helping medical students recognize their own biases and enhancing group discussion about the role of bias in health care disparities. Because an ARS allows individual participants to respond anonymously and displays aggregate responses which can instantly be used for group discussion, the ARS provides a safe and non-threatening way to discuss difficult topics, such personal biases. Given student's initial and strong reluctance to recognize their own personal biases, the modest response is not surprising to such a brief intervention. Further research is needed, including repeated exposure and use by other learners (residents) to see the full potential of the ARS as an educational tool.

A COMPARISON OF BARRIERS TO MEDICATION ADHERENCE IN PATIENTS WITH CHRONIC CONDITIONS. S. Hahn[1]; K. Yu-Isenberg[2]; J. Priest[2]; E. Skinner[2]; M. Weaver[2]; P. Olson[2]. [1]Albert Einstein College of Medicine, Bronx, NY; [2]GlaxoSmithKline, RTP, NC. *(Tracking ID # 154745)*

BACKGROUND: Nonadherence to medication is a well documented cause of inadequate control of chronic disease. Specific barriers to nonadherence are often undetected. The ASK-20 was designed as a self-administered survey that can rapidly focus attention on specific, actionable barriers to adherence across the spectrum of chronic diseases. This study reports on the differential prevalence of barriers to adherence identified with the ASK-20 in a cohort of patients with asthma, diabetes, and depression.
METHODS: This cross-sectional study examined a total of 605 randomly selected patients with asthma, diabetes, or depression who completed the 20-item web-based ASK-20 and a battery of validating self-report adherence questions. The ASK-20 identifies barriers to adherence in 5 domains: Lifestyle, Attitudes and Beliefs, Help from Others, Talking with Healthcare Team, and Difficulty Taking Medicines. Descriptive statistics were used to examine barriers stratified by chronic conditions and baseline demographics. Predictors of medication nonadherence, defined by the self-report of a missed dose of medicine in the past week, were determined by logistic regression adjusted for demographic variables, comorbidities, medication use, and the ASK-20 survey items.
RESULTS: The mean age was 53 years, 66% were female, 60% married, and 45% were employed. Patients were taking a mean of 5.1 (±3.4) medications and 38% had missed a dose of medicine in the past week. Compared to those with asthma and depression, patients with diabetes were more likely to be older, male, unemployed, and had lower rate of missing doses. The average number of barriers detected by the ASK-20 across all three conditions was 4.0 (±3.4); diabetes patients reported fewer total barriers (3.2 ± 2.7) than those with depression (4.4 ± 3.4) or asthma (5.1 ± 3.7, $p<0.0001$). The most common specific barriers to adherence were taking medicine more or less than prescribed (43%), inconvenience taking medicine (43%), forgetting to take medicines (40%), taking too many medicines a day (33%) and forgetting things important to me (32%). The frequency of several specific barriers differed across diseases as noted

in Table 1. Adjusted independent predictors of nonadherence were: forgetfulness ($p<0.0001$); medicine taken more or less than prescribed ($p<0.0001$); meds more than once a day is inconvenient ($p=0.0013$); not getting refills on time ($p=0.0113$); and alcohol getting in the way of taking meds ($p=0.0379$).
CONCLUSIONS: Lifestyle and Difficulty Taking Medicines barriers were the most significant predictors of suboptimal adherence in a cohort of patients with diabetes, asthma, and depression. Barriers were similar across chronic conditions with a few exceptions. Interventions addressing barriers identified with the ASK-20 in patients with one or more chronic diseases may enhance adherence to medication and improve health outcomes.

Table 1. Frequency of Selected ASK-20 Barrier Items by Chronic Disease

Selected ASK-20 Items	Asthma (n=200)	Depression (n=202)	Diabetes (n=203)	p-Value
Feeling sad, down, or blue	25%	22%	3%	<0.0001
Don't get refills on time	25%	16%	5%	<0.0001
Skipped or stopped because of cost	28%	19%	13%	0.0011
Worry about sexual health	27%	30%	16%	0.0032
Use of alcohol	4%	8%	3%	0.0375

A COMPARISON OF CLINICAL TEACHING ASSESSMENT SCORES AMONG GENERAL INTERNISTS AND CARDIOLOGISTS: NOT ONE SIZE FITS ALL. T.J. Beckman[1]; D.A. Cook[1]; J. Mandrekar[1]. [1]Mayo Clinic, Rochester, MN. *(Tracking ID # 151223)*

BACKGROUND: Institutions often use a single instrument to assess the teaching performance of faculty in different disciplines. This indiscriminate use of assessment tools assumes that the same skills are required to teach in different medical specialties. However, we are unaware of studies examining the stability of teaching assessment scores across medical specialties. Our previous research showed that clinical teaching assessments of general internists reduced to interpersonal, cognitive and efficiency domains. We sought to determine the factor stability of this three-dimensional model among cardiologists and compare domain specific scores between general internists and cardiologists.
METHODS: Two thousand general internal medicine and cardiology hospital teaching assessments from January 2000 to March 2004 were analyzed. Principal factor analysis with orthogonal rotation was used to identify clustering among 14 items assessing general internists and cardiologists. Factors with Eigenvalues >1 and items with loadings >0.5 were retained. Internal consistency and inter-rater reliability were calculated. Mean item scores were compared between specialties.
RESULTS: The interpersonal and cognitive domains previously demonstrated among general internists collapsed into one domain among cardiologists, whereas the efficiency domain remained stable. The extracted factors accounted for nearly 100% of the proportion of total variance among the original variables. Internal consistency of domains (Cronbach's alpha range 0.89 to 0.93) and inter-rater reliability of items (intra-class correlation range 0.65 to 0.87) were good to excellent for both specialties. General internists scored significantly higher ($p<0.05$) than cardiologists on all items, except for four items which most accurately reflected the cardiology teaching environment.
CONCLUSIONS: We observed factor instability of clinical teaching assessment scores from the same instrument administered to general internists and cardiologists. This finding likely represents salient differences between these specialties' educational environments, and highlights the importance of validating assessments for the specific contexts in which they are used. Additionally, the finding that general internists score higher than cardiologists on most items raises the possibility that scores in the interpersonal domain influence scores in other domains. Future research should consider the impact of teaching environments on factory stability, determine whether interpersonal domain scores identify superior teachers, and identify the reasons why interpersonal and cognitive domains are unstable across different educational settings.

A COMPARISON OF SELF-REPORT AND MEDICAL RECORD HIV UTILIZATION MEASURES IN A MARGINALIZED POPULATION. C.O. Cunningham[1]; N.L. Sohler[2]; X. Li[3]; K. Ramsey[3]. [1]Montefiore Medical Center/Albert Einstein College of Medicine, Bronx, NY; [2]City University of New York Medical School, New York, NY; [3]Montefiore Medical Center, Bronx, NY. *(Tracking ID # 151339)*

BACKGROUND: Studies examining utilization of HIV health care services often use self-reported outcome measures. The accuracy of HIV-related self-reported measures among marginalized populations is uncertain, yet crucial for clinical care and research, particularly as this population is disproportionately affected by HIV. This study compared HIV self-reported health care utilization measures with medical record data for a large sample of HIV-infected adults living in single room occupancy hotels in New York City.
METHODS: Medical records and self-reported information from Audio Computer-Assisted Self-Interviews (ACASI) were obtained for 252 English or Spanish speaking participants. Medical record data included forms completed by participants' providers and ambulatory medical records abstracted by a physician. Agreement between self-report and medical records for a 6-month period were compared on number of ambulatory visits (0, 1, >2), whether HIV lab tests were performed (CD4 count and HIV viral load [VL]), most recent CD4 count value (<200, 200–500, >500), and most recent VL value (detectable, undetectable). Additionally, agreement was compared between whether HIV-related medications were prescribed by medical records and taken by self-report (antiretroviral therapy [ART] and medications to prevent Pneumocystis carinii pneumonia [PCP] and Mycobacterium avium complex [MAC]).
RESULTS: The mean age of the sample was 45 years old, and the majority were men (76.2%), black (57.9%) or Hispanic (30.6%), had annual incomes under $8,000 (87.7%), and were active substance users (56.9%). Agreement between self-report and medical records for visits was 54.9% (kappa=0.09), with 36.3% over-reporting visits. Agreement on whether laboratory tests were performed was 64.8% (kappa=0.06) for CD4 counts, and 61.3% (kappa=0.06) for VL, with most disagreement from over-reporting for both tests. Limited to those with labs performed by self-report and medical records, agreement on CD4 count value was 81.3% (kappa=0.71), and VL value was 75.9% (kappa=0.49). Most disagreement was from participants reporting higher CD4 counts (12.5%), and lower VL (15.7%). Agreement between prescribing and taking HIV medications was 75.0% (kappa=0.43) for ART, 69.0% (kappa=0.38) for PCP prophylaxis, and 75.8% (kappa=0.23) for MAC prophylaxis. Most disagreement was from over-reporting medication use (15.1% for ART, 23.4% for PCP prophylaxis, 15.5% for MAC prophylaxis).
CONCLUSIONS: Agreement between self-report and medical record HIV utilization measures in this New York City marginalized population was poor for ambulatory visits, HIV medication use, and laboratory tests performed. However, agreement on CD4 count value was better. Most disagreement with utilization measures was from participants over-reporting. While medical record data may not be entirely inclusive of all clinical information, these data raise serious concerns about research that relies on self-reported data, specifically self-reported health care utilization measures. Furthermore, because self-reported CD4 count value and medication use are frequently used to guide clinical management, these findings have a number of clinical implications. This study underscores the importance of developing a better understanding of how self-reported data correlates with medical record data in marginalized populations.

A MULTIFACETED WEIGHT LOSS INTERVENTION FOR PERSONS WITH SEVERE MENTAL ILLNESS: RESULTS FROM THE ACHIEVE STUDY. G.L. Daumit[1]; A. Dalcin[1]; R.M. Crum[1]; D. Gayles[1]; G. Jerome[1]; P. McCarron[1]; K. Rever[2]; L. Appel[1]. [1]Johns Hopkins University, Baltimore, MD; [2]Alliance, Inc., Baltimore, MD. *(Tracking ID # 152897)*

BACKGROUND: Overweight and obesity are highly prevalent in persons with severe mental illness (SMI); these conditions in the SMI likely contribute substantially to hypertension, diabetes mellitus, coronary disease and early mortality. Effective behavioral weight loss interventions exist for the general population; however, they are probably not appropriate for persons with SMI, who have special cognitive and other needs. The objective of this study was to develop and pilot test a multifacted weight loss intervention appropriately adapted for persons with SMI in a psychiatric rehabilitation program.
METHODS: We performed a pre/post study in 2005 at an urban psychiatric rehabilitation program where SMI attend three mornings a week. The 5 month intervention provided nutrition classes (2 45 minute sessions/week) and group physical activity classes (3 45 minute sessions/week) along with healthy modification of on-site meals and vending machines. Nutrition sessions were led by trained nutritionists, used materials adapted to a 5th–8th grade reading level and emphasized repetition of concepts and hands-on activities (e.g., taste testing, label reading, measuring portions). The primary outcome was weight loss at 5 months. Paired t-tests were performed.
RESULTS: Of 51 potentially eligible SMI at the rehab program, 32 enrolled. 27 (84%) completed the study; 5 were discharged from the rehab program before study completion (2 for psych hospitalizations). Mean participant age was 45 years; 58% were women; 88% African American; 54% had schizophrenia; 18% bipolar disorder; 24% depression; 36% mental retardation; 21% substance use. Over half smoked, 36% had hypertension, 27% had diabetes. Average intervention attendance across all classes was 67% (84% on days participants attended the rehab program). Participants significantly reduced weight, waist circumference, and improved fitness after the intervention (Table). Blood pressure decreases were not statistically significant. The 60% of participants achieving weight loss had a mean loss of 7.2 lbs (SD 6.0).
CONCLUSIONS: SMI in this multifaceted weight loss intervention had high levels of participation and achieved weight loss, decreased waist circumference and improved fitness. These pilot study results, which need to be confirmed in controlled trials, suggest appropriately tailored healthy lifestyle interventions are feasible and can be effective to decrease cardiovascular risk factors in persons with SMI.

Achieving Healthy Lifestyles (ACHIEVE) Study Results Pre/Post Nutrition and Exercise Intervention (N=27)

	Baseline Mean (SD)	Follow-up Mean (SD)	Change Mean (SD)	P-Value
Weight (lbs.)	213.3 (57.0)	210.0 (53.7)	−3.4 (9.9)	0.03
Waist circumference men (cm)	115.5 (31.6)	110.9 (31.6)	−4.6 (6.1)	0.005
Waist circumference women (cm)	107.2 (25.8)	103.8 (25.2)	−3.5 (6.2)	0.004
6 minute fitness walk (ft)	1257 (372)	1370 (357)	+114 (166)	0.02
Systolic blood pressure (mmHg)	117.4 (21.5)	114.4 (22.2)	−3.0 (14.4)	NS
Diastolic blood pressure (mmHg)	69.4 (13.3)	67.3 (14.4)	−2.1 (9.8)	NS

A MULTIMEDIA PATIENT EDUCATION PROGRAM INCREASES COLORECTAL CANCER KNOWLEDGE, RISK PERCEPTION, AND WILLINGNESS TO CONSIDER SCREENING IN THE HISPANIC/LATINO COMMUNITY. G. Makoul[1]; L. Francis[2]; J. Sager[1]; K.A. Cameron[1]; M.S. Wolf[1]; D.W. Baker[1]. [1]Northwestern University, Chicago, IL; [2]Erie Family Health Center, Chicago, IL. *(Tracking ID # 154550)*

BACKGROUND: The Hispanic/Latino population has very low CRC screening rates, putting this group at risk for late-stage presentation of the disease. We worked with patients at a federally qualified health center to develop, implement, and test a multimedia patient education program on CRC screening, designed specifically for the Hispanic/Latino community.
METHODS: Using information gained through a series of structured interviews and focus groups in a mostly Spanish-speaking community, we developed two versions of a 5-minute multimedia program. These differered only in the opening sequence so we could test the effect of a positive appeal (e.g., "You have plans . . . You need to stay healthy") vs. a negative appeal (e.g., "Every year, over 56,000 people in the United States die of colon or rectal cancer . . . You could be one of them"). To make the program accessible across literacy levels, we used voice-over, photographs and illustrations, but very little text. Three bilingual promotoras were trained to implement the research protocol at 2 community clinic sites serving Hispanic/Latino patients. Subjects who consented to participate in the study: (1) completed a structured interview to establish baseline information about language use as well as CRC-related knowledge, risk perception, and willingness to consider screening; (2) were assigned to view either the positive or negative program at a computer kiosk in the waiting room; (3) completed a parallel post-test structured interview that also gauged reaction to the program. Both the structured interview and multimedia program were created in English, translated into Spanish, back-translated to English, and revised to ensure parallel content. Participants could choose Spanish or English for the interview and program. The entire process took approximately 20 minutes; subjects received $10 in cash upon completion.
RESULTS: All subjects were in the target age range of 50-80 years. 270 of the 307 eligible participants (87.9%) chose Spanish for both interview interaction and program viewing; analyses focus on this subset. While Spanish was participants' language of choice, only 38.6% reported their ability to read in Spanish as very good or excellent; approximately half (50.9%) of the sample had between 0 and 8 years of education.14 countries of origin were represented, though most people were from Mexico (39.6%) or Puerto Rico (31.1%). The multimedia program produced marked increases in knowledge of key terms (e.g., polyps), primary screening options (FOBT, Flex Sig, Colonoscopy), and recommended age for screening, as well as perception of risk for CRC and willingness to consider each of the three primary screening options (McNemar Test, $p<.001$ for all). There were no significant differences between the positive and negative appeals in terms of these measures or subjects' intention to discuss CRC screening with their doctor (90.4% and 94.8%, respectively). At pre-test, there was a trend suggesting that Puerto Ricans were more willing than Mexicans to consider screening, but the difference was erased at post-test.
CONCLUSIONS: This multimedia patient education program designed specifically for the Hispanic/Latino community increased knowledge about CRC and CRC screening, as well as willingness to consider screening. Tools developed with community input that present important health messages using graphics and audio can reach individuals across literacy levels and ethnic backgrounds.

A NATIONAL SURVEY OF CLINICAL REMINDER USE AND BARRIERS TO CLINICAL REMINDER USE IN AN INTEGRATED HEALTHCARE SYSTEM. C.H. Fung[1]; J. Tsai[2]; A. Lulejian[3]; E. Patterson[4]; S. Asch[5]. [1]RAND/VA Greater Los Angeles Healthcare System/ David Geffen School of Medicine at UCLA, Santa Monica, CA; [2]VA Greater Los Angeles Healthcare System, Los Angeles, CA; [3]Columbia University, New York, NY; [4]Ohio State University, Columbus, OH; [5]Veterans Administration Greater West Los Angeles Healthcare System, Los Angeles, CA. *(Tracking ID # 153336)*

BACKGROUND: Computerized clinical reminders in the Veterans Health Administration's (VHA) Computerized Patient Record System (CPRS) take advantage of pre-existing electronic patient information to detect when an action needs to be taken by a provider to be adherent to best practice standards. Results from prior studies suggest that computerized clinical reminders can be effective quality improvement tools. Despite the promise of computerized clinical reminders, intensity of use of clinical reminders and effectiveness in practice is mixed. We identified barriers and facilitators associated with use of clinical reminders.
METHODS: A 2005 national cross-sectional self-administered survey assessed barriers, facilitators, and clinical reminder use. We randomly sampled 1004 VHA primary care clinicians. 308 were ineligible because they no longer worked in the VHA or had no direct primary care responsibilities. 432 (62%) responded. Measured primary care clinician characteristics included age, gender, year of medical degree, and number of clinic half-days. We constructed scales that represent barriers to clinical reminder use: design factors, training, VHA management of clinical reminders, team factors, self-efficacy, workload, contextual factors, and perceived utility of clinical reminders. We used multiple linear regression to determine factors associated with greater use of clinical reminders per patient.
RESULTS: 71% respondents reported "always" using clinical reminders, 19% "sometimes," 6% "occasionally," and only 5% "rarely." Most respondents (82%) resolve clinical reminders during patient visits. The average number of clinical reminders used per patient was 3.9, though this variable had a bimodal distribution with 6% using >9 clinical reminders used per patient. In a multivariable model restricted to respondents who use <9 clinical reminders used per patient ($n=376$), only 'clinic half-days' (each half-day associated with a 0.14 increase in clinical reminders used per patient, $p=.001$), self-efficacy (scale range 7 to 63; each 17-unit increase yields 1 additional clinical reminders used per patient, $p=0.049$), and team factors (scale range 2 to 14; each 11-unit increase yields 1 additional clinical reminder used per patient, $p<.001$) predicted greater use of clinical reminders used per patient.
CONCLUSIONS: Most VHA primary care clinicians in our study always use clinical reminders. A majority of VHA primary care clinicians resolves clinical reminders during the patient visit. Higher proportion of time in direct patient care, self-efficacy (e.g. feeling comfortable using clinical reminders), and team factors (e.g. feeling responsible for completing them) are associated with increased clinical reminder use. Interventions to increase primary care clinicians' understanding of which clinical reminders they are responsible for completing and to enhance primary care clinicians' perception that clinical reminders are part of their core work may increase the number of clinical reminders used per patient. Results from this study may be useful to the VHA, as well as other healthcare organizations that are already using or are considering implementing computerized clinical reminders.

A NOVEL 'DISPARITY CURVE' METHOD TO EVALUATE ETHNIC DIFFERENCES IN SCREENING FOR HIGH CHOLESTEROL : 18-YEAR TIME TRENDS USING THE BEHAVIORAL RISK FACTOR SURVEILLANCE SYSTEM (BRFSS). D. Chang[1]; S.R. Lipsitz[2]; S. Natarajan[3]. [1]New York University, New York, NY; [2]Harvard University, Boston, MA; [3]VA New York Harbor Healthcare System and New York University, New York, NY. *(Tracking ID # 156991)*

BACKGROUND: In recent years the risk associated with high cholesterol and the risk reduction with lipid lowering have been clearly established. While this has led to a corresponding increase in cholesterol screening, it is unclear whether this increase represents all ethnic groups and if earlier ethnic disparities in cholesterol screening persist.
METHODS: BRFSS is an annual cross-sectional national survey of U.S. adults that provides information on health risk behaviors and clinical preventive practices. Using BRFSS data from 1987–2004 the difference in screened proportions between whites and blacks (or Hispanics) for each year was computed along with the 95% confidence interval (CI) for that difference (using the delta method) to create a "disparities curve" for each race pairing. We evaluated both unadjusted as well as adjusted (age, gender, education, and income) disparities curves and tested the trend by the race*year interaction. All analyses incorporated the complex sampling frame to provide population estimates.
RESULTS: In 1987, the unadjusted percentage difference [with 95% CI] in cholesterol screening proportions between Caucasians (48.5% screened) and African Americans (41.4%) was 7.1 [4.2, 9.9], while the Caucasian-Hispanic difference was 11.8 [7.6, 16.0], indicating that African Americans and Hispanics were less likely to be screened than Caucasians ($p<.0001$). By 2004, the unadjusted % difference in screening between Caucasians (74.3%) and African Americans (67.7%) was 6.6 [4.1, 9.1], and the Caucasian-Hispanic difference was 19 [13.7, 24.4] indicating persistent Caucasian-African American ($p<.05$) and Caucasian-Hispanic ($p<.001$) disparities. Disparity curves that adjusted for age, gender, education, income showed substantial narrowing of the difference in screening between African Americans and Caucasians over time. In 1987, the adjusted Caucasian-African American difference was 3.6 [0.6, 6.6] ($p<.02$); but was 3.2 [.70, 5.6] by 2004] ($p=.012$). However, there was continued disparity between Caucasians and Hispanics ($p<.001$) with the test for trend indicating that the Caucasian-Hispanic proportions were continuing to diverge ($p<.001$). In 1987, the adjusted Caucasian- Hispanic difference was 5.7 [1.0, 10.4] ($p=.02$); but was 12.1 [7.2, 17] by 2004 ($p<.0001$).
CONCLUSIONS: There has been a substantial narrowing of the cholesterol screening gap between Caucasians and African Americans even in the unadjusted analyses. Adjustment indicates that most of the disparity is attributable to differences in education and income. The widening gap between Caucasians and Hispanics in the unadjusted analyses is concerning; since 1998, even the adjusted analyses show a widening. Programs which specifically target the Hispanic population for cholesterol screening are urgently needed.

A NOVEL STRATEGY FOR SELECTING PATIENTS FOR DIABETES SCREENING. L.M. Kern[1]; H. Bang[1]; M.A. Callahan[1]; S.M. Teutsch[2]; A.I. Mushlin[1]. [1]Cornell University, New York, NY; [2]Merck & Co., Inc., West Point, PA. *(Tracking ID # 154408)*

BACKGROUND: National guidelines disagree on who should be screened for diabetes. The optimal strategy for selecting patients for diabetes screening is unclear. Our objectives were: 1) to generate a novel strategy for selecting patients for diabetes screening, and 2) to compare the performance of this strategy with existing national guidelines.
METHODS: We used cross-sectional data from the population-based National Health and Nutrition Examination Survey, 1999–2002. We included participants who had no known diabetes and who were randomly assigned to have fasting blood samples drawn to determine their diabetes status ($N=3551$). We divided these participants randomly into a derivation dataset and a validation dataset, using a 2:1 ratio. Adjusting for complex sampling, we used logistic regression in the derivation dataset to determine which participant characteristics were independently associated with undiagnosed diabetes (fasting plasma glucose greater than or equal to 126 mg/dl). Using a second logistic model in the derivation dataset that included only the significant characteristics, we generated a weighted risk-scoring system. We calculated the sensitivity and specificity of this scoring system and of 3 national guidelines for detecting participants with undiagnosed diabetes in the validation dataset.
RESULTS: The prevalence of undiagnosed diabetes was 4.5%. Older age, male gender, family history of diabetes, history of hypertension, and higher body mass index each independently predicted undiagnosed diabetes ($p<0.05$).

Using a weighted sum of these characteristics as our scoring system (with a possible total score ranging from 0 to 9), we found the best performance when participants with 5 or more points were selected for diabetes screening. The resulting rule maximized both sensitivity (80%) and specificity (65%), thereby outperforming the national guidelines, which had moderate-high sensitivity but low specificity [U.S. Preventive Services Task Force (USPSTF): sensitivity 81%, specificity 39%; American Diabetes Association (ADA): sensitivity 96%, specificity 19%; Centers for Disease Control and Prevention (CDC): sensitivity 100% and specificity 8%]. Our rule also selected the smallest proportion of participants for screening (37%), compared to the national guidelines (USPSTF 62%, ADA 81%, CDC 92%).
CONCLUSIONS: A novel strategy for selecting patients for diabetes screening has comparable sensitivity but higher specificity and higher efficiency than national guidelines. Future studies are needed to validate this strategy in other populations.

A NOVEL WEBSITE TO IMPROVE ASTHMA CARE: QUALITATIVE ANALYSIS OF END-USER EXPERIENCES. C.N. Sciamanna[1]; C. Hartmann[1]; S. Mui[2]; D. Blanch[3]. [1]Thomas Jefferson University, Philadelphia, PA; [2]University of Massachusetts Medical School (Worcester), Worchester, MA; [3]Brigham and Women's Hospital, Boston, MA. *(Tracking ID # 154607)*

BACKGROUND: Research indicates that health practitioners often do not follow asthma guidelines. Nevertheless, patients who ask their practitioner for test and treatments are likely to get them.
METHODS: This study explored patients' reactions to and use of an interactive website designed, using current evidence-based guidelines, to provide patients with tailored feedback and help them understand what questions they should ask during doctor visits to improve the quality of care they receive. Feedback consisted of three elements: (1) a list of suggested questions for patients to ask their physician, (e.g. "would I benefit from a daily inhaled corticosteroid?" and "would I benefit from using a long-acting bronchodilator like salmeterol?") (2) a lay explanation of why patients should ask each question, (3) links to other websites for further reading and explanations of the suggested topics. Adults with asthma and access to the Internet were recruited. Semi-structured phone interviews were conducted with 36 subjects that had used the website and subsequently visited a physician. Interview questions addressed issues including 1) use of the website before the visit; 2) utilization of information generated from the website during the subsequent physician's visit; and 3) how use of the website changed communication with their physician, if at all. Interviews were audio-recorded, transcribed, and entered into QSR NVivo® qualitative software. The transcripts were coded based on the grounded theory technique.
RESULTS: Analysis revealed two main themes. The first was a shift in attitudes regarding interactions with physicians: "I've been going to this doctor for about 17 years, [but this was] the first time that I've actually gotten anywhere with him as far as changing what he was doing for me [The website gave me] the questions to ask him that seemed to push him in the right direction as far as giving me something on a daily basis instead of the inhaler that I was becoming reliant on." The second theme revealed a change in how patients perceived their role in managing their asthma: "[Asking questions from the feedback sheet] creates a relationship where you're working together to create a plan, and it's not just the doctor creating the plan I have more knowledge now to be able to go to him and have him work on me." "[This time] I was able to speak about the fact that I probably should — or she probably should — look at other means of treatment, and that's different than my usual office visit where I don't make any suggestive contribution to what part of treatment is. I just take it all in."
CONCLUSIONS: Overall, the website and its feedback positively influenced patients' experiences, promoted physician-patient communication, and improved perceived quality of care.

A PAMPHLET'S JUST A PAMPHLET. R. Hess[1]; K. McTigue[1]; C.L. Bryce[1]; K. Fitzgerald[1]; S. Zickmund[2]; D. Sacco[1]; E. Olshansky[1]; G.S. Fischer[1]. [1]University of Pittsburgh, Pittsburgh, PA; [2]VA Pittsburgh Healthcare System, Pittsburgh, PA. *(Tracking ID # 157047)*

BACKGROUND: There is growing interest in using computer technology to assist patients in the self-management of chronic disease, as well as provide patient education. Diabetes is an example of a chronic disease in which self-management is crucial. There is also a body of literature in diabetes describing effective self-management education. As part of a larger patient portal project, we developed specific tools within a remotely accessible patient health record (the portal) to assist patients with diabetes self-management. We hypothesized that these tools would result in improvement in key process and intermediate outcome measures.
METHODS: Patients seen in a large academic medical center's general internal medicine practice were invited to participate in the portal, a system that allows patients access to their electronic medical record, provides electronic communication with the health care team, and contains features to assist with diabetes self-management. Along with information about diabetes, the portal includes goal setting, and tools to track glucose, A1c, lipid profiles, exercise, and body mass index. We compared all portal participants to non-participants in the year preceding and after implementation on the following measures: blood pressure (BP), A1c, low density lipoprotein (LDL), triglycerides, total cholesterol (TC), taking aspirin and angiotensin converting enzyme-inhibitor (ACE-I) or angiotensin 2 receptor blocker (ARB), and having had a creatinine test, a diabetes eye exam, and a diabetes foot exam.
RESULTS: The 148 individuals with diabetes who participated in the portal were compared with 2133 non-participants with diabetes. The table shows the performance on diabetes-related measures in portal participants and non-participants. Data is presented for 2003 and 2005, the years before and after the portal's introduction. After the introduction of the portal, there was no significant improvement the portal group meeting diabetes goals ($p > .05$ for all comparisons).

Measure	Portal Participant		Portal Non-participant	
	2003	2005	2003	2005
BP*	132/81	131/79	134/80	133/77
A1c*	7.2	7.1	7.6	7.5
LDL*	108	98	114	104
Triglycerides*	190	150	179	163
TC*	184	168	189	176
Asprin+	51%	49%	53%	47%
ACE-I/ ARB+	65%	61%	68%	62%
Creatinine Test+	88%	84%	86%	77%
Diabetes Eye Exam+	74%	68%	50%	46%
Diabetes Foot Exam+	67%	61%	57%	51%
*: Mean +: Percent of people meeting guideline				

CONCLUSIONS: Patient access to their own electronic health record, such as that provided by the portal, has been described as necessary by the Institute of Medicine. However, our findings indicate that providing access and information (an electronic pamphlet) is not enough. We believe that it must be coupled with directed patient education programs, similar to those studied and proven for in-person disease management. Our future work involves tailoring these programs for electronic, remote delivery.

A PILOT STUDY OF HOME-BASED SELF-MANAGEMENT OF OSTEOARTHRITIS AMONG OLDER ADULTS USING ADAPTIVE TURNAROUND DOCUMENTS. M. Weiner[1]; P. Biondich[2]; B. Fultz[1]; M. Zore[3]; V. Anand[3]; R. Owoyele[1]; A.J. Perkins[1]; D.C. Ang[4]; S.M. Downs[2]; C.M. Callahan[1]; D.O. Clark[1]. [1]Indiana University Center for Aging Research and Regenstrief Institute, Inc., Indianapolis, IN; [2]Indiana Children's Health Services Research and Regenstrief Institute, Inc., Indianapolis, IN; [3]Indiana Children's Health Services Research, Indianapolis, IN; [4]Indiana University School of Medicine, Indianapolis, IN. *(Tracking ID # 154351)*

BACKGROUND: Osteoarthritis benefits from self-management techniques such as exercise, diet, and adjustment to medication, but outpatient medical visits are infrequent, and many older patients are home-bound. Activating patients at home could improve self-management. Paper-based adaptive turnaround documents (ATD) are computer-readable mark-sense forms that can solicit and provide tailored information about patients' signs or symptoms. We developed and piloted an ATD system using facsimile (fax) machines, to test feasibility and identify technical issues, among patients with osteoarthritis at home. We identified patients' symptoms and provided suggestions about self-management. We hypothesized that patients would be able to use the system to communicate symptoms of pain and dysmobility and that most would rate the program as useful.
METHODS: We developed a system by which ATDs could be transmitted to a fax server and then automatically interpreted by computer software. Educational chapters and short matching questionnaires were developed about four topics: physical activity, medications, behavioral techniques, and nutrition to improve osteoarthritis. Patients 65 or more years of age with a diagnosis of osteoarthritis were recruited from primary-care clinics in an urban academic medical center. Participants received basic fax machines and a baseline assessment, and they or their caregivers received one-on-one training at home. Via fax, participants then received one chapter at a time, followed by a matching questionnaire ATD one week later, to be completed and faxed back to our server. This cycle was repeated for each of the four topics. Primary-care physicians received a mid-study summary of their patients' responses. A final exit questionnaire was then administered.
RESULTS: We recruited 23 patients, with a mean age of 75 and education of 11 years; 91% were women, and 70% were African American. At baseline, 22% had used fax machines; arthritis-related goals in the preceding week were noted by 43%, with 21% having partly or fully accomplished their goals and 13% having goals that helped their arthritis at least moderately. Worst recent pain had a mean rating of 5.9 out of 10 points. Fax calls from patients were successful more often (74%) than fax calls to patients (31%). Participants sending faxes often had difficulty orienting the paper properly in the machines. We successfully received properly processed forms about physical activity (35%), medications (17%), techniques (35%), and nutrition (22%). Technical difficulties, noted by 65%, included interference with telephone answering systems, difficulty inserting forms into the fax machine, interrupted calls, and running out of paper. Seventeen (74%) of the participants completed exit interviews. The program helped arthritis in 41% and was rated at least moderately useful by 65%. Participants would participate again (71%) and recommend the program to others (88%).
CONCLUSIONS: Despite many technical difficulties in this pilot study, most patients testing a new home-based fax system for self-management of osteoarthritis judged the system to be useful and would recommend it to others. Using this system on a long-term basis would require solutions to the technical problems.

A PILOT TRIAL OF YOGA FOR THE TREATMENT OF MENOPAUSAL SYMPTOMS. B.E. Cohen[1]; A. Kanaya[1]; D. Grady[2]. [1]University of California, San Francisco, San Francisco, CA; [2]Department of Veterans Affairs Medical Center, San Francisco CA/University of California, San Francisco, San Francisco, CA. *(Tracking ID # 152811)*

BACKGROUND: Hot flashes occur in approximately two thirds of postmenopausal women and can be debilitating. Despite several effective pharmacologic therapies for hot flashes, many women avoid treatment due to contraindications or concerns about side effects. A likely mechanism of hot flashes involves increased sympathetic nervous system activity. Since yoga has been shown to decrease sympathetic activity, we conducted a pilot study to evaluate the feasibility and estimate the effect of a yoga intervention in postmenopausal women.
METHODS: We enrolled 14 mostly sedentary postmenopausal women who experienced $\geq$4 moderate to severe hot flashes per day or $\geq$30 moderate to severe hot flashes per week. An expert panel of 3 instructors with extensive experience teaching yoga to menopausal women designed the yoga intervention. The intervention consisted of a series of 8 postures derived from Restorative Yoga, a branch of yoga that focuses on deep relaxation and uses props to provide total body support. Participants attended 8 weekly 90-minute classes where they were taught the postures. Participants were also asked to practice the postures at home and were given a log to record the amount of time and types of postures they practiced. The main outcome was the change in frequency of hot flashes measured by a validated 7-day hot flash diary that was completed at baseline and week 8. Change in severity of hot flashes was evaluated using a validated hot flash score derived from the diary responses. Questionnaires assessing quality of life (Menopause-Specific Quality of Life), sleep quality (Insomnia Severity Index), and menopausal symptoms (Menopausal Symptom Questionnaire) were also completed at baseline and week 8.
RESULTS: Thirteen (93%) of the participants completed the study, and 92% of the participants attended 7 or more of the 8 yoga sessions. The mean amount of time spent on yoga practice at home was 170 $\pm$ 85 minutes per week. The mean number of hot flashes per week decreased by 30% ($p<0.003$) from 61 per week at baseline to 45 per week at week 8. Mean hot flash score decreased by 33% ($p<0.005$). Mean scores on the Menopause-Specific Quality of Life questionnaire improved from 104 to 71 ($p=0.06$) with the majority of the reduction occurring in the vasomotor and physical domains. Sleep quality also improved, with mean scores on the Insomnia Severity Index decreasing from 15 to 10 ($p=0.02$). On the Menopausal Symptom Questionnaire, 69% of participants reported improvement in their hot flashes and 46% reported improvement in sleep habits. A majority (93%) of participants felt the study met their expectations. No adverse events were reported by any of the participants.
CONCLUSIONS: This pilot trial demonstrates that it is feasible to teach restorative yoga to sedentary, middle-aged women and suggests that yoga may be a safe and effective treatment for hot flashes in postmenopausal women. The effects of yoga on menopausal symptoms should be further explored through an adequately powered randomized controlled trial.

A PREDICTION RULE FOR ESTIMATING THE RISK OF OSTEOPOROTIC FRACTURE IN ELDERLY WOMEN. I. Guessous[1]; M. Krieg[2]; C. Ruffieux[3]; J. Cornuz[1]. [1]University Hospital of Lausanne, Lausanne, Switzerland; [2]Outpatient clinic of Lausanne, Lausanne, Switzerland; [3]University Institute of Social and Preventive Medicine, Lausanne, Switzerland. *(Tracking ID # 153693)*

BACKGROUND: Osteoporosis is a major public health problem that is expected to grow because of the aging of population. Guidelines recommend that women aged 65 (60 for women at increased risk for osteoporotic fractures) and older be screened routinely for osteoporosis. Since the incidence of osteoporosis is expected to increase more than economic resources, a better selection of women who really need an absorpitometry measure is crucial. Our objective was to compute a prediction rule identifying women at high risk to suffer either osteoporotic fracture or specifically a hip fracture in the next three years.
METHODS: The Swiss Evaluation of the Methods of Measurement of Osteoporotic Fracture Risk (SEMOF) study, a 3-year period prospective multi-center study assessing the predictive value of heel bone ultrasound (Achilles+) in a population of 6174 independent elderly Swiss women aged between 70 and 85. Mean follow-up was 2.8 years, (17546 person-years). We used the parameter of quantitative ultrasound (QUS) of the heel to assess the bone stiffness index (SI). To elaborate a predictive score of osteoporotic fracture, we used baseline characteristics (age, weight, height, body mass index), known risk factors for osteoporosis (fracture history, history of maternal hip fracture, current smoking habits, early menopause, surgical menopause) and fall (history of recent fall, missed chair test), and Achilles+stiffness index (SI), a qualitative measure assessing bone quality and density. Finally, we used the bootstrap methods to evaluate the stability of the score.
RESULTS: Five independent risk factors were significant predictors of osteoporotic fractures incidence. Older age (age>75), low QUS SI (SI<78%), fracture history (any prior fracture), history of recent fall (a fall that occurred during the last 12 months) and missed chair test (not being able to rise up from chair three successive times without using arms). The weights of these risk factors (hazard ratio) were, respectively, 2 (3 if age >80), 5 (7.5 if SI<60%), 1, 1.5 and 1. The score ranges between 0 (the lowest risk) and 13 (the highest risk). The cutoff value to get a pre-defined high sensitivity (90%) to the score is 4.5. Using this cutoff, 1'464 (23.7%) women were considered at low risk (score<4.5), and 4710 (76.3%) were considered at high risk (score ?4.5). Among these high risk women, 290 (6.1%) presented an osteoporotic fracture, whereas 27 (1.8%) of the 1'464 presented an osteoporotic fracture. Using the bootstrap method, the sensitivity of the score varied from 85 to 95% and the specificity varied from 21 to 25%. Over the women who presented a hip fracture (n=66), six were in the low risk group and 60 (90%) were in the high risk group. Thus, the sensitivity of 90% of the score was conserved when it was used to predict the incidence of hip fracture type specifically.
CONCLUSIONS: A prediction rule combining five risks factors (older age, low SI, fracture history, recent fall and missed chair test) permits to discriminate, with a high sensitivity, women at high risk from women at low risk, to suffer osteoporotic and hip fracture in the next three years.

A PROSPECTIVE STUDY OF BODY MASS INDEX AND MORTALITY IN MEN. R.P. Gelber[1]; T. Kurth[2]; J.E. Manson[2]; J.E. Buring[2]; J. Gaziano[3]. [1]VA Boston Healthcare System, Harvard Medical School, Boston, MA; [2]Brigham and Women's Hospital, Boston, MA; [3]VA Boston Healthcare System, Brigham and Women's Hospital, Boston, MA. *(Tracking ID # 153045)*

BACKGROUND: Despite extensive investigation, controversy still exists regarding the relationship between body mass index (BMI) and mortality. Prior studies suggesting a U-shaped association have often not comprehensively accounted for confounding by factors such as prior disease and cigarette smoking. We examined the association between BMI and all-cause mortality according to pre-existing disease and smoking status in a large prospective cohort.
METHODS: Participants were 99,253 male physicians in the Physicians' Health Study enrollment cohort, aged 40–84 years, who provided information in 1982. We calculated BMI from self-reported weight and height. We used Cox proportional hazards regression to examine the association between baseline BMI and mortality.
RESULTS: A total of 5438 men died during a median follow-up of 5.7 years (including 2701 deaths due to cardiovascular disease and 1608 deaths due to cancer). While a U-shaped association between BMI and mortality was seen among all men, we found a linear relationship between higher baseline BMI and increased risk of mortality when accounting for potential confounding by pre-existing disease and smoking status. Among men with more than 2 years of follow-up and without a prior history of cigarette smoking, myocardial infarction, stroke, cancer, or liver disease, those in the lowest BMI quintile ($<22.6\,kg/m^2$) had a relative risk (RR) of mortality of 0.91 (95% confidence interval, CI, 0.71–1.17), as compared with men in the middle BMI quintile (23.9–25.0 kg/m^2), adjusting for age, alcohol consumption, and physical activity. By contrast, men in the highest quintile ($>27.0\,kg/m^2$) had RR of 1.33 (95% CI, 1.05–1.67; P for linear trend, <0.001). We found similar results examining BMI according to WHO categories. As compared to men in the "normal" BMI range ($<25.0\,kg/m^2$), the RR of mortality was 1.22 (95% CI, 1.04–1.42) among overweight (25.0–29.9 $0\,kg/m^2$) men and 1.56 (95% CI, 1.16–2.10) among obese ($>/=30.0\ 0\,kg/m^2$) men. Further adjustment for potential intermediates, including history of hypertension, diabetes, high cholesterol, and renal disease, did not substantially alter these results.
CONCLUSIONS: In this large cohort of men, we found a consistent association between higher BMI and increased risk of mortality after accounting for several potential sources of confounding, even among those within the "overweight" range of BMI. Our findings support others indicating that overweight and obesity increase risk of mortality among otherwise healthy individuals. Public health messages should emphasize the preponderance of evidence supporting the adverse health effects associated with higher body weight.

A QUALITATIVE STUDY OF DEPRESSION IN EMERGING ADULTHOOD. S.A. Kuwabara[1]; B.W. Van Voorhees[1]; C. Alexander[1]. [1]University of Chicago, Chicago, IL. *(Tracking ID # 153399)*

BACKGROUND: Depression is a serious illness affecting up to 25% of young adults by age 25, yet as few as half of young adults with depression receive treatment. The experience of depression varies across the lifespan and the complexity of young adulthood is important in considering how depression may uniquely manifest among this group. Little is known about how illness severity, social morbidity, functional disability, and problems related to treatment impact young adults.
METHODS: We explored the experience of depression among a convenience sample of young adults, ages 18–25 years, in a large Midwestern city. Subjects who self-identified as having depression were recruited using the Internet, local print media, and postings. Subjects eligible after an initial phone screening participated in a one-time, in-person, in-depth, semi-structured interview exploring their experiences with depression. Interviews were transcribed and analyzed, using an intuitive analysis style and a constant comparison of responses to organize major themes. These taxonomies were iteratively combined and revised to incorporate new themes. Several methods were used to enhance the rigor of our analyses, including extensive probing of informants, a method of constant comparison, accrual of subjects until theme saturation, and the principle of reflexivity to understand our frame of reference and preconceptions, thereby decreasing the likelihood of biased questions, analyses, or interpretations of the results.
RESULTS: Thus far, 13 subjects have been interviewed, representing a diverse range of backgrounds, levels of depression and social functioning. Despite the heterogeneity of respondents, four distinct themes emerged from our analyses. (1) A process of identification; young adults in our sample described the process of recognizing symptoms of depression within themselves and reconciling that with their existing sense of self. (2) Issues related to healthcare; the process of treatment seeking and beliefs and attitudes related to healthcare and treatment options. Young adults in our sample reported fear, uncertainty, stigma, a perceived lack of helpfulness and a sign of surrender as reasons for not seeking care. (3) Relationships with others and general functioning; young adults in our sample described the importance of social networks while also describing the

inability for others to understand their experience as furthering their sense of loneliness and tendency to withdraw. There is also a distinct attachment to parent that exists among this age group. (4) Role transition; moving from adolescence into adulthood and the perceived expectations for new developmental tasks. Young adults in our sample reported feeling as if they had lost time and reported a sense of anxiety about future plans, social and cultural expectations and career options.
CONCLUSIONS: The period of young adulthood represents unique challenges to the individual. Experiences of depression during this time period reflect a dynamic and complicated interaction of multiple factors. As an exploratory analysis, our findings open up a wide range of questions for future research including how individuals conceptualize depression, how the phenomenology of depression may be affected by larger social and cultural factors and how an individual's conceptualization of an illness may affect care seeking as well as how symptoms are expressed.

A RANDOMIZED CONTROLLED TRIAL OF AN EDUCATIONAL AND MOTIVATIONAL INTERVENTION TO ENHANCE CONSUMERS' USE OF HEALTH PLAN AND MEDICAL GROUP QUALITY DATA. P.S. Romano[1]; J.Rainwater[1]; J.A. GarciA[1]; G. Mahendra[1]; D.J. Tancredi[2]; J. Keyzer[1]. [1]University of California, Davis, Sacramento, CA; [2]University of Illinois at Chicago, Davis, CA. *(Tracking ID # 152398)*

BACKGROUND: Health care quality reports are increasingly prevalent but have little impact on consumer behaviour; many consumers appear not to understand quality data or fail to appreciate its salience.
METHODS: A cluster-randomized, controlled trial of a two-pronged educational/motivational intervention to enhance use of quality data during Open Enrollment: (1) a mailing with the California HMO Report Card, California's HMO Guide, and a motivational letter "negatively framed" to arouse concerns about health care quality; and (2) toll-free telephone and e-mail hotlines staffed by counselors trained to provide advice around enrolment decisions. Both components were designed to motivate and empower consumers, based on guidance from focus groups and previous research. Individuals in the "usual care" group received no mailings, but had access to standard print and Internet resources. PacAdvantage is a non-profit purchasing pool offering 10 managed care plans to small businesses (2 to 100 employees) in California. We generated a stratified random sample of brokers offering PacAdvantage to small business clients during May¬July 2003 (oversampling small brokers and brokers likely to have higher switch rates among eligible employees). Brokers were blindly allocated to either the control or intervention group; all of their clients were allocated similarly. Eligible employees (EEs) in both groups were surveyed by mail within 2 months, and their choices were captured from enrolment data. We compared plan-switching between the intervention and control groups, overall and after categorizing switches as quality-increasing, quality-decreasing, or neutral. We also compared self-reported use of quality information, reasons for switching, outcome expectations, contemplation of switching, ease of selecting a plan, and self-efficacy. All analyses were weighted and adjusted to account for the sampling design.
RESULTS: 292 brokers with 1,835 EEs were randomized to the intervention group; 246 brokers with 1,578 EEs were randomized to the control group. About 30% of EEs in the intervention group, and 37% of EEs in the control group, dropped out of PacAdvantage. Only 22 intervention group members used the advice line and 3 used the e-mailbox, with a broad array of questions and concerns. By the end of Open Enrollment, 9.2% of intervention and 7.0% of control group members switched plans (NS). 21% of intervention group switchers versus 35% of control group switchers moved to a higher rated plan; 27–28% in both groups moved to a lower rated plan. Intervention group members were more likely to have considered switching (35% versus 28%) and to have reviewed information about health care quality (38% versus 8%) than control group members. However, intervention group members were more likely to report "a big problem" finding a suitable plan than control group members (15% versus 9%), and switchers in the intervention group were more likely to express concern that their quality of care would suffer (8% versus 1%).
CONCLUSIONS: Educational/motivational interventions designed to increase perceived benefits and decrease perceived barriers, with negative framing, may increase consumers' use of quality information but are unlikely to affect actual choices. Consumers are reluctant to act on quality information, given competing concerns about cost and access, and quality-related information may even trigger some distress.

A SEXUAL HISTORY/HIV COUNSELING WORKSHOP USING STANDARDIZED PATIENTS INCREASES KNOWLEDGE AND IMPROVES SKILLS. S.A. Haist[1]; A.R. Hoellein[1]; G. Talente[2]; M.J. Lineberry[1]; J.F. Wilson[1]; C.H. Griffith[1]. [1]University of Kentucky, Lexington, KY; [2]East Carolina University, Greenville, NC. *(Tracking ID # 153089)*

BACKGROUND: Sexual health is a crucial element of comprehensive care however, physicians often have difficulty discussing sexual issues. The ability to address sexual issues with ease can lead to the prevention of disease and unwanted pregnancy. Key components to overcoming this discomfort are learning and practicing sensitive yet thorough sexual health history-taking and counseling skills. The purpose of this study is to determine the effect of a Sexual History/HIV Counseling (SHHIV) workshop (WS) on knowledge and clinical skills of third-year medical students.
METHODS: A 4-hour SHHIV WS was developed as part of a new curriculum for a required third-year medical school 4-week primary care internal medicine clerkship. The WS was interactive with students participating in 4 standardized patient (SP) cases representing different challenges: 27 year-old man, "I want an HIV test;" 34 year-old woman, "I want to start taking birth control pills;" 17 year-old girl, "I am here for a physical to play softball at school;" and a 61 year-old woman, "I am here for my yearly check-up." Following the SP encounters, a faculty preceptor discussed the cases and approaches to taking the sexual history and counseling for HIV risk reduction. Participating students were provided a SHHIV reference. This WS was delivered at the beginning of 18 of the 36 rotations during 2001–04 (six times/year). All students on all rotations were assigned SHHIV textbook readings and participated in a Preventive Care (PC) SP WS. At the end of the 4 weeks, all students completed a written exam (8 SHHIV questions) and a 9-station SP exam (1 SHHIV station and 2 PC stations). Total SHHIV score (35 items) and sexual history (11), infectivity (12), condom use (5), and STD testing (7) subscale scores were determined from the SHHIV station checklist. After each SP station, students completed a station-related open-ended written exercise (list HIV risk factors). Simple means, standard deviations (SD), and multiple regression approaches were used to compare the results of SHHIV WS participating students to non-participating students. The two PC SP checklist scores were combined and used as a control variable for the checklist analyses, while USMLE Step 1 score was a control variable for the exam questions and the post-SP open-ended written exercise.
RESULTS: 129 students participated in the SHHIV WS and 137 did not. WS participants correctly answered 76.5% of the SHHIV written questions vs. 69.4% for the non-participants ($F=14.9$, $p<.001$; effect size [ES] 0.47 SD). On the SHHIV SP checklist, total SHHIV scores of participants were higher than those of non-participants (74.0% vs. 64.9%; $F=22.1$, $p<.001$; ES 0.50 SD) as were subscale scores: sexual history inquiry (76.7% vs. 66.2%; $F=25.2$, $p<.001$; ES 0.58 SD), infectivity counseling (72.1% vs. 53.9%; $F=37.2$, $p<.001$; ES 0.68 SD), and STD testing counseling (90.6% vs. 82.9%; $F=11.1$, $p=.001$; ES 0.41 SD). For the individual item, "Asks about specific sex behaviors, anal intercourse," 88.3% of the SHHIV WS participants received credit vs. 36.4% for non-participants ($F=53.8$, $p<.001$). Scores on the SP post-encounter written exercise were higher for participants vs. non-participants (86.6% vs. 82.7%, $F=5.1$, $p=.03$; ES 0.46 SD).
CONCLUSIONS: Third-year medical students participating in a 4-hour SHHIV WS displayed better SHHIV clinical skills and knowledge than non-participating students as assessed by a SP clinical exam, open-ended written exercise, and SHHIV-specific written examination items.

A SYSTEMATIC REVIEW OF CURRICULA FOR RELATIONSHIPS BETWEEN RESIDENTS AND THE PHARMACEUTICAL INDUSTRY. B.T. Montague[1]; A.H. Fortin[2]; J.R. Rosenbaum[3]. [1]Yale University, Hamden, CT; [2]Yale University, Waterbury, CT; [3]Yale University, New Haven, CT. *(Tracking ID # 154775)*

BACKGROUND: Considerable research has been devoted to the potential adverse impact of pharmaceutical company marketing techniques on physician knowledge and prescribing practices. Resident physicians, due to their lack of experience, may be particularly vulnerable to pharmaceutical influence. Formal curricula addressing resident-pharmaceutical industry relations have been reported, but there has been no consensus regarding the best approach.
METHODS: Educational curricula were identified via search of Medline, PsychInfo, MedEdPortal, ERIC, Embase, and bibliographies of collected articles. Abstracts were reviewed for all candidate articles. Criteria for article inclusion included: 1) description of an educational curriculum regarding relations between physicians and pharmaceutical industry and 2) use of curriculum in graduate medical education. Articles for inclusion were selected by consensus. Policies regarding resident-pharmaceutical representative (PR) interactions without distinct educational curricula were excluded. We abstracted information on demographics, curriculum development, learning objectives, instructional strategies, and evaluation methods and results.
RESULTS: The search identified 8 curricula for residency training (4 family practice, 2 internal medicine, 1 psychiatry, 1 mixed specialty). Most concerned detailing of residents by PRs. Only 3 articles described curriculum development. Learning objectives included the techniques of pharmaceutical advertising, patient perceptions of physician-PR relationships, organizational guidelines regarding physician-PR relations, relevant ethical principles, potential influence of marketing methods on physician knowledge and practice, and critical skills necessary for analyzing PR presentations regarding drug use. Instructional strategies most commonly consisted of small group discussions/seminars (6/8). Other features included lectures, debates, facilitated review of videotaped physician-PR encounters, and structured learner critique of resident-PR sessions with feedback from mentors. Seven articles included an evaluation component, of which only 1 included a control group for comparison. Evaluations consisted primarily of self-assessment surveys of attitudes towards physician-PR relations (4/8). Other measured outcomes included self-reported confidence in ability to handle encounters (2/8), knowledge of guidelines (1/8), and self-reported behavior change (1/8). Modest but statistically significant improvements were noted in resident confidence, knowledge of guidelines, belief in the potential influence of marketing on behavior, and self-reported acceptance of gifts. Only two evaluations used a validated outcome instrument, and no studies included long-term follow-up.
CONCLUSIONS: A limited number of curricula have addressed the complexities of resident-pharmaceutical industry interactions. Inconsistency in curriculum content, application, and evaluation methodology prevents meaningful synthesis of data. Resident attitude and behavior may be affected, but the outcome measures used lack sufficient validity to accurately assess improvements in residents' knowledge and analytic skills. A clearer delineation of the curriculum development process would facilitate the reproduction of positive results at other institutions, as would development of standardized outcome measures that are better correlated with the stated educational objectives.

A THIRD WAY? COST OF MANDATORY N-OF-1 TRIALS OF EXPENSIVE BIOLOGICAL THERAPIES. R.L. Kravitz[1]; N. Duan[2]; R.H. White[1]. [1]University of California, Davis, Sacramento, CA; [2]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 153486)*

BACKGROUND: Biological agents such as etanercept (ETC) are often uniquely effective but extremely expensive. In the treatment of rheumatoid arthritis (RA), managed care organizations generally prefer that patients first try an older disease-modifying anti-rheumatic such as methotrexate (MTX) before using biologicals. Currently pending legislation in California (SB 913), supported by patient advocacy groups, would prohibit such requirements. We asked if n-of-1 clinical trials could offer an economically viable alternative to immediate access to newer biologicals (which is potentially costly and possibly hazardous) vs. mandatory stepped care (which may inhibit timely access to beneficial, desired care).
METHODS: We performed a cost-minimization analysis by modeling 3 clinical policies for patients with new onset RA: 1) Mandatory Stepped Care, in which all patients start on MTX for 12 weeks, followed by addition of ETC only if the response to MTX is inadequate (less than 50% improvement on the American College of Rheumatology [ACR] scale); 2) Immediate Access to Biologicals, in which patients start on ETC, then switch to MTX if the response to ETC is inadequate; and 3) an N-of-1 Trial Strategy, in which patients enter a 44-week n-of-1 trial consisting of two 8-week periods of MTX+placebo randomly interspersed with two 8-week periods of MTX+ETC, with each treatment period separted by a 4-week washout. In the model, MTX failures (ACR50 nonresponse) were switched to ETC, and ETC failures were switched to triple therapy with MTX, sulfasalazine, and hydroxychoroquine.
RESULTS: Using weekly drug costs of $6.80 for MTX, $231 for ETC, and $41.46 for triple therapy; n-of-1 packaging costs of $150 per patient; ACR50 response rates derived from the medical literature; and a 3-year treatment window, estimated pharmaceutical costs over 3 years were $21,124 for immediate access, $10,957 for stepped care, and $12,532 for the n-of-1 approach. The cost advantages of the n-of-1 strategy over immediate access were somewhat reduced if we assumed a two-year time window and substantially increased if we assumed that patients gaining immediate access to ETC would choose to remain on ETC despite failure to achieve an ACR50 response.
CONCLUSIONS: A policy requiring patients who seek immediate access to expensive biologicals to enter an n-of-1 clinical trial could be cost saving compared with immediate access. Patients participating in such trials would also receive greater assurance that their treatment was working. The strategy might apply to many expensive therapies for chronic, symptomatic conditions with low mortality. Research is needed on the acceptability of this approach to patients and physicians.

A WEB-BASED ALCOHOL CLINICAL TRAINING (ACT) CURRICULUM: IS IN-PERSON FACULTY DEVELOPMENT NECESSARY?. D.P. Alford[1]; J.M. Richardson[1]; S.E. Chapman[1]; C.E. Dubé[2]; R.W. Schadt[3]; R. Saitz[1]. [1]Boston Medical Center, Boston, MA; [2]Brown University, Providence, RI; [3]Boston University School of Public Health, Boston, MA. *(Tracking ID # 150731)*

BACKGROUND: Physicians receive little effective education about unhealthy alcohol use and as a result patients often do not receive efficacious interventions. We studied whether a free web-based Alcohol Clinical Training (ACT) curriculum would be used by physician educators and whether in-person faculty development would increase its use or improve clinical care.
METHODS: Subjects were physicians residing in the U.S. who reported teaching medical students, physicians in training, and/or other physicians, and applied to attend a workshop with limited enrollment, at a physician professional organization national meeting, on the use of the ACT curriculum. The ACT curriculum is a novel web-based teaching tool for physician educators that includes slides, video case vignettes, lecture notes, and evaluation materials about alcohol screening and brief intervention including assuring cross-cultural efficacy. In this controlled educational trial, we assigned subjects to one of two groups. Control subjects (those who submitted workshop applications later) were provided the web address for the ACT curriculum. Intervention subjects attended a 3-hour in-person, interactive workshop on the effective use of the ACT curriculum, including demonstration of navigating and using website materials, modeling of teaching by expert faculty, and creating an individual action plan: a teaching project that focused on using the ACT curriculum. At the time of application to the workshop and 3 months after the training date, all subjects completed a survey assessing confidence, practices and intentions with respect to 5 domains of clinical care and teaching with regard to patients with unhealthy alcohol use.
RESULTS: Of 20 intervention and 13 control subjects, 19 (95%) and 9 (69%) respectively completed follow-up. Intervention and control groups did not differ significantly on baseline characteristics: male 73%; white 42%; English as first language 58%; academic hospital as primary teaching environment 79%; median years since residency 9; any substance abuse expertise 55%. At follow-up 79% of the intervention but only 44% of the control subjects reported using any part of the curriculum ($p=0.07$). The frequency of teaching practices (Likert scale 1–5) increased significantly more ($p<.05$) in intervention than control subjects across all domains (teaching about: alcohol screening +0.76 vs. −0.63; assessment of readiness to change +0.82 vs. −0.75; counseling about alcohol problems +0.88 vs. −0.38; eliciting patient health beliefs +0.94 vs. −0.5; and assuring patients that they are understood +1.06, −0.25). Of intervention subjects, 84% completed at least part of their individual teaching action plans.
CONCLUSIONS: In-person training for physician educators on the use of a web-based Alcohol Clinical Training curriculum was associated with an increase in alcohol-related teaching. Although the web serves as an effective dissemination tool, educator training may be required to effect widespread teaching of clinical skills like those involved in alcohol screening and brief intervention.

A WEB-BASED COURSE ON COMPLEMENTARY MEDICINE IMPROVES KNOWLEDGE AND CHANGES ATTITUDES AMONG MEDICAL STUDENTS AND RESIDENTS. D.A. Cook[1]; M.H. Gelula[2]; M.C. Lee[1]; B.A. Bauer[1]; D.M. Dupras[1]; A. Schwartz[2]. [1]Mayo Clinic, Rochester, MN; [2]University of Illinois at Chicago, Chicago, IL. *(Tracking ID # 153605)*

BACKGROUND: The use of complementary and alternative medicine (CAM) is growing rapidly, and many physicians feel that their knowledge about CAM is inadequate to care for patients using such therapies. Few introductory courses in CAM have been described. We sought to develop and evaluate an introductory course in CAM for medical students and residents. We used a Web-based delivery format to overcome barriers of distance and scheduling.
METHODS: We conducted a multi-institutional controlled study evaluating a Web-based course in CAM, making comparison to no intervention. Participants were 123 internal medicine residents, family medicine residents, and third and fourth year medical students at academic residency programs in internal medicine and family medicine and two US medical schools. The course consisted of an evidence-based review of common CAM therapies along with a discussion of legal issues, tips for counseling patients, and recommendations for identifying reliable information on the Internet. Content was developed using primary journal articles, the Cochrane Database, other evidence-based resources, and local experts. Instructional methods included cases with self-assessment questions and a review activity at the end of each module. Outcomes included knowledge of CAM, attitudes toward CAM, learning style (Index of Learning Styles), course evaluation and satisfaction. Test scores were compared using the t-test, and attitudes were analyzed using the Wilcoxon signed-rank or Wilcoxon rank sum test as appropriate.
RESULTS: Eighty-nine participants completed the course, and another 34 served as controls. Test scores among a subset of course participants ($n=57$) were higher (mean ± SD, 77.2 ± 11.1) than control group scores (50.9 ± 8.5, $p<0.001$), and remained higher (64.9 ± 10) three months later. There were no associations between test score and learning styles ($p>0.065$). After the course participants knew better where to look for reliable information on CAM topics, recognized a greater role for CAM in comprehensive medical treatment, and felt more comfortable discussing CAM therapies with their patients (all $p<0.001$ compared to baseline). Course rating on a 10-point scale was 7.7 ± 1.6. Thirty-four percent of learners desired more feedback; other course evaluation components were very favorable (>93% positive). Although 35% of participants experienced technical problems at some point during the course, these problems did not influence overall course rating ($p=0.75$).
CONCLUSIONS: This brief course in CAM improved knowledge and changed attitudes of residents and medical students, and was well received by learners. A Web-based course of this type may serve as a useful introduction to this important topic. Feedback to learners is an important element of instructional design. Technical problems with Web-based learning do not necessarily affect course ratings.

ACCOUNTING FOR VETERAN STATUS CHANGES CONCLUSIONS ABOUT GENDER DISPARITIES. S.M. Frayne[1]; C. Phibbs[1]; W. Yu[1]; E. Yano[2]; L. Ananth[1]; S. Iqbal[1]; A. Thrailkill[1]. [1]VA Palo Alto Health Care System, Palo Alto, CA; [2]VA HSR&D Center of Excellence, Sepulveda, CA. *(Tracking ID # 154077)*

BACKGROUND: Given the push to assure equitable access to high quality care for the rapidly expanding population of women Veterans Health Administration (VHA) patients, studies of gender disparities have been given high priority. While such work often takes patient characteristics into account, there has been little attention to the fact that, in some circumstances, VHA serves non-veterans (e.g., some spouses of veterans, employees, etc.) who may use VHA services differently from veterans; rates of non-veteran status could vary by gender. We examined whether limiting the study cohort to veterans alters conclusions about apparent gender-related disparities in VHA care.
METHODS: In a cross-sectional assessment of centralized VHA administrative files for all users of VHA care in 2002 ($N=4,444,577$), eligibility files identified the subset who were veterans and ICD9 diagnosis codes identified common medical and mental health conditions. We compared mean health care utilization in 2002 (total outpatient encounters; total outpatient, inpatient and pharmacy costs, weighted by resource use) by gender, first in the full cohort and then in veterans only. In the veteran subset, we used log linear regression to assess the effect of gender on utilization, controlling for age and medical conditions.
RESULTS: Veterans represented 49.1% of women and 96.8% of men VHA patients; among women, the most common non-veteran category was employee, followed by veteran's spouse and other categories. When the denominator was restricted to veterans only, the prevalence of health conditions in women increased, and apparent gender differences in utilization and cost decreased (Table). Indeed, among veterans, age- and comorbidity-adjusted differences in utilization were small: women had 1.3% more outpatient encounters and 2.7% lower total cost than men ($p<.001$ for each comparison).
CONCLUSIONS: In VHA, non-veterans (who use VHA services less heavily) represent a much larger proportion of women than of men. As a result, apparent gender disparities in utilization and cost decrease when the cohort is restricted to veterans only. Before implementing practice or policy interventions to improve equity, disparities must be carefully characterized. Researchers quantifying gender disparities in VHA care should specify whether their focus is on all VHA patients or on veterans, and account for veteran status in their analyses.

	All Women	All Men	Veteran Women	Veteran Men
N	363,503	4,069,618	178,463	3,940,148
Age, mean	49.0	62.9	50.1	63.6
Any medical condition, %	42.2	76.0	65.6	77.9
Any mental health condition, %	22.0	29.1	38.0	29.9
# outpatient encounters, mean	10.7	14.8	16.9	15.1
Total cost, mean, $	2,254	4,326	3,941	4,446

ACCULTURATION AND ACCESS TO CONVENTIONAL CARE ARE NOT RELATED TO COMPLEMENTARY AND ALTERNATIVE MEDICINE USE AMONG ASIAN AMERICAN SUBGROUPS. A. Hsiao[1]; M. Wong[2]; M.S. Goldstein[2]; L. Becerra[2]; N.S. Wenger[2]; E. Cheng[3]. [1]University of California, Los Angeles, Irvine, CA; [2]University of California, Los Angeles, Los Angeles, CA; [3]Greater Los Angeles Veterans Healthcare System, Los Angeles, CA. *(Tracking ID # 153751)*

BACKGROUND: Acculturation and access to conventional care have been found to be predictors of complementary and alternative medicine (CAM) use in the general population. We hypothesized that these factors would be predictors of CAM use in the Asian American ethnic subgroups. Because of differences in health and cultural beliefs, we also hypothesized that patterns and predictors of CAM use vary among Asian American subgroups.
METHODS: We used the California Health Interview Survey of CAM, a cross-sectional survey of a sample of 9,187 adults representative of the California population, conducted in 2003. We compared prevalence and predictors of any CAM use among Chinese Americans, Filipino Americans, Japanese Americans, South Asians, and other Asians (Korean Americans, Southeast Asians, and Pacific Islanders) using multivariate logistic regression models.
RESULTS: Nearly three quarters of Asian Americans used at least one type of CAM in the past 12 months, which was significantly higher than the national prevalence rate. Chinese Americans had the highest prevalence of any CAM use, whereas South Asians had the lowest prevalence (86% vs. 67%, respectively). The relations of demographic and health status factors related to any CAM use varied greatly across Asian American subgroups. Acculturation and access to conventional medical care were only weakly related to any CAM use for most Asian American subgroups. An exception was that Chinese Americans lacking English proficiency were more likely to use CAM (OR=4.97, 1.71–13.4) than Chinese Americans who were proficient in English. Also, other Asians who were uninsured (OR=5.16, 1.71–15.5) or experienced delayed in receiving conventional medical care (OR=2.89, 1.01–8.32) were more likely to use CAM compared to those who were insured or had received timely conventional care. Spirituality was the strongest predictor of any CAM use for most Asian American subgroups. Japanese Americans who considered themselves "moderately or very spiritual" were more likely to use CAM (OR=19.2, 1.8–96.0) compared to those who were "not at all spiritual."
CONCLUSIONS: CAM use varies across Asian American subgroups. Acculturation and access to conventional medical care are only weak predictors of any CAM use for most Asian American subgroups, whereas spirituality is the strongest predictor of CAM use. Clinicians and researchers need to understand the scope and rationale of CAM use among Asian American subgroups in order to provide culturally-sensitive health care for the Asian American population.

ACUTE CARE HOSPITAL PROVIDER UTILIZATION AND PERCEPTIONS OF PALLIATIVE CARE. K.L. Rodriguez[1]; A.E. Barnato[2]; F.J. Gambino[1]; R.M. Arnold[2]. [1]VA Pittsburgh Healthcare System, Pittsburgh, PA; [2]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 153326)*

BACKGROUND: Palliative medicine focuses upon prevention and relief of suffering through symptom management in patients with incurable life-limiting illnesses. Typically, the focus has been upon "dying" patients. Given uncertainty regarding the onset of "dying," and the prevalence of untreated symptoms and unmet psychosocial needs of chronically ill patients, palliative medicine has sought to move its professional purview earlier in the illness trajectory. The objective of the current study is to understand the perceptions of palliative care in the acute care hospitals and to identify barriers to earlier service use.
METHODS: In this exploratory study, we shadowed healthcare providers on intensive care unit (ICU) rounds for 1/2 day and conducted $1\frac{1}{2}$ days of semi-structured interviews with 120 physicians, nurses, case managers, and chaplains at 11 Pennsylvania hospitals. Hospitals were purposively sampled to represent varying geography (rural, suburban, urban), teaching status (major-, minor-, and non-teaching), size, and observed rates of terminal ICU, mechanical ventilation, and dialysis use among chronically ill patients over age 64. Semi-structured interviews focused on the informants' most recent case of an in-patient death, including specific probes about patient, family, provider, and organizational factors associated with treatment decisions during the terminal hospitalization. We used qualitative content analysis of field notes to explore providers' perceptions of palliative care services, with particular attention to barriers to earlier and wider service use in the acute care hospital.
RESULTS: Participants were often confused about the definition of palliative care; most interpreted it as end-of-life or hospice care while few identified its role in symptom management, addressing psychosocial needs, or advance care planning. Even those who saw palliative care as end-of-life care felt that palliative care consults were initiated too late in the hospitalization, generally after the treating team had decided to limit life-sustaining treatment (LST). Potential cost savings was raised as a benefit of earlier consultation more frequently than clinical benefits. Nurses were perceived as champions for palliative care service utilization, formally educating new nurses and facilitating initiation of consults via families, residents, or sympathetic non-primary attending physicians. Surgeons were the most resistant to palliative care services fearing interference with their decisions to continue LST. Additionally, intensivists believed that they had the same skills as palliative care consultants. Hospital staff suggestions for increasing integration and utilization of palliative care included workforce development, education, and training about palliative care; improving financial reimbursement and sustainability for palliative care; and changing the normative hospital culture currently geared toward high intensity care.
CONCLUSIONS: Perceptions of palliative care in the acute care setting are dominated by its role in facilitating LST limitation or allowing death. Moving consultation earlier in the hospitalization of a "dying" patient was a greater preoccupation than increasing palliative service use earlier in the illness trajectory. Any move short or far upstream will require that palliative care specialists market benefits to patients and referring providers that emphasize their unique skill set and compatibility with parallel treatment plans and do not threaten provider autonomy.

ADDRESSING HEALTH CARE DISPARITIES THROUGH MEDICAL EDUCATION: THE UNIVERSITY OF CALIFORNIA, LOS ANGELES/CHARLES R. DREW UNIVERSITY MEDICAL EDUCATION PROGRAM. M. Ko[1]; R. Edelstein[2]; K.C. Heslin[3]; K. Grumbach[4]. [1]Charles R. Drew University of Medicine and Science, Santa Monica, CA; [2]Charles R. Drew University of Medicine and Science, Los Angeles, CA; [3]Charles R. Drew University of Medicine and Science, Lynwood, CA; [4]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 153368)*

BACKGROUND: A number of educational programs in the U.S. to train physicians for practice in underserved rural areas have been evaluated, but less research has been conducted on programs to address the physician supply problem for urban and racial/ethnic minority populations. The UCLA/Drew Medical Education Program selects students for their demonstrated commitment to underserved areas. Students receive basic science instruction at UCLA and complete their required clinical rotations in South Los Angeles, an impoverished urban community. We examined the independent association of graduation from the UCLA/Drew program with subsequent choice of physician practice location. We hypothesized that participation in the UCLA/Drew program predicts future practice in underserved areas, controlling for student demographics such as race/ethnicity and gender, indicators of socioeconomic status, and specialty choice.
METHODS: We conducted a retrospective cohort study of the graduates of the UCLA School of Medicine and the UCLA/Drew Medical Education Program from 1985–1995 who are currently practicing in California. Premedical and educational predictor variables were obtained from data collected by the Association of American Medical Colleges and the American Medical Association Physician Masterfile. For our outcome measures, a medically underserved area was defined as meeting any one of the following criteria: a) status as a federally designated Health Professional Shortage Area or a Medically Underserved Area; b) rural area; c) high minority area; or d) high poverty area. Bivariate analyses were performed to examine relationships between the predictor variables and practice in a medically underserved area, and odds ratios (ORs) with 95% confidence intervals (CIs) were calculated. Multivariate logistic regression models were used to estimate the independent association of the UCLA/Drew program with practice in underserved areas, in the context of previously identified predictor variables.
RESULTS: Twenty-nine percent of all graduates studied are practicing in medically underserved areas. Approximately 50% of UCLA/Drew graduates are located in underserved areas, in contrast to 26.1% of UCLA graduates. In bivariate analyses, a greater proportion of UCLA/Drew graduates practice in all types of underserved urban areas. In multivariate analyses, only underrepresented minority race/ethnicity (OR: 1.57; 95% CI: 1.10–2.25) and participation in the program (OR: 2.47; 95% CI: 1.59–3.83) predicted future practice in underserved areas.
CONCLUSIONS: Physicians who participated in the UCLA/Drew Medical Education Program have higher odds of practicing in underserved areas than those who completed a more traditional medical school curriculum, suggesting an independent program effect. This may be partly attributable to the selection of highly committed students, as suggested by the finding on student minority racial/ethnic background. The impact of the UCLA/Drew Medical Education Program on physician practice location choice indicates a role for medical education in addressing health care disparities in the U.S.

ADOPTION AND USE OF AN ONLINE PATIENT PORTAL FOR DIABETES (DIABETES-STAR). S.E. Ross[1]; L. Haverhals[1]; D. Main[1]; S. Bull[2]; K. Pratte[1]; C. Lin[1]. [1]University of Colorado Health Sciences Center, Aurora, CO; [2]Colorado Health Outcomes Program, Aurora, CO. *(Tracking ID # 153390)*

BACKGROUND: Online patient portals, which provide patients with personal information and facilitate electronic doctor-patient communication, show promise in helping patients manage chronic diseases. The benefits of these systems will be maximized if they have broad and durable appeal. We have developed and deployed Diabetes-STAR, a patient portal to support diabetes self-management. We are (1) assessing the characteristics of people interested in using it and (2) determining whether including personalized content promotes sustained use.

METHODS: As part of a randomized controlled trial, we recruited patients from three primary care practices and one specialty practice at University of Colorado Hospital, an academic medical center. Patients with type 2 diabetes were identified using billing data. Patients were recruited by mail and at check-in to clinic visits. Enrolled patients were randomly allocated to the intervention group or the control group. The control group received electronic communication functions and generic information about diabetes care. The intervention group additionally received access to personalized content based on clinical information, and a system that facilitates goal-setting to improve health and provides automated follow-up (the full Diabetes-STAR system). Usage of the respective portals was monitored from March 1 through November 30, 2005. We compared dichotomous outcomes between groups using chi-square. Usage of the system was compared using a maximum likelihood approach.
RESULTS: 3,484 patients with type 2 diabetes were identified in the enrollment pool. We enrolled 328 patients (163 intervention, 165 control) into the clinical trial. The enrollee mean age was 59.2; 45% were female and 19% had safety-net insurance (e.g. Medicaid). The study population had a lower proportion of females than the enrollment pool (54%, $p=0.0009$), but the mean age (58.1) and proportion with safety-net insurance (22%) were not significantly different. While the same proportion of the intervention group (83%) as the control group (84%) logged in at least once, usage was much higher in the intervention group over the course of the study (772 vs. 319 days logged in; $p=0.001$). In the intervention group, 39% set a goal to improve health, 42% reviewed laboratory results and 30% reviewed clinical notes.
CONCLUSIONS: In our randomized trial, we enrolled just under ten percent of the patients with diabetes from the participating practices. Of those who enrolled, usage of Diabetes-STAR was substantial. Incorporating personalized and interactive content resulted in more sustained use compared with generic content.

ADVANCES IN LIVER TRANSPLANTATION : OUTCOME OF USING PREVIOUSLY INFECTED LIVER GRAFTS FOR TRANSPLANTATION WITH PROPPHYLACTIC LAMIVUDINE AND HBIG. J.A. Kasher[1]; S. Han[2]; D. Tran[2]. [1]University of California, Los Angeles - San Fernando Valley Program, Sylmar, CA; [2]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 154857)*

BACKGROUND: Chronic liver disease is an important cause of morbidity and mortality in the United States and worldwide. There is a shortage of liver organ donors, and consequently, many patients die while awaiting liver transplantation. The use of hepatitis B core antibody (HBcAb) positive livers was previously fraught with high rates of de novo hepatitis B (HBV) infection in the absence of effective prophylaxis. We studied the outcome of using HBcAb-positive liver allografts for transplantation using prophylaxis with combination Lamivudine+hepatitis B immune globulin (HBIG).
METHODS: Our study involved a retrospective chart review and analysis of patients who underwent liver transplantation at UCLA from October 1995 to December 2004. During this time period 55 patients were identified who underwent liver transplantation with previously infected hepatitis B core antibody positive grafts. Recipients and donors were all hepatitis B antigen negative at the time of transplantation. Most of the recipients 63% (35/55) had documented evidence of prior hepatitis B infection via measurement of hepatitis B core antibody. Other co-morbidities included co-infection with hepatitis C in 80% (44/55), documented history of alcohol abuse in 25% (14/55) and hepatocellular carcinoma in 25% (14/55) at the time of transplantation. Post operative prophylaxis against hepatitis B was given with Lamivudine and Hepatitis B Immunoglobluin. The outcome of liver transplantation in this patient population was reviewed and analyzed on January 2005. Main outcome measures were: patient survival, graft survival, and rate of de-novo hepatitis B at mean follow up of 525 days.
RESULTS: Out of 55 patients reviewed, at a mean follow-up of 525 days, the results were as follows: Mortality was 5% (3/55), all secondary to sepsis. Graft failure and re-transplantation occurred in 13% (7/55) (four for recurrent hepatitis C, one for acute cellular rejection, one for primary non-function, and one for hepatic artery dissection/thrombosis.) De novo hepatitis B infection as demonstrated by positive HBsAg was seen in 1.8% (1/55) of patients. Of note, this patient underwent OLT at UCLA prior to the advent of post-op prophylaxis. On Lamivudine, this patient continues to show excellent graft function at a follow-up of 9 years post-operatively.
CONCLUSIONS: 1. Combination Lamivudine+HBIG effectively prevents de-novo HBV infection in recipients of HBcAb-positive liver allografts. 2. The use of HBcAb-positive allografts is a viable option in this era of a shrinking donor pool.

AFRICAN AMERICAN SENIORS' KNOWLEDGE AND PERCEPTIONS ABOUT INFLUENZA AND THE INFLUENZA VACCINATION. K.A. Cameron[1]; G.A. Noskin[1]; L.S. Rintamaki[2]; M. Kamanda-Kosseh[1]; D.W. Baker[1]; G. Makoul[1]. [1]Northwestern University, Chicago, IL; [2]Hines VA Hospital, Hines, IL. *(Tracking ID # 153880)*

BACKGROUND: Influenza and influenza-related illnesses are associated with significant morbidity and mortality in the United States each year. National rates continue to fall short of the 90% vaccination rate desired by Healthy People 2010; current vaccination rates of adults 65 and older are approximately 65%. Minorities are significantly less likely to be vaccinated than are Caucasians: The current vaccination rate for African Americans is only 48%. The objective of this study was to assess African American seniors' perceptions and knowledge regarding influenza and the influenza vaccination.
METHODS: A focus group protocol was developed to query attitudes and beliefs about influenza, influenza vaccination, barriers to vaccination, past vaccination behavior, reasons for being vaccinated, experiences with the healthcare system, and knowledge about the Tuskegee syphilis study. A total of 48 participants participated in one of six focus groups conducted throughout Chicago. Each focus group lasted approximately $1\frac{1}{2}$. The focus group sessions were videotaped, transcribed, and were analyzed by three independent coders using latent content and constant comparative analysis.
RESULTS: Participants' mean age was 74.1 years (sd=6.6); 85% were female. Although 77% indicated that they had received a flu shot at least once during their lifetime, only 50% indicated receiving a flu shot the previous year. Many participants believed that the vaccine actually gave them the flu. For some, the last influenza vaccination they received was the swine flu vaccine. Some participants were unaware that the current injectable vaccine no longer used the live influenza virus. Participants were generally aware that there are multiple strains of the virus. However, they did not recognize that the mutability of the virus required vaccine makers to change the composition of the vaccine yearly. Because they did not understand the reasons for changing the vaccine every year, they viewed the annual change in the vaccine with suspicion, raising concerns about experimentation with the vaccine. Not all participants were aware of the Tuskegee syphilis study; however, all who were familiar with the study believed that the men had been injected with syphilis in addition to having treatment withheld when it became available.
CONCLUSIONS: Overall, although familiarity with influenza and the influenza vaccination appears to be fairly high, some beliefs appear to have arisen from misinformation or a lack of updated information. Current messages aimed at increasing vaccination among African American seniors may not be addressing some of the key concerns of the community resulting in lower vaccination rates. A better understanding of current knowledge, desired information, as well as identification of the incorrect information that has been distributed is critical in creating targeted messages to enhance vaccination among elderly African Americans.

AGE, ILLNESS BURDEN, OR CLINIC VISITS AS PREDICTORS OF PREVENTION AMONG ELDERLY WOMEN. M.A. Schonberg[1]; E.P. McCarthy[1]; E. Marcantonio[1]. [1]Division of General Medicine and Primary Care, Beth Israel Deaconess Medical Center, Boston, MA. *(Tracking ID # 153869)*

BACKGROUND: Guidelines vary as to the appropriate use of preventive health measures for women aged 80 and older. Experts do encourage clinicians to consider life expectancy. We examined the influence of several factors on receipt of preventive health measures (screening tests, healthy lifestyle counseling, and immunizations) among women aged 80+and women aged 65–79.
METHODS: We randomly identified women aged 65 and older stratified by age (65–79 and 80+) at one academic primary care clinic using the online medical record. Anticipating greater exclusion criteria (death, dementia, terminal illness), among women 80+, we randomly selected 400 women 80+and 275 women 65–79. We collected data on: screening for breast and colon cancer and for osteoporosis; healthy lifestyle counseling (exercise, diet, mood); and receipt of immunizations (flu shot, pneumovax), for women who had seen a primary care clinician in the past year. We also collected data on patient illness burden (using Charlson Comorbidity Index [CCI]) and number of clinic visits in the past year as well as race, insurance, median income of zipcode, language, and physician gender. We used logistic regression to determine the influence of age (in 5 year intervals), illness burden, and number of clinic visits on receipt of preventive health measures separately for women 80+and women 65–79.
RESULTS: Our final sample consisted of 546 women; 235 aged 65-79 and 311 aged 80+. Women 80+were significantly more likely to have Medicaid, a CCI of 2+, 5+clinic visits in the past year, reside in areas with median income <$20,000, and were less likely to speak English ($p<0.05$). Table 1 presents the adjusted association of age, illness burden, and clinic visits on receipt of preventive health measures by age group. Increasing age was inversely associated with cancer screening for women 80+, but was not associated with any measures for women 65–79. In contrast, increasing illness burden was inversely associated with receipt of mammography and bone densitometry and associated with receipt of immunizations for women 65–79, but was not associated with any measures for women 80+. For all women, number of clinic visits was an important predictor of receipt of healthy lifestyle counseling and immunizations.

	65-79			80+		
	Age	Illness Burden	Clinic Visits	Age	Illness Burden	Clinic Visits
Mammogram in past 2 years		X(<.05)		X(<.01)		X(<.01)
Colon cancer screening <10 years				X(<.01)		
Receipt of bone densitometry		X(<.05)				
Flu shot in past 2 years		X(<.05)	X(<.01)			X(<.01)
Receipt of Pneumovax		X(<.05)				X(<.05)
Exercise discussed in past year			X(<.01)			
Diet discussed in past year			X(<.01)			X(<.01)
Mood discussed in past year			X(<.01)			X(<.01)

*Each X indicates a significant predictor of the health prevention measure for that age group.

CONCLUSIONS: Illness burden is an important factor in the receipt of preventive health measures for women 65–79, but not for women 80+. For women 80+, advancing age is related to decreased use of preventive measures. This suggests that clinicians may rely on age to predict life expectancy for women 80+whereas they may rely on illness burden to predict life expectancy for women 65–79. Identifying factors that influence receipt of preventive health measures among elderly women is necessary to insure that prevention is targeted to those who may benefit.

AMERICANS LIVING IN CANADA AND THEIR COMPARATIVE VIEWS OF THE AMERICAN AND CANADIAN HEALTH CARE SYSTEMS. S. Lewis[1]; D.A. Southern[1]; C. Maxwell[1]; J.R. Dunn[2]; T.W. Noseworthy[1]; W.A. Ghali[1]. [1]University of Calgary, Calgary, Alberta; [2]University of Toronto, Toronto, Ontario. *(Tracking ID # 153755)*

BACKGROUND: Canada and the United States share the world's longest undefended border, but their health care systems are vastly different in structure and costs. Comparisons of health care systems are typically compilations of survey respondents' experiences or perceptions in their own countries. There are no reported head-to-head comparative assessments of health care in any two countries by people who have experienced both. We sought to report the experiences and views of Americans living in Canada who have used both health care systems as adults.
METHODS: We chose a convenience sample of Americans who had been responsible for their own health care as adults for at least 2 years prior to coming to Canada, and who had been living in Canada for at least 2 but no more than 5 years. We developed and pre-tested a web-based survey to gather information on respondents' demographics, reasons for moving to Canada, health status, use and personal costs of health care, assessments of the timeliness and quality of care in several categories in both countries, and overall system preferences. We used 5 techniques to solicit responses: we held a live media conference, supplemented by a nation-wide release to announce the study; we nationally distributed an op-ed piece outlining the purpose of the study; advertised in 6 major urban newspapers, 2 with national circulation; we sent the survey to individuals and groups such as the American consulates, Democrats in Canada & Republicans in Canada; and we asked respondents to forward the survey link on to friends and family. Simple descriptive statistics were used to describe the data.
RESULTS: 452 unique individuals logged on to the survey site. Of these 393 (86.9%) completed all or parts of it. The respondents were generally well educated had high household incomes compared to the general Canadian population. Self-rating of health was similar to that of the general population in similar income categories. Almost all of the respondents (98%) were insured prior to coming to Canada, most through employer-sponsored plans purchased through for-profit insurers. Respondents rated the US system as better than the Canadian system in all categories except the cost of drugs, and administrative complexity. The gaps were larger for timeliness than for quality of care, with over half of the respondents indicating that wait times to see a specialist and for high-end diagnostic technologies were lower in the US. Interestingly, 44% rated the US as providing greater freedom to choose providers compared to 25% who rated Canada higher. Respondents had particularly critical views of timeliness and availability of sophisticated services in Canada. Canada rated better only on the dimension of out-of-pocket costs (76% good or excellent vs. 36% for the US) and the systems rated about equal in terms of cost relative to quality. For overall performance, 50% rated the Canadian system as good or excellent compared to 74% for the US system. Despite these experience-based preferences, when asked which system they preferred overall, 45% chose the US system and 40% chose Canada's.
CONCLUSIONS: Respondents generally rated the US system as better than the Canadian system, with the exception of the domains of cost of drugs and administrative complexity. These findings underline the importance of timeliness of access and perceived availability of sophisticated services on global patient-centred measures of satisfaction.

AN ECONOMIC ANALYSIS OF THE SHINGLES PREVENTION STUDY: IS THE ZOSTER VACCINE COST-EFFECTIVE?. S. Cykert[1]; T.W. Lane[1]. [1]University of North Carolina at Chapel Hill, Chapel Hill, NC. *(Tracking ID # 153421)*

BACKGROUND: The Shingles Prevention Study Group recently reported the results of a large, randomized-controlled trial in which adults (median age - 69 years) were vaccinated with an attenuated varicella virus (zvac). The vaccination group developed shingles (zos) and postherpetic neuralgia (phn) much less frequently than the placebo group (relative risk reductions of 51 and 67 percent, respectively). As a result, we designed this analysis to estimate the cost-effectiveness (CE) of the zvac and to define the clinical circumstances and vaccine cost that would reach the societal criterion of $50,000 per quality-adjusted life year gained (QALY).
METHODS: We performed decision analysis using Markov state models. The base model was derived from the Shingles Prevention Study and incorporated the median age (69), the incidence of zos and phn, and the zvac-attributable risk reductions reported. Health care use, health utility scores, and age-specific Zoster incidence were derived from the relevant literature. The cost of medications was obtained from drugstore.com, hospitalizations from the National Inpatient Sample, and office visits from Medicare allowable charges. We assigned a unit zvac cost of $500 based on dosage of the adult vaccine compared to known pediatric dosing and price. We used an annual utility discount rate of 3%. Broad sensitivity analyses were performed.
RESULTS: These data are reported from the societal perspective. The cost per QALY using the base model is $92,900 assuming lifetime zvac efficacy. When zvac effect was limited to 10 years, the base cost per QALY increases to $97,600. The model output is most sensitive to the cost of the vaccine, the incidence of zos, and the absolute risk reduction imparted by zvac. Because of high zos incidence coupled with maximal zvac efficacy, limiting the zvac strategy to a cohort of 65 year-old patients resulted in improved CE ($57,800 per QALY). If, in the base model, we reduce the cost of zvac to $313 per unit, the CE meets the $50,000 paradigm. For the age 65 model, a zvac price of $100 actually makes the vaccination strategy dominant.
CONCLUSIONS: Zvac can effectively prevent the morbidity of zos and phn. However, the vaccine's CE is dependent on many variables, especially the price of zvac and the age of those vaccinated. If the vaccine is priced responsibly, a large segment of the elderly population will benefit. Given catapulting health care costs and an aging society, the access, cost and quality-of-life issues related to mass vaccination for zos prevention are considerable.

AN EVALUATION OF APPOINTMENTS KEPT AT A HIV MEDICAL OUTREACH PROGRAM IN NEW YORK CITY. J.P. Sanchez[1]; D. Heller[2]; N.L. Sohler[3]; C.O. Cunningham[3]. [1]Albert Einstein College of Medicine, Bronx, NY; [2]Citiwide Harm Reduction, Bronx, NY; [3]Montefiore Medical Center/Albert Einstein College of Medicine, Bronx, NY. *(Tracking ID # 152020)*

BACKGROUND: Marginalized populations continue to be disproportionately affected by the HIV epidemic, yet have poor access to health care services. Numerous outreach programs have been developed to facilitate engagement into the health care system, but little is known about how well they perform. The objective of this study was to assess the impact of a medical outreach program that targets HIV-infected individuals living in single room occupancy (SRO) hotels in New York City. Specifically, we examined patients' medical appointments made, kept appointments, and patient- and program-related factors that were associated with kept appointments.
METHODS: The HIV medical outreach program was a collaboration between an academic medical center and a community based organization (CBO) that provided HIV social services. The program provided medical care to HIV-infected SRO hotel residents by offering same day or future appointments in the patient's SRO hotel room or the CBO's drop-in center. Data between October 2003 and October 2005 were extracted from the program database. We examined whether our main outcome, kept appointments, was associated with patient sociodemographic characteristics, location of care (SRO hotel room vs. CBO), who made the appointment (medical provider vs. non-medical provider), or wait time (number of days between the date the appointment was made and the date of the appointment). Because same day appointments were available only at the CBO, we conducted analyses with and without same day appointments. We report chi square tests for analysis of categorical variables and t-tests for continuous variables. Separate analyses are reported for patients' initial and follow-up appointments.
RESULTS: Of the 502 patients who made appointments the mean age was 43 years, and the majority were male (54.6%), Black (52.8%) or Hispanic (32.7%), and had incomes less than $12,000/year (87.7%). We observed no differences in patients' sociodemographic characteristics between those who kept and missed their initial appointment. Patients were more likely to keep appointments made at the CBO's drop-in center versus a SRO hotel room for initial (27.6% vs. 8.4%, $p<0.001$) and follow-up appointments (35.3% vs. 13.7%, $p<0.001$). Patients were more likely to keep same day appointments compared to future appointments for follow-up appointments (39.9% vs. 24.2%, $p<0.001$). Additionally, patients were more likely to keep appointments when non-medical providers versus medical providers made the appointment (30.9% vs. 17.5%, $p<0.001$).
CONCLUSIONS: In providing health care services to marginalized HIV-infected individuals, program characteristics, but not patient characteristics, were associated with a greater proportion of kept appointments. Specifically, kept appointments were more likely to occur at the CBO, with same day appointments, and with appointments made by non-medical providers. The provision of medical care in addition to social services at the CBO offered a "one-stop shopping" model that addressed patients' medical and non-medical needs, which was likely an important component of keeping appointments. Additionally, immediate access to health care through same day appointments was an important factor in keeping appointments for our sample. While further studies examining clinical outcomes of medical outreach programs are needed, findings of this study can help guide program development in the delivery of health care to marginalized populations.

AN IMPACT OF DIABETIC KETOACIDOSIS GUIDELINES IMPLEMENTATION ON RESIDENTS' LEVEL OF KNOWLEDGE AND PATIENT CARE. N.B. Volkova[1]; M.W. Peterson[1]. [1]University of California, San Francisco, Fresno, CA. *(Tracking ID # 154749)*

BACKGROUND: Diabetic ketoacidosis (DKA) is an emergency medical condition that can be life-threatening if not managed properly. Appropriate evaluation and management of patients with DKA starts in the Emergency Room, continue throughout the hospital stay and culminates with an organized discharge plan. We designed DKA management guidelines based on the current American Diabetes Association recommendations. No previous studies have been done to demonstrate the effects of DKA guidelines on the residents' knowledge, quality of patient care and financial impact on the hospital. Objectives: To evaluate the influence of the DKA guidelines on resident's knowledge, quality of patient care and health care expenses. Design: Longitudinal case-control study with two arms: educational and patient care/financial impact. An electronic web- based assessment/educational tool was used to evaluate DKA knowledge level in Internal Medicine residents. Multiple aspects of patient care, length of hospital stay and hospital charges were compared before and after guideline implementation. The same measures were used for analysis in a non-teaching local hospital where no DKA guidelines were implemented. Setting: University Medical Center, Fresno Community Medical Center. Fresno, California
METHODS: Methods: A Web- Based testing soft ware (TestWare) was used for educational/assessment testing before and after DKA guidelines implementation. Resident level of knowledge, reflected by test scores, was compared to residents at the same level of training. Second and third year residents' scores

were compared to their personal baseline levels. All patients admitted during one calendar year were included in the study. Patients who were transferred from another hospital were excluded. Comparisons between two hospitals were done and each patient paper and electronic chart were reviewed to analyze the degree of compliance and influence on patient care cost before and after DKA guidelines introduction.
RESULTS: The total number of Internal Medicine residents tested before and after the DKA guidelines implementation was 37 and 65 respectively. Testing scores improved from 48% to 54% after implementation of the guidelines ($P=0.06$). Individual test scores improved on average from 48% to 53% for second year residents ($P=0.55$) and from 50% to 58% for third year residents ($P=0.12$). The total number of patients was 178. Eight patients who started treatment at another facility, 7 patients who left hospital against medical advice, and 2 patients who died during hospitalization were removed from the study. Overall, the degree of compliance with current guidelines improved in both hospitals (49% before to 77% after at Community Medical Center ($P<0.05$) versus 67% and 88% at University Medical Center ($P<0.05$)). An increase in hospital charges without changes in the length of hospital stay was noted.
CONCLUSIONS: The Web-Based educational/assessment testing tool was effective, leading to improvement on average in the knowledge level by 9%. The introduction of DKA guidelines after web-based testing significantly improves care for patients with DKA. Web based educational/assessment testing followed by DKA guidelines implementation can be utilized in any hospital striving to improve quality of care for DKA patients.

AN INNOVATIVE APPROACH TO PREVENT CHEST DISCOMFORT IN HOSPITALIZED PATIENTS. K. Pfeifer[1]; A.B. Nattinger[1]; C. Presser[2]; T. Wagner[2]; D. Bode[2]; L. Biblo[1]. [1]Medical College of Wisconsin, Milwaukee, WI; [2]Froedtert Hospital, Milwaukee, WI. *(Tracking ID # 153979)*

BACKGROUND: Hospitalized patients are exposed to an institutionalized diet. Patients typically lie in bed in an effort to comply with perceived mobility restrictions and to optimize their view of the mounted television. These factors likely increase the incidence of chest discomfort due to reflux esophagitis in hospitalized patients. Reflux esophagitis is often difficult to discern clinically from an acute coronary syndrome in hospitalized patients and frequently initiates a cardiac evaluation.
METHODS: We sought to decrease the incidence of chest discomfort in hospitalized patients by initiating a standardized admission order set that recommended famotidine 20 mg daily in hospitalized patients on the medicine services. The order set was utilized for all hospitalized patients on the medicine services starting on 7/1/05. ECG utilization was identified as a marker of chest discomfort in hospitalized patients.
RESULTS: The number of medicine admissions trended upward during each quarter for the last eight quarters. Famotidine use increased dramatically during the last two quarters of 2005 compared to the previous 6 quarters. The number of ECG's performed on the medicine services averaged 2,255 per quarter in the 6 quarters prior to 7/1/05 and 1,814 per quarter in the 2 quarters after 7/1/05, $p<0.05$ (Table 1). In comparison, without use of the standardized admission order set, the number of ECG's performed on the surgical services averaged 379 per quarter in the 6 quarters prior to 7/1/05 and 436 per quarter in the 2 quarters after 7/1/05 (Table 2).
CONCLUSIONS: ECG use decreased by 20% with the initiation of a standardized admission order set for hospitalized patients on the medicine service. These changes were not observed during the same time period on the surgical services. Famotidine use appeared to influence ECG utilization on the medicine service by likely decreasing the incidence of reflux esophagitis in hospitalized patients.

Table 1. ECG Utilization on the Medicine Services

	2004	2005
Quarter 1	2341	2211
Quarter 2	2350	2249
Quarter 3	2172	1924
Quarter 4	2208	1704

Table 2. ECG Utilization on the Surgical Services

	2004	2005
Quarter 1	288	448
Quarter 2	393	435
Quarter 3	367	388
Quarter 4	340	484

AN INTERVENTION TO INCREASE EMERGENCY CONTRACEPTION KNOWLEDGE, ATTITUDES AND PRESCRIBING PRACTICES AMONG PHYSICIANS IN AN INTERNAL MEDICINE TEACHING SITE. M. Sobota[1]; R. Warkol[1]; M. Gold[2]; F. Milan[3]; N. Sohler[3]; H.V. Kunins[3]. [1]Montefiore Medical Center/Albert Einstein College of Medicine, New York, NY; [2]Montefiore Medical Center/Albert Einstein College of Medicine, Bronx, NY; [3]Albert Einstein College of Medicine, Bronx, NY. *(Tracking ID # 153518)*

BACKGROUND: Emergency Contraception (EC) is a safe and effective method to prevent unintended pregnancy after unprotected intercourse. To increase timely access, physicians may prescribe EC to eligible patients during routine medical visits in advance of need. Little is known about EC prescribing practices among internists, nor what strategies might improve internist advance prescription of EC. Our objective is to describe EC knowledge, attitudes and advance prescribing practices among internal medicine residents and faculty and to determine whether an educational and reminder intervention would improve knowledge, attitudes and prescribing behavior.
METHODS: We administered a 23-question survey about EC to all internal medicine residents and faculty practicing at a South Bronx community health center. We assessed EC knowledge, attitudes, and prescribing practices. After completing the survey, all subjects participated in a 45-minute case-based educational intervention (led by M.S. and R.W.). For the following month, a three-part clinical reminder intervention was introduced: reminder stickers were placed in charts of all female patients <45y old, EC posters were hung throughout the clinic and preprinted prescriptions for EC were made easily accessible in a common area. After the month-long clinical reminder intervention ended, we collected follow-up data from all participants on EC knowledge, attitudes and prescribing practices. Knowledge questions were collapsed into an 8-item scale. We analyzed paired dichotomous data using McNemar's test and non-parametric data using the Wilcoxon signed ranks test.
RESULTS: Of the 38 eligible participants (100% participation), 26 (68%) were women and 12 (32%) were men. Twenty-seven (71%) were interns and residents, with a median age of 30. Eleven (29%) were fellows and faculty and had a median age of 39. EC knowledge scores increased from a median of 75% at baseline to 100% correct answers at follow-up ($p<.001$). Attitudes towards EC were positive at both baseline and follow-up: at baseline, 28 (74%) felt that they have time to discuss EC; 32 (84%) felt that EC is important for their patients' health; 36 (95%) felt that internists should be adequately trained to prevent unwanted pregnancy. A greater number of participants reported offering EC to patients after the intervention [15 (40%) vs 36 (95%), $p<0.001$]. The median number of recent offers to prescribe EC increased from 0 to 6 ($p<.0001$).
CONCLUSIONS: This study showed that among residents and faculty at an Internal Medicine teaching site in the Bronx, a multi-part educational and reminder intervention significantly increased physician EC knowledge and self-reported offers of EC. Attitudes towards EC prescribing were positive at baseline and remained unchanged following the intervention. Our intervention was limited by a non-randomized design and short-term self-reported assessment of prescribing practices. To our knowledge, this is the first intervention to examine internist EC prescribing practices and to increase physician prescription of EC. Our planned 6-month follow-up will assess the durability of the intervention.

AN OBSERVATIONAL TRIAL OF SMART IV PUMPS IN INTENSIVE CARE: MEASURING THEIR EFFECTS ON ADVERSE DRUG EVENTS. T.K. Nuckols[1]; T. Bower[1]; S. Paddock[1]; L.H. Hilborne[2]; P. Wallace[1]; J. Rothschild[3]; B. Griffin[1]; R. Fairbanks[4]; B. Carlson[5]; R.J. Panzer[4]; R.H. Brook[1]. [1]The RAND Corporation, Santa Monica, CA; [2]University of California, Los Angeles, Los Angeles, CA; [3]Brigham and Women's Hospital, Boston, MA; [4]University of Rochester, Rochester, NY; [5]Sharp HealthCare, San Diego, CA. *(Tracking ID # 153237)*

BACKGROUND: Critically ill adults frequently experience injuries from medication therapy (adverse drug events), which are often preventable. Our objectives were to determine whether intravenous infusion pumps with integrated decision support ("smart pumps") reduce preventable adverse drug events, and to suggest improvements so that smart pumps might prevent additional events in the future.
METHODS: Using an observational design, we examined preventable intravenous adverse drug events in intensive care units before and after smart pump implementation. The pumps had embedded computers that alerted providers when doses fell outside an acceptable range or when two infusions contained the same medication. Subjects included 4,604 critically ill adults at two hospitals (one academic hospital and one community hospital). We compared the incidence rate and severity of preventable intravenous adverse drug events during the control and intervention periods. We also quantitatively and qualitatively examined the types of errors causing preventable intravenous adverse drug events, including identifying errors that were specifically addressed by the pumps' safety features.
RESULTS: 49 preventable intravenous adverse drug events occurred during 10,248 patient-days in the control period (4.78 per 1000 patient-days); incidence rates and severity were unchanged during the intervention period. Twenty-nine percent involved overdoses, 37% failing to adequately monitor for adverse effects of drug therapy, and 45% failing to intervene when such effects appeared. Only four percent involved errors specifically addressed by pump safety features. Qualitative analysis of the errors involved suggested that pumps might prevent more adverse events if they integrated drug administration data with vital-sign data, laboratory data, and computerized physician order entry. Automation of certain monitoring and titration tasks might also be beneficial.
CONCLUSIONS: Smart pumps did not reduce preventable intravenous adverse drug events at two hospitals because pump safety features addressed only 4% of the events. In the future, smart pumps might prevent more events if they compensate for providers' failures to monitor and intervene.

Preventable IV Adverse Drug Event Incidence Rates (Per 1000 Patient Days in Intensive Care) and Severity

Severity Category	Control	Intervention	Unadjusted Mean Difference In Rate	Unadjusted p-Value	Adjusted Mean Difference In Rate	Adjusted p-Value
Temporary physical injury, Rate (N)	3.71 (38)	3.30 (34)	−0.41	0.6190	−0.40	0.6337
Permanent physical injury, Rate (N)	0 (0)	0 (0)	0	1.0000	n/a	n/a
Intervention to sustain life, Rate (N)	0.98 (10)	1.45 (15)	0.48	0.3280	0.44	0.3631
Patient died, Rate (N)	0.10 (1)	0.19 (2)	0.10	0.5748	n/a	n/a
Total Preventable IV ADEs, Rate (N)	4.78 (49)	4.95 (51)	0.16	0.8656	0.04	0.9631

ANALYSIS OF PRESCRIBING ERRORS REPORTED BY PRIMARY CARE PRACTICES. A.G. Kennedy[1]; B. Littenberg[1]; J.W. Senders[2]. [1]University of Vermont, Burlington, VT; [2]Institute for Safe Medication Practices, Toronto, Ontario. *(Tracking ID # 154248)*

BACKGROUND: One in 200 outpatient prescriptions contain potentially harmful errors. Although harmful events are sometimes difficult to analyze, near misses allow for analysis in a blame-free, cooperative environment. We sought to develop a framework for such analyses.
METHODS: We collected reports from a convenience sample of Internal Medicine and Family Medicine practices in Vermont. Nurses and office staff were asked to submit copies of all telephone notes or fax communications with community pharmacists about outpatient prescribing problems. We did not specify a standard reporting form. Our objectives were to (1) to collect reports based on the messages already being collected in routine practice, and (2) to analyze the reports with a four-fold taxonomy. Reported events were assigned a severity category according to the National Coordinating Council for Medication Error Reporting and Prevention Index for Categorizing Medication Errors. They were also assigned a location where the problem likely occurred, such as the provider office, pharmacy, or with the patient. Modes included omission, commission, no error, indeterminate, or not applicable. Lastly, events were categorized according to the domain or part of the prescription where the error occurred, such as drug name, strength, route, dose, etc. A pharmacist and a physician independently classified each event using only information available in the reports. Most reports did not include reasons why events occurred. Categorization discrepancies were resolved through discussion until consensus was reached.
RESULTS: 202 reports were submitted describing 217 events of which 184 were errors. 88% (161/184) of errors were severity B, errors that did not reach the patient. Nineteen errors (10%) reached the patient without causing harm (C); and 4 errors (2%) caused temporary harm requiring intervention (E). 91% of events originated within prescribers' offices. The most frequent mode of errors was commission (61%), of which 20% (22/112) were "illegible handwriting". The remaining errors (72/184) were omissions. Errors involving strength were found in over 32% (70/217) of events, including 23 prescriptions written for strengths not commercially available.
CONCLUSIONS: Commission errors and errors involving medication strength were dominant in this sample. This four-fold taxonomy for analyzing prescribing error reports (severity, location, mode, and domain) allowed frequent patterns of error to become visible.

ANGIOTENSIN RECEPTOR BLOCKERS ON THE FORMULARIES OF MEDICARE DRUG PLANS: ARE THEY THERE?. W.F. Gellad[1]; J.S. Haas[1]. [1]Brigham and Women's Hospital, Boston, MA. *(Tracking ID # 151646)*

BACKGROUND: The new Medicare prescription drug benefit is administered through private plans, each with their own formulary. Which drugs are offered on formulary will have a large impact on who signs up for a plan, and what out-of-pocket costs they might encounter. While the government has tried to ensure access to drugs of all classes, little is known about the success of this effort. To investigate whether current advertised formularies are adequate, we used Angiotensin Receptor Blockers (ARBs) as an example. Depending on how narrowly each plan defines a drug class, it is possible that plans could cover Angiotensin Converting Enzyme (ACE) inhibitors only, and not ARBs; this would have a detrimental effect on many patients who cannot tolerate ACE inhibitors. We studied access to ARBs on the formularies of stand-alone Medicare drug plans in 5 areas, and the associated costs.
METHODS: Using the Medicare website (www.medicare.gov), we accessed formulary information for all private plans available in 5 areas: Boston MA, Miami FL, Orange County CA, Terre Haute IN, and Northwestern Washington State. Information collected included plan identifiers, deductible, premium, and co-pay/tier information for the 7 angiotensin receptor blockers: losartan, irbesartan, valsartan, candesartan, eprosartan, telmisartan, and olmesartan. These characteristics were then compared across sites using univariate parametric and nonparametric tests, specifically testing if premiums, the average number of ARBs on formulary, and average copay, varied by region.
RESULTS: Overall, 226 plans were studied (43–48 private plans/area). The average monthly premium across all regions was $36, and differed significantly among the regions (p = .012). 15% of plans offered some kind of coverage in the "donut hole," but only 2% offered brand-name drugs as part of this gap coverage. The average premium for plans that offer gap coverage was $50, and the average premium for plans that offer brand-name gap coverage was $65. The median number of ARBs covered per plan was 5, and did not vary across sites. Every plan covered at least one ARB, however two plans only covered one–olmesartan. Most plans (42%) covered 2 ARBs on their formulary, or all 7 (38%). Valsartan was the most common ARB covered, in 91% of plans, and eprosartan was the least commonly covered at 39%. The average copay for all ARBs was $35 and did not vary across sites (p = .72).
CONCLUSIONS: The number of stand-alone Medicare prescription drug plans offered in each of 5 regions of the US studied is large. Premiums differ by region, and the mean premium of $36 is higher than the $32 average quoted by CMS. While these findings suggest broad access to ARBs on formulary, it will be important to consider how many Medicare beneficiaries will experience therapeutic substitution, especially for plans that offer only 1–2 ARBs. Very few plans offer any gap coverage, and even fewer offer any coverage for brand-name drugs in the donut hole. It will be important to assure that seniors have access to needed drugs as the formularies of these private drug plans continue to evolve.

ANTIHYPERTENSIVE MEDICATION CLASS AND ADVERSE EVENTS IN PATIENTS WITH PERIPHERAL ARTERIAL DISEASE. T.C. Collins[1]; R.L. Bush[2]; N.J. Petersen[2]. [1]Michael E. DeBakey VA Medical Center, Houston, TX; [2]Baylor College of Medicine, Houston, TX. *(Tracking ID # 152471)*

BACKGROUND: We sought to determine the association of antihypertensive medication class with lower extremity bypass surgery (LEBS), lower extremity amputation (LEA), or death following the diagnosis of peripheral arterial disease (PAD).
METHODS: We performed a retrospective cohort study of patients with PAD (defined by an ankle-brachial index [ABI] <0.9 between 1995 and 1998) at one local VA hospital. We reviewed medical records and pharmacy data for risk factor control starting from 3 years prior to the ABI date until the first event or the end of the study (December 31, 2001). We determined the prevalence of each the four major atherosclerotic risk factors (i.e., smoking, diabetes mellitus, hypertension, and hyperlipidemia) and the level of control of each risk within this cohort; level of control was defined as the total number of days of control divided by the total number of days of exposure. We defined medication exposure as the percent of days during which the medication was dispensed relative to the number of days it was prescribed. We categorized antihypertensive medication based on its mechanism of action (i.e., beta blockers, diuretics, calcium channel blockers, angiotensin converting enzyme inhibitor/receptor blockers (ACEI/ARBs), and other). Adjusting for sociodemographics and level of control of each risk factor, we determined the association between medication class and LEBS, LEA, or death using Cox proportional hazards models.
RESULTS: Of 796 patients (mean age, 65 ± 9.9 years), 230 (28.9 percent experienced an adverse limb event [136, lower-extremity bypass; 94, lower-extremity amputation]), and 354 (44.5 percent) died; 247 (31%) patients died without a limb event. A total of 509 (63.9%) were smokers, 488 (61.3%) had diabetes mellitus, 439 (55.2%) had elevated low-density lipoprotein (LDL), and 697 (87.6%) had hypertension. Patients who received diuretics were less likely to undergo LEBS with a hazard ratio (HR) of 0.5 and 95% hazard ratio confidence limits (CL) 0.4, 0.8. For lower extremity amputation, the antihypertensive class that was associated with this outcome was calcium channel blockers (HR 0.5; 95% CL 0.3, 0.8). For death without a preceding limb event, the antihypertensive classes that were associated with this outcome included beta blockers (HR 0.5; 95% CL 0.4, 0.7) and ACEI/ARBs (HR 0.6; 95% CL 0.5, 0.8). For all deaths combined, the antihypertensive medication classes associated with this event included beta blockers (HR 0.5; 95% CL 0.4, 0.7) and ACEI/ARBs (0.7; 95% CL 0.5, 0.8).
CONCLUSIONS: Hypertension is a common coexisting illness among patients with PAD. After adjustment for race, PAD severity, and level of atherosclerotic risk factor control, classes of antihypertensives that were associated with a lower risk for an adverse limb event included diuretics and calcium channel blockers. In contrast, beta blockers and ACEIs were associated with a lower risk for mortality in patients with PAD. Prospective data is needed to better define the role of various antihypertensive regimens to reduce adverse events in studies focused on patients with PAD, a common condition in the primary care setting.

ANTIRETROVIRAL MEDICATION ERRORS IN HOSPITALIZED HIV-INFECTED PATIENTS. D.A. Rastegar[1]; A.M. Knight[1]; J. Monolakis[2]. [1]Johns Hopkins University, Baltimore, MD; [2]Johns Hopkins Bayview Medical Center, Baltimore, MD. *(Tracking ID # 150363)*

BACKGROUND: Highly-active antiretroviral therapy (HAART) has significantly reduced morbidity and mortality from HIV infection. However, effective therapy requires high levels of adherence over extended periods of time. Hospitalization is a time when HIV-infected patients may be at risk for discontinuity or errors in their antiretroviral therapy. The objective of this study was to quantify and characterize antiretroviral medication errors in our hospital.
METHODS: We identified all admissions over a one-year period in which a patient was prescribed antiretroviral medication using the computerized provi-

der order entry (CPOE) system. The patient's medication list and renal function were reviewed to identify potential antiretroviral medication errors. Errors were defined using US Department of Health and Human Services guidelines and categorized in the following fashion: 1) unexplained delay in continuing outpatient HAART (more than 24 hours after admission), 2) inadequate regimen (two or fewer active agents), 3) incorrect dose or frequency, including failure to appropriately adjust for renal insufficiency, 4) contraindicated combination of medications. The medical records for all admissions with a potential error were then reviewed, as well as outpatient records (when available), to determine any possible rationale for apparent errors in therapy, such as correspondence with the outpatient regimen or withholding therapy because of possible drug toxicity. We also looked for evidence of potential adverse drug reactions when patients received an excessive dose or a contraindicated combination.
RESULTS: Over a one-year period, 209 admissions were identified in which an HIV-infected patient was prescribed antiretroviral medication. On initial review of medication records, 89 potential errors were identified in 77 admissions. After review of medical records, 28 of these were not included, either because the error was corrected within 24 hours, there was justification for withholding therapy, or because an inadequate regimen corresponded with their outpatient treatment. There were 61 uncorrected errors in 54 admissions (25.8% of total admissions). An error of dosage or frequency was the most common type and occurred in 34 (16.3%) of the admissions; 18 of these were due to failure to appropriately adjust dosage for renal insufficiency. Combining antiretrovirals with a contraindicated medication occurred in 12 (5.2%) of the admissions; 6 were due to combination of simvastatin and a protease inhibitor, the other 6 were due to combination of proton pump inhibitor with atazanavir. Patients erroneously received three or fewer antiretroviral agents in 8 (3.8%) of the admissions and had an unexplained delay in continuing antiretroviral therapy in 7 (3.3%). One potential adverse drug reaction was identified in a patient on lopinavir/ritonavir who was prescribed simvastatin and had increasing liver enzymes until the simvastatin was stopped, after which the liver enzymes returned to previous levels.
CONCLUSIONS: Among HIV-infected patients who received antiretroviral therapy, we found errors in the prescribing of antiretroviral medications in approximately a quarter of admissions. More needs to be done to develop systems that will prevent such errors and ensure optimal care for hospitalized patients with HIV infection.

ANTIRETROVIRAL MEDICATIONS ASSOCIATED WITH ELEVATED BLOOD PRESSURE AMONG PATIENTS RECEIVING HAART. H. Crane[1]; S. Van Rompaey[1]; M.M. Kitahata[1]. [1]University of Washington, Seattle, WA. *(Tracking ID # 154479)*

BACKGROUND: Antiretroviral therapy may affect blood pressure (BP) and subsequent cardiovascular disease risk among HIV-infected patients. We conducted this study to determine the effect of antiretroviral agents and clinical factors on the development of elevated BP.
METHODS: Observational cohort study of patients initiating their 1st highly active antiretroviral therapy (HAART) regimen. We evaluated mean BP prior to HAART initiation (baseline) and while receiving HAART in relation to antiretroviral classes and individual agents, body mass index (BMI) at baseline, change in BMI using last weight recorded while on HAART, race, smoking status, age, gender, CD4 cell nadir, HIV-1 RNA level, hepatitis C virus (HCV) antibody, and family history of hypertension. We used logistic regression analysis to examine factors associated with Elevated BP (at least 10 mmHg increase in systolic BP [SBP], diastolic BP [DBP], or new diagnosis of hypertension).
RESULTS: Among 444 patients who had 4,592 BP readings, 95 patients developed elevated SBP (N=83), elevated DBP (N=33), or a new diagnosis of hypertension (N=11) after initiating HAART. In multivariate analysis, patients on lopinavir/ritonavir had the highest risk of developing Elevated BP (OR 2.5, p=0.03) compared with efavirenz-based regimens. When change in BMI was added to the model, increased BMI was significantly associated with Elevated BP (OR 1.3, p=0.02), and the association between lopinavir/ritonavir and Elevated BP was no longer present. Compared with lopinavir/ritonavir-based regimens, patients receiving atazanavir (OR 0.2, p=0.03), efavirenz (OR 0.4, p=0.02), nelfinavir (OR 0.3, p=0.02), or indinavir (OR 0.3, p=0.01) had significantly lower odds of developing Elevated BP. When we included nucleoside reverse transciptase inhibitors in the adjusted model, we found that tenofovir/lamivudine was associated with an increased risk of developing elevated BP (OR=2.3, p=0.046) compared with zidovudine/lamivudine.
CONCLUSIONS: Treatment with lopinavir/ritonavir is significantly associated with Elevated BP, an effect that appears to be mediated through an increase in BMI. Patients receiving atazanavir were least likely to develop Elevated BP. The impact of antiretroviral medications on cardiovascular disease risk factors will increasingly influence treatment decisions.

AORTIC CALCIFICATION AND THE RISK OF CARDIOVASCULAR AND TOTAL MORTALITY IN OLDER WOMEN. N. Rodondi[1]; B.C. Taylor[2]; D.C. Bauer[3]; L. Lui[3]; M.T. Vogt[4]; H.A. Fink[2]; W.S. Browner[3]; S. Cummings[5]; K.E. Ensrud[6]. [1]University of Lausanne, Lausanne, Switzerland; [2]VA Medical Center, University of Minnesota, Minneapolis, MN; [3]University of California, San Francisco, San Francisco, CA; [4]University of Pittsburgh, Pittsburgh, PA; [5]California Pacific Medical Center (CPMC), San Francisco, CA; [6]University of Minnesota, Minneapolis, MN. *(Tracking ID # 151559)*

BACKGROUND: Several noninvasive methods to assess subclinical cardiovascular disease (CVD) have been suggested to identify individuals at high cardiovascular risk and to better target therapies in the primary prevention of CVD, but there is no consensus on the best method to use for routine risk assessment. Aortic calcification has been associated with increased risk of cardiovascular events and ischemic strokes, but data on the predictive role of aortic calcification are limited and conflicting in older adults. The assessment of extracoronary atherosclerotic disease might be technically easier to perform and less expensive than more recently developed techniques, such as MRI or coronary calcium by EBCT.
METHODS: We performed a 13-year prospective study in 2056 community-dwelling white women aged ÍÝ 65 years to examine the relationship between aortic calcification and cardiovascular and total mortality. The presence of abdominal aortic calcification (yes vs. no) was assessed on lateral spine X-rays at baseline. Causes of death were adjudicated based on death certificates and hospital records. We used proportional hazards models to assess the association between aortic calcification and cardiovascular and total mortality.
RESULTS: The prevalence of aortic calcification increased with age, ranging from 60% at age 65–69 years to 96% at 85 years and older. In age-adjusted analyses, aortic calcification was associated with a higher risk of total mortality (hazard ratio [HR] 1.65, 95% confidence interval [CI] 1.39–1.97) and any cause-specific mortality (cardiovascular, cancer, and other mortality, all p values iÜ0.01). In multivariate analyses, adjusted for age and cardiovascular risk factors, aortic calcification was associated with total mortality (adjusted hazard ratio [aHR]: 1.42, 95%CI 1.19–1.70) and other (non-cardiovascular non-cancer) mortality (aHR: 1.62, 95%CI 1.21–2.16). Relationships between aortic calcification and cardiovascular (aHR: 1.27, 95%CI 0.95–1.68) and cancer mortality (aHR: 1.41, 95%CI 0.98–2.02) were similar in magnitude, but did not reach statistical significance. With respect to cardiovascular mortality, aortic calcification was associated with specific mortality from coronary heart disease (aHR: 1.67, 95%CI: 1.00–2.78) and more strongly with cardiovascular mortality in the first 10 years after baseline (aHR: 1.46, 95%CI 0.91–2.34) than later (aHR 1.15, 95%CI 0.81–1.66).
CONCLUSIONS: In older, community-dwelling women, abdominal aortic calcification is associated with an increased risk of death. Future research should examine whether extent of calcification is related in a graded manner to risk of mortality and examine potential mechanisms for this relationship.

ARE ALL DOCTORS EQUAL?: FACTORS INFLUENCING PERCEPTIONS OF VARIATION IN HEALTH CARE QUALITY. E.K. Hummel[1]; B. Zikmund-Fisher[2]; G.F. Loewenstein[3]; T.A. Brennan[4]; A.A. Gawande[4]; P.A. Ubel[5]. [1]Veterans Affairs Health Services Research & Development, Ann Arbor, MI; [2]Veterans Affairs Health Services Research & Development Center of Excellence, Ann Arbor, MI; [3]Carnegie Mellon University, Pittsburgh, PA; [4]Partners HealthCare System, Boston, MA; [5]University of Michigan, Ann Arbor, MI. *(Tracking ID # 153610)*

BACKGROUND: Few people choose their health care providers based on available quality information, despite its increasing availability to the general public. One factor that may hinder the use of quality information is the perception that quality varies very little between health care providers. These perceptions of quality variation may be determined by how familiar a person is with the health care system. People may perceive that more variation in health care quality actually exists when they have had more opportunities to witness variation first-hand as either a health care employee or as a patient. The purpose of this research project was to examine the relationship between familiarity with health care that comes through health care employment or experience as a patient and perceptions of quality variation (PQV).
METHODS: We conducted a cross-sectional survey of adults 18 years of age and older via the Internet. Our sample consisted of a demographically stratified sample of Internet users identified through a commercial survey research panel. The survey included both general questions about perceptions of variation as well as questions based around a clinical scenario of coronary artery bypass surgery for coronary artery disease. Primary outcome variables were perceptions of quality variation (PQV) across 3 major domains of quality: technical skill, clinical judgment and caring. Independent variables were health care employment, experience as a patient (number of provider contacts, hospitalizations, nursing home stays, home care usage, history of heart problems, history of major surgery), age, gender, race/ethnicity, education, income, marital status and insurance status. The data were analyzed using multivariate linear regression analysis.
RESULTS: 1684 people completed the survey. Overall, respondents reported significantly higher PQV in caring (mean rating=5.5 out of 7) than in either technical skill (mean rating=4.9 out of 7; p<0.001) or clinical judgment (mean rating=4.9 out of 7; p<0.001). For the purposes of further analyses, we defined increased familiarity with health care two ways: 1) having 6 or more contacts with health care providers over the past 2 years and 2) being employed in health care. After adjusting for all demographic variables, PQV in caring were significantly larger among respondents reporting 6 or more contacts with health care providers over the last 2 years (β=0.10; p<0.001). However, this same group of respondents did not perceive greater PQV in technical skill or clinical judgment than respondents with fewer medical interactions. Overall, 16% (N=265) of the respondents reported being employed in the health care field. After adjustment, health care employment was significantly associated with increased PQV across all 3 outcome domains: technical skill (β=0.05; p=0.04), clinical judgment (β=0.05; p=0.05), and caring (β=0.05; p=0.04).
CONCLUSIONS: Increased familiarity with health care, either through frequent contacts as a patient or through being employed in health care, is associated with perceptions of increased variation in health care quality between health care providers. Future research should further examine the strength of this association beyond the scope of this pilot project and elucidate the role of perceptions of quality variation in consumer choice behavior.

ARE EARLY ADOPTERS OF A WEB-BASED PATIENT PORTAL MORE ACTIVATED THAN MATCHED CONTROLS?. N.R. Shah[1]; J.B. Jones[2]; Z. Daar[2]; W.F. Stewart[2]. [1]New York University, New York, NY; [2]Geisinger Health, Danville, PA. *(Tracking ID # 152986)*

BACKGROUND: Web-based e-portals can provide access to an institutional electronic medical record, allowing patients to view test results, schedule appointments, request prescription refills, view visit notes, communicate electronically with their providers, and possibly serve as a platform to deliver personalized behavioral interventions. Growing interest and research on the impact of e-portal usage on patient self-efficacy raises questions on whether and how e-portal users differ from their peers who do not use e-portals. We compared portal users and non-users, specifically focusing on patients with chronic disease.
METHODS: Participants comprised patients who had a diagnosis of diabetes mellitus, cardiovascular disease, or chronic heart failure and who had a primary care physician in one of the Geisinger Clinic's 41 community practice sites (all use an electronic health record). A random sample of 300 e-portal users meeting the above criteria was selected along with 129 matched control patients (i.e., matched on age, sex, chronic disease diagnosis, and clinic). Participants completed an initial phone survey and a follow-up mail questionnaire. The phone interview assessed decision-making preferences, information-seeking activities, medication adherence, patient activation, and other factors potentially related to e-portal use. The mail questionnaire was used to collect additional data on patient characteristics, physical activity, and use of the internet for health-related purposes. Patient activation was assessed using the 13-item Patient Activation Measure (PAM), a new instrument designed to measure whether a patient has the knowledge, skills, and confidence to self-manage their health and chronic condition.
RESULTS: Portal use was significantly associated with gender, income, and education; portal users were more likely to be male, have more education, and report a higher annual income. The overall mean PAM score was 62, suggesting that this population of patients is already actively engaged in self-managing their conditions. After adjusting for potential confounders, portal users were more likely to have higher activation scores, but this association did not achieve statistical significance. When patients were classified according to their stage of activation, there were significant differences between e-portal users and non-users; users were more likely to be classified as Stage 4, the highest level of activation. E-portal users were significantly more likely to report high levels of confidence in their ability to complete medical forms and reported higher levels of internet use for carrying out health-related activities. Self-reported medication adherence was higher among e-portal patients. There were no between-group differences in preferences for involvement in medical decision-making or in levels of self-reported physical activity.
CONCLUSIONS: E-portal use is associated with male gender, higher education and income, and use of the internet for health related activities. This profile may reflect early-adopter status or simply characterize differences in access to technology, comfort with internet use, or other factors related to care preferences. E-portal users showed a trend toward greater patient activation. Findings from eHealth studies may have limited generalizability due to this "volunteer" effect and future studies should attempt to quantify these differences in meaningful ways.

ARE HOSPITAL CHARACTERISTICS ASSOCIATED WITH RACIAL DISPARITIES IN RISK-ADJUSTED MORTALITY FROM GASTROINTESTINAL HEMORRHAGE?. J.R. Pippins[1]; G. Fitzmaurice[1]; J.S. Haas[1]. [1]Brigham and Women's Hospital, Boston, MA. *(Tracking ID # 155277)*

BACKGROUND: While racial disparities in the utilization and quality of surgical procedures are well documented, less is known about disparities in mortality for medical conditions. Inpatient mortality from gastrointestinal hemorrhage (GIH) is examined, with the goal of determining whether racial disparities exist between blacks or Hispanics when compared to whites, and if so, whether the magnitude of disparity is associated with hospital characteristics.
METHODS: A sample of hospitals (324 for the black-white comparison and 233 for the Hispanic-white comparison) drawn from the 2003 Nationwide Inpatient Sample (NIS). Hospitals were eligible for inclusion if they were located in one of the 26 states in the NIS that report race data, had at least 730 discharges during 2003, and had at least one discharge with a principal diagnosis of GIH for each of three racial groups (black, Hispanic, and white). Risk-adjusted mortality rates from GIH were calculated for each hospital, stratified by race. Black vs white and Hispanic vs white risk-adjusted mortality rates were compared by hospital characteristics (four geographic regions, urban/rural location, three categories of bedsize, teaching status, quartiles of case volume, overall mortality for GIH [above/below the median], and density of black or Hispanic discharges [$<6\%$, 6-30%, $>30\%$]). Multivariate log-linear regression was used to assess whether hospital characteristics were independently associated with the magnitude of black-white or Hispanic-white disparities.
RESULTS: The overall risk-adjusted mortality rate from GIH was 1.5% for blacks and 1.1% for whites in the sample used for the black-white comparison, and 0.6% for Hispanics and 1.0% for whites in the sample used for the Hispanic-white comparison. Lower overall risk-adjusted mortality from GIH was associated with both larger black-white and Hispanic-white disparities in mortality from GIH (OR 3.92, 95% CI 2.19–7.03, $p<0.0001$; OR 2.27, 95% CI 1.08–4.78, $p=0.0314$, respectively). Density of blacks was also significantly associated with the degree of the black-white disparity, with hospitals having a greater than 30% black discharges demonstrating less disparity (OR 0.81, 95% CI 0.54–1.23) compared to hospitals having less than 6% black discharges (OR 2.27, 95% CI 1.63–3.16). Density of black discharges, therefore, was associated with degree of disparity, with the hospitals having greater than 30% black discharges demonstrating less disparity than hospitals having less than 6% black discharges (RR 0.36, 95% CI 0.21–0.62). Among the hospitals having greater than 30% black discharges, the overall risk-adjusted mortality rate from GIH was 1.7% for blacks and 2.0% for whites, while the rate for blacks was 2.1% and for whites 1.1% among hospitals having less than 6% black discharges. There was no association between density of Hispanic discharges and magnitude of Hispanic-white disparity.
CONCLUSIONS: Risk-adjusted mortality is a measure often used to assess the "quality" of hospitals. Hospitals having a lower overall risk-adjusted mortality from GIH demonstrate larger black-white and Hispanic-white disparities. Overall rates in mortality form GIH may therefore not be an adequate measure of quality for all patients. In addition, while black-white disparities are smaller in hospitals with more black discharges, this is largely due to a substantial increase in the risk-adjusted mortality rate for whites. In these hospitals, lesser disparity may reflect overall worse care.

ARE INTERNAL MEDICINE RESIDENTS TRAINED AND COMPETENT TO PROVIDE CONTRACEPTION?. P.A. Lohr[1]; J.E. Gladstein[2]; E.B. Schwarz[1]; A.L. Nelson[3]. [1]University of Pittsburgh, Pittsburgh, PA; [2]Cedars-Sinai Medical Center, Los Angeles, CA; [3]University of California, Los Angeles, Torrance, CA. *(Tracking ID # 154591)*

BACKGROUND: Internists play a critical role in providing contraceptive counseling to women with complex medical histories. Recognizing this, the American Board of Internal Medicine recommended core competencies in family planning and reproductive health for internal medicine (IM) residents in 1997. This study describes the contraceptive counseling and prescribing practices of IM residents in training during 2004.
METHODS: We surveyed residents in 9 IM programs in Los Angeles County across all post-graduate years (PGY) in 2004. Residents attending residency-based educational conferences were invited to participate. The self-administered, 24-item survey consisted of demographic, contraceptive practice pattern, training, and knowledge variables. Analyses of association were performed using Fisher's exact test and logistic regression where appropriate.
RESULTS: One hundred and fifty-two residents completed the survey, which represents 31% of the 488 residents in these programs. Residents were well distributed by gender (43% female, 57% male), post-graduate year (42% PGY 1, 31% PGY 2, 23% PGY 3 or 4), and intended area of practice (30% general medicine, 56% subspecialty, 13% transitional/other). Of the 95% who reported caring for women of reproductive age, 51% reported formal training in contraception. Few residents reported routine provision of contraceptive counseling (17% routinely, 42% sometimes, 32% rarely, and 9% never). Routine counseling was not associated with gender, PGY, intended area of practice, or training in family planning during residency, but was associated with routinely taking a sexual history (OR 6.07, 95% CI 2.38, 15.49), asking about unprotected intercourse (OR 5.10, 95% CI 2.02, 12.84), and assessing desire for future pregnancies (OR 11.1, 95% CI 3.23, 38.1). Residents reported providing contraceptive counseling most commonly when a patient desired contraception (88%). Seventy-one percent had counseled for one or more medical indications such as prescribing a teratogen or caring for a woman with a medical problem that would be worsened by pregnancy. However, residents infrequently provided contraception (median number of prescriptions in past year=2, range 0–30). Few residents were comfortable counseling about birth control methods that are safest for women with medical problems such as intrauterine contraception (33%) and progestin-only methods (32%). The range of contraceptive methods prescribed or recommended was limited to male condoms (80%), and combined hormonal (84%) and progestin-only methods (17%). The most common reasons for not counseling were a preference for referral to a gynecologist (44%), lack of time (42%), and lack of training (31%). Seventy-five percent of residents surveyed would like more training about contraception.
CONCLUSIONS: Internal medicine residents who commonly care for women of reproductive age infrequently assess or address contraceptive needs. Few residents feel comfortable counseling about the safest and most effective methods of contraception for women with medical problems. Further training in contraceptive counseling and provision is needed and desired by many internal medicine residents.

ARE INTERNS PREPARED TO RECOGNIZE OPPORTUNITIES TO IMPROVE PATIENT CARE? ANALYSIS OF A PRACTICE BASED IMPROVEMENT LOG AT THE START OF RESIDENCY. B. Krajicek[1]; J.C. Kolars[1]; K. Thomas[1]. [1]Mayo Clinic, Rochester, MN. *(Tracking ID # 156413)*

BACKGROUND: Since the release of the Institute of Medicine report To Err is Human, there has been increased emphasis on quality of care and patient safety in the healthcare environment. Consistent with these tenets, quality improvement is a central component of the Systems Based Practice (SBP) and Practice Based Learning and Improvement (PBLI) competencies which have been endorsed by the Accreditation Council for Graduate Medical Education as essential elements of graduate medical education. As such, there is both an opportunity for and a need to integrate residents into the quality improvement process in academic health centers. This study describes the ability of residents to recognize improvement opportunities, a necessary first-step for institutional quality improvement and a cornerstone implicit to the SBP and PBLI competencies.
METHODS: The Practice Based Improvement Log (PBIL) was developed as a tool to solicit resident reflections regarding an event during their recent medical training that could have been improved upon. Completion of the log included a brief description of the event and the resident's perception of event severity. Residents also determined whether or not the event was preventable and

provided reflection on personal practice or health care systems changes that could prevent recurrence. Residents were also asked to identify and quantify potential contributing personal, team, and system factors. The PBIL was distributed to first year internal medicine categorical and preliminary residents beginning their training at a large academic medical center for the 2005–2006 academic year.
RESULTS: Seventy-three of 75 (97%) residents completed this log. Ninety-seven percent of the described events occurred in the inpatient setting. Resident reflections classified 34% of events as moderately-severe or severe and another 12% of events resulted in patient death. Ninety-three percent of events were considered preventable. The largest error attributions were ascribed to personal factors (41%) and team factors (22%), with 8% and 12% assigned to systems or institutional factors, respectively. Faculty review of the reported events further categorized multiple contributing system problems ranging from non-adherence to or absence of standard protocol, errors in medication administration or reconciliation, insufficient information technology, poor response to early warning signs, and inadequate technology or equipment.
CONCLUSIONS: Residents are able to identify significant opportunities for healthcare improvement. This suggests an opportunity for academic health centers to capitalize on resident identified improvement opportunities by including them in the institutional quality improvement process. In doing so, academic centers will be better able to recognize systems level changes for improved patient care. Work is currently underway at our institution to periodically capture data regarding resident identified events with the intention of aligning with our local quality and safety leadership to identify and implement systems level changes that will improve patient safety.

ARE WE ADEQUATELY TRAINING INTERNAL MEDICINE RESIDENTS IN GERIATRICS? RESULTS OF A BASELINE SURVEY. H.S. Kao[1]; B. Johnston[1]; S. Lai[1]; J. Kohlwes[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 152884)*

BACKGROUND: By 2030, 20% of the US population will be over 65 years old. With the aging of the US population, there is a growing need for internists who are competent in caring for older patients. The Accreditation Council for Graduate Medical Education (ACGME) has mandated resident training in geriatric care since 1998. Our study evaluated how knowledgeable and confident UCSF Internal Medicine residents were with geriatric care prior to implementation of an expanded training curriculum. A secondary goal was to see whether resident confidence translated into overall competence in geriatric skills.
METHODS: A survey of internal medicine residents was conducted at UCSF in January 2004. Residents ranked their interest in geriatrics (1=not at all interested, 5=very interested) and resident confidence in thirteen geriatric topics (1=not confident, 5=very confident). A ten question knowledge test was adapted from the UCLA Geriatric Attitudes and Knowledge Assessments. Participants were anonymous but were asked to indicate year of training and program (primary care or categorical). Statistical analysis was performed on Epi Info 6.0. Comparisons in confidence and knowledge levels among groups were carried out by Mann-Whitney U Test.
RESULTS: The response rate was 65 percent (106 of 164 residents). Mean interest in geriatrics did not differ by training year. However, primary care residents had significantly more interest in geriatrics than categorical residents (3.40 vs. 2.67, $P=0.0014$). The greatest confidence score possible was 65 (rating a 5 on all 13 topics). Mean resident confidence was 39 (range 25–57). There was no difference in confidence between categorical and primary care residents. Confidence in geriatric care rose significantly by year: 35.1 PGY1, 39.1 PGY2, 43.8 PGY3 (PGY1-PGY2 $P=0.0014$, PGY1-PGY3 $P<0.0001$, PGY2-PGY3 $P=0.0128$) On average, residents ranked confidence highest (>3.5) on topics seen more commonly in the inpatient setting: delirium, end-of-life care, and hospital care. Confidence was poorest (<3) on topics not addressed commonly by inpatient medical services: abuse and neglect, hearing and vision loss, home care, incontinence, nursing home care, and nutrition. There was no correlation between residents' confidence in geriatric care and their performance on the ten-question knowledge assessment.
CONCLUSIONS: In this cohort of residents, confidence in their geriatric care increased throughout training. This did not translate into increased knowledge scores however. Interestingly, confidence and knowledge scores were highest in geriatric topics more commonly encountered in the inpatient setting. This suggests a need for more effective outpatient geriatrics training.

ARE WE PREPARING RESIDENTS FOR THE ECONOMIC REALITIES OF MEDICAL PRACTICE?. P. Bailey[1]; S. Green[2]; T.S. Caudill[2]; M.B. Duke[2]; W. John[2]. [1]Society of General Internal Medicine, Lexington, KY; [2]University of Kentucky, Lexington, KY. *(Tracking ID # 153753)*

BACKGROUND: As the cost of health care continues to rise, cost containment practices have a growing impact on physician ability to survive financially while continuing to provide appropriate patient care. Medical educators have been slow to integrate these issues into medical curricula. This study was conducted to evaluate the frequency with which physicians in practice deal with these issues and how well our program prepares them.
METHODS: Physicians that graduated from our medicine and medicine pediatric residencies from 1995-2005 were surveyed. They were asked to rate on a five point Likert scale preparedness (1=poorly prepared, 5=very prepared) and frequency of performance (1=never, 5=very often) of several skills including billing and coding and administration/office management. For the purpose of analysis, being well prepared and a skill being frequently performed were considered to be ratings of 4 or 5. Graduates were also asked to list issues with resource allocation they dealt with on a routine basis and their strategies for overcoming these issues.
RESULTS: There were 112 surveys returned for a response rate of 52%. On the specific item related to billing and coding, 85% of respondents reported that this is a frequent practice and only 24% felt residency prepared them well. The item regarding administration/office management elicited a similar response, 61% reported frequent practice while only 6% felt their residency prepared them well. The most frequent themes of resource allocation were formulary restrictions and obtaining approval for diagnostic testing or care. The most frequently reported strategies were phone calls and letters to third party payers.
CONCLUSIONS: At our program, graduates report that they are poorly prepared for some of the business tasks essential to their professional lives. These striking data reinforce the importance of incorporating these issues into medical curricula.

ASPIRIN (UNDER)USE IN DIABETES MELLITUS PATIENTS. P. Garg[1]; V. Jeevanantham[1]; A. Khan[1]; S.D. Navaneethan[1]; A. Nautiyal[1]; R. Shrivastava[2]. [1]Unity Health System, Rochester, NY; [2]University of Rochester, Rochester, NY. *(Tracking ID # 157109)*

BACKGROUND: Aspirin therapy is considered beneficial in preventing cardiovascular disease (CVD) in people with diabetes. ADA recommends aspirin use for both primary and secondary prevention of CVD among diabetics. In this study we analyzed the aspirin use for primary and secondary prevention of coronary artery disease (CAD) among adults with diabetes.
METHODS: Patients with type-2 diabetes from our adult primary care teaching practice were included for the period July 2003–June 2004. Charts were reviewed to collect data on patient demographics, pre-existing CAD, ACE inhibitor (ACE-I) use, aspirin use, blood pressure control, hemoglobin A1c, LDL-cholesterol level, and microalbuminuria.
RESULTS: A total of 139 patients with type-2 diabetes mellitus were included (61.15% women, mean age: 62.45-years). Nine patients with contraindication to aspirin use were excluded. Twenty three patients (18%) had preexisting CAD, 101 patients (72.66%) had hypertension, 66 patients (50.8%) were on ACE-I, 58 patients (45%) had hemoglobin A1c<7gm%, 61 patients (47.3%) had microalbuminuria, and 66 patients (51.2%) had LDL-cholesterol<100 mg%. Overall 45 patients (34.6%) were on aspirin. Of these only 29 (27.1%) patients were taking it for primary prevention and 16 patients (69.6%) were taking it for secondary prevention of CAD. This difference was statistically significant (p value <0.001).
CONCLUSIONS: Our study indicates that optimal control of cardiovascular risk factors in adults with diabetes was achieved only in about half of the patients. Presence of preexisting coronary artery disease did not lead to a more aggressive risk factor modification in these patients. This study highlights the difficulties in achieving control of diabetes per ADA guidelines

ASSESSING LIFESTYLE AND SELF-MANAGEMENT PRACTICES AMONG VETERANS WITH DIABETES AND POOR GLYCEMIC CONTROL. K. Nelson[1]; L. McFarland[2]; G.E. Reiber[3]. [1]University of Washington, VA Puget Sound, Seattle, WA; [2]VA Puget Sound Health Care System, Seattle, WA; [3]University of Washington, Seattle, WA. *(Tracking ID # 151410)*

BACKGROUND: Optimal management of type 2 diabetes requires many lifestyle modifications, including medication adherence, diet, and physical activity, which are critical to improve glycemic control. In national data, the majority of U.S. adults with type 2 diabetes do not follow recommended guidelines for diet and exercise, although this data did not specifically address the physical activity and dietary practices of veterans. The purpose of this study is to assess self-management practices among veterans with poor glycemic control and identify issues for future diabetes interventions.
METHODS: Surveys were mailed to veterans with a Hemoglobin A1c of 8% or greater who had attended one of two VA Medical Centers in Washington State. Validated survey instruments assessed physical activity, medication adherence, nutrition, and other diabetes self-care practices.
RESULTS: Of 1,287 potential respondents, 718 completed surveys (response rate 56%). The mean HbA1c was 9.4%. The mean age of respondents was 62 years; 96% were men and 20% were smokers. These veterans had significant comorbidity with 24% reporting a history of myocardial infarction, 26% lung disease, and 19% congestive heart failure. Over half reported fair or poor health. Twenty four percent of respondents forgot to take their medications one day per week and 21% reported non-adherence 2 or more days per week. Thirteen percent had foregone basic necessities and 10% reduced medications due to cost. One-third of respondents did not follow a meal plan and 42% reported a high-fat diet. Levels of physical activity were reported as light (33%), moderate (16%) and vigorous (12%). Almost all (92%) monitored their blood glucose at least once a week. In multivariate linear regression analysis, independent predictors for lower HbA1c level included medication adherence, following a meal plan, and level of physical activity. Home glucose monitoring was not independently associated with HbA1c level.
CONCLUSIONS: Diabetes interventions should be tailored to address self-management areas including medication adherence, nutrition, and physical activity.

ASSESSMENT OF BARRIERS TO END OF LIFE SYMPTOM MANAGEMENT USING A HOSPITAL PROTOCOL. A.M. Walling[1]; N. Wenger[1]; K. Brown-Saltzman[1]; T. Barry[1]; R. Jue Quan[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 154119)*

BACKGROUND: When a patient approaches death in the hospital, a complex set of interactions between providers, families and sometimes patients leads to a plan of care focusing treatment on comfort. This challenging decision process is

complicated by diverse views concerning opiate use at the end of life. In order to improve management of patients with symptoms near death, we instituted an End of Life Symptom Management Order sheet (ESMO) to guide the use of unrestricted opiates and other modalities to provide palliation. We evaluated the use of this intervention by asking clinicians employing the ESMO about problems in symptom control toward the end of life.
METHODS: For each ESMO submitted to the hospital pharmacy, we approached a physician and a nurse directly responsible for the patient's care to administer a brief survey about symptom control. The survey asked about discussions leading up to the decision to use the ESMO, difficulties in dosing opiates to achieve symptom control, concerns about the use of unrestricted opiates, and the value of the ESMO.
RESULTS: Fifty three patients were treated using the ESMO over 135 days, yielding an incidence of approximately 12 per month. Of these 53 patients, 51 (96%) died prior to discharge. This accounts for 19% of the inpatient deaths at the facility. We were able to survey nurses and physicians for 44 of these patients (86% response rate). Nearly all physicians and nurses found the ESMO to be valuable in their patient's care and most health care providers felt that unrestricted opiates were appropriately titrated to patient comfort. However, 11% gauged the opiate dosing to be too low to ameliorate symptoms for their patient, whereas 5% reported that the opiate dose was too high. Twenty percent of respondents were concerned that they would not adequately control their patient's pain and 19% were concerned that they would hasten their patient's death. Doctors were more likely than nurses to be concerned about adequately controlling pain (26% v 14%) whereas more nurses than doctors were concerned about hastening their patient's death (24% v 12%). The majority of health care providers felt that the ESMO was instituted at the right time for their patient, although 12% felt that it was instituted too late and 1 felt it was started too early.
CONCLUSIONS: Largely related to fears of hastening death, unrestricted opiate administration has often been avoided, even in the setting of severe symptoms among patients nearing death. The standardized ESMO is used commonly and is employed in 1 in 5 hospital deaths. Whether patients who could benefit from this treatment are not receiving requires additional evaluation, however, even with the standardized ESMO a significant minority of health care providers feel uncomfortable with the administration of opiates toward the end of life. Unrestricted opiate administration expecting death is common in an academic medical center, but it is associated with concerns about under- and over-treatment, suggesting a need for further training.

ASSESSMENT OF THE LITERACY LEVELS NEEDED TO USE THE FOOD PYRAMID WEBSITE. M. Desouza[1]; A. Barbour[1]. [1]George Washington University, Washington, DC. *(Tracking ID # 151845)*

BACKGROUND: To combat the obesity epidemic, the government released a new food pyramid that features an interactive web based program that estimates portion sizes. Tables of common foods and their ounce equivalents for portions are given. It is estimated that over 50% of Americans have low health literacy and lack the capacity to use and interpret texts, documents and numbers effectively to understand basic health information. This study examines whether low literacy levels affect the ability to use food pyramid portion tables.
METHODS: We administered surveys to English speaking patients at two primary care clinics in Washington DC. Patients were randomly selected from an indigent care clinic and an academic clinic that accepts insurance. The two clinics were chosen to get adequate numbers of patients of all literacy levels Literacy level was assessed with a validated health literacy instrument, "The Newest Vital Sign". Patients were given the study questionnaire with a modified portion table from the website and asked to calculate the servings of grain and protein in a sample diet. They were also given a table of healthy and unhealthy fats and asked to select the type of fats in a list of foods. Literacy scores greater than or equal to four were considered adequate literacy while scores less than four indicated limited literacy. For each of the three sections (grains, protein, fat) in the questionnaire the maximum number of correct answers was four. For both literacy levels, a mean score was calculated for number of correct answers in each section and the total score. The mean scores from those with literacy levels ≥ 4 were then compared with literacy levels <4 to determine likelihood of being able to use the food pyramid to estimate portion sizes.
RESULTS: A total of 62 patients, 31 from each site participated and returned the survey. Of the total participants, 34% had limited literacy. At the indigent clinic, 61% had limited literacy, while at the academic clinic, 90% had adequate literacy. The mean scores of participants (n=22) with low literacy for grain, protein, fat and total score are 1.57, 0.96, 2.19 and 4.69 respectively. The mean scores of participants (n=40) with adequate literacy for grain, protein, fat and total score are 3.45, 2.42, 2.83 and 8.4 respectively.
CONCLUSIONS: Current portion tables appear to be too complex for people with low health literacy. When counseling about nutrition, it is important to be aware that many people have low health literacy and tools that require interpretation of numbers may have limited value in this population. The food pyramid holds a tremendous opportunity to help millions yet the format creates a barrier to those with limited health literacy. Our study suggests that future food pyramids should include alternative formats that are literacy-centric.

ASSOCIATION BETWEEN ACCULTURATION AND CARDIOVASCULAR DISEASE RISK FACTORS IN US IMMIGRANTS. D.L. Koya[1]; L.E. Egede[1]. [1]Medical University of South Carolina, Charleston, SC. *(Tracking ID # 152169)*

BACKGROUND: Immigrants are the fastest growing segment of the US population. Although differences in cardiovascular disease (CVD) risk factors between immigrants and non-immigrants have been previously examined, the effect of acculturation on CVD risk factors in immigrants has been less well studied. We examined the association between acculturation (duration of stay in the US) and CVD risk factors among US immigrants.
METHODS: We used data from the nationally representative 2002 National Health interview Survey. We analyzed data on 5,328 adult immigrants. We identified 6 CVD risk factors - over weight/obesity, hypertension, diabetes, hyperlipidemia, smoking, and physical inactivity. Diabetes, hypertension, and hyperlipidemia were based on self-report. Overweight/obesity was defined as body mass index of 25+; physical inactivity was defined as no moderate/vigorous activity per week; and smoking was defined as currently smoking. We created a composite CVD risk score based on having 1+risk factor. We created 3 categories for duration of stay in US (<10, 10–15, 15+years). We used multiple logistic regression to determine whether duration of US stay was independently associated with CVD risk factors after adjusting for relevant confounders including age, sex, race/ethnicity, education, insurance status and annual income. STATA was used for analysis to account for the complex survey design.
RESULTS: See table below
CONCLUSIONS: Duration of stay is incrementally associated with development of CVD risk factors among US immigrants. It appears that acculturation to living in the US may be an independent predictor for CVD risk factors among US immigrants.

Adjusted Odds of CVD Risk Factors by Duration of US Stay

CVD Risk Factor	US Stay < 10 Years (Reference)	US stay 10-15 Years Odds Ratio (CI)	US stay > 15 Years Odds Ratio (CI)
Overweight or Obesity	1.00	1.97 (1.52–2.55)	1.99 (1.62–2.44)
Hypertension	1.00	1.64 (1.08–2.5)	1.43 (1.03–1.98)
Diabetes	1.00	1.38 (0.71–2.67)	1.55 (0.87–2.7)
Hyperlipidemia	1.00	1.48 (0.95–2.3)	1.75 (1.23–2.49)
Current smoking	1.00	0.81 (0.56–1.17)	1.38 (1.06–1.8)
Physical inactivity	1.00	0.95 (0.69–1.31)	0.64 (0.49–0.83)
1+CVD Risk Factor	1.00	0.79 (0.49–1.27)	0.74 (0.51–1.09)

ASSOCIATION BETWEEN COLORECTAL CANCER WORRY AND DECISION STAGE FOR SCREENING. J. Diaz[1]; R. Gramling[2]; M. Roberts[2]. [1]Brown University/Memorial Hospital of Rhode Island, Pawtucket, RI; [2]Brown University, Pawtucket, RI. *(Tracking ID # 154526)*

BACKGROUND: Rates of colorectal cancer screening are low despite evidence that screening methods are effective in reducing colorectal cancer-related mortality. Understanding what influences patient decision making is important when discussing screening and screening options. Cancer worry is one emotion that may impact an individual's decision to be screened for colorectal cancer. The purpose of this study was to describe the relationship between level of cancer worry and individuals' stage of decision for undergoing sigmoidoscopy or colonoscopy screening for colorectal cancer.
METHODS: A seven paged survey was conducted during winter of 2003 to spring of 2004. The survey was mailed to women and men with a family history of colorectal cancer who were registered with the Cancer Genetics Network. The survey included a measure of cancer worry modeled on validated wording and a pictograph metric (emotive faces) adapted from the Dartmouth COOP Chart triage measure for emotional distress. The survey also included an item that measured respondents' decisions regarding sigmoidoscopy and colonoscpy screening based on the Precaution Adoption Process Model (PAPM).
RESULTS: Of 335 surveys mailed, 286 were returned for a response rate of 85%. The average age of respondents was 42.7 (SD 9.9); 60% were female. Of respondents, 152 already completed sigmoidoscopy/colonoscopy screening. Among those not already screened for colorectal cancer, individuals who had decided to undergo screening (stage 5 of PAPM) had higher levels of worry than individuals who had not made a decision (stages 1–3 of PAPM) controlling for age, education, and colorectal cancer risk (OR 4.29, 95% CI 1.92, 9.61).
CONCLUSIONS: Level of colorectal cancer worry is an important clinical variable that clinicians should recognize as they discuss colorectal cancer screening with patients. In the present sample, it is unclear whether cancer worry prompted decisions to be screened or if decisions to be screened prompted increased worry. Given the low rates of colorectal cancer screening, future prospective studies are necessary to help elucidate the role of cancer worry in individuals' decision making regarding cancer screening.

ASSOCIATION BETWEEN LITERACY AND HYPERTENSION CONTROL. S. Kripalani[1]; H. Litle[1]; R. Bengtzen[1]; R.S. Robertson[1]; T.A. Jacobson[1]. [1]Emory University, Atlanta, GA. *(Tracking ID # 156512)*

BACKGROUND: Literacy is associated with the control of diabetes and other chronic diseases, but no published studies have demonstrated a relationship between literacy and hypertension control. We examined the independent effect of literacy on blood pressure control in a primary care clinic.
METHODS: Subjects for the present analysis were patients with coronary heart disease who enrolled in a medication adherence trial, had a physician diagnosis of hypertension, and had available blood pressure data from the day of

enrollment. Demographics, literacy, cardiovascular risk factors, and number of prescribed antihypertensives were also assessed at enrollment. Literacy was measured with the Rapid Estimate of Adult Literacy in Medicine (REALM) and categorized as inadequate ($\leq$6th grade reading level, REALM score 0–44) or marginal/adequate (>6th grade reading level, REALM score 45–66). Hypertensives with both a systolic blood pressure (SBP)<140 and diastolic blood pressure (DBP) <90 were considered controlled. SBP<130 and DBP<80 were the hypertension standards used for diabetics. Bivariate analyses measured the association of patient variables with mean systolic and diastolic blood pressure, and with hypertension control. Multivariable logistic regression models examined independent predictors of hypertension control.
RESULTS: Among the 435 patients in the trial, 429 had a diagnosis of hypertension, and 423 (98.6%) of these had blood pressure data available. The mean age was 63.9, and mean years of education was 10.9. Approximately half (56.2%) were women, 98.4% were Black, and 45.5% had diabetes. On the REALM, 45.2% scored in the inadequate range. The mean blood pressure of the cohort was 135.7/75.0, and the mean number of antihypertensives was 3. About half (48.9%) of patients were at blood pressure goal and were considered controlled. In bivariate analyses, older age and female gender were associated with significantly lower DBP ($p<.001$), but due to an inconsistent effect on SBP, these factors were not associated with overall hypertension control. Patients prescribed fewer antihypertensives had significantly better SBP, DBP, and hypertension control ($p<.05$). Subjects with higher literacy tended to have lower SBP (mean difference=3.5 mmHg, $p=.08$), and they were significantly more likely to have controlled hypertension (51.1% vs. 40.6% of those with inadequate literacy, $p<.05$). Independent predictors of hypertension control in multivariable models were higher literacy (OR=1.55, 95% CI=1.05–2.28) and number of antihypertensives (OR=0.84 per medication, 95% CI=0.71–1.00).
CONCLUSIONS: To our knowledge, this is the first study to demonstrate a significant association between literacy and hypertension control. Patients with higher literacy levels had approximately 1.5 times the odds of controlled hypertension, compared to patients with inadequate literacy. Further work is needed to examine potential reasons for this disparity and strategies to improve blood pressure control in this high risk population.

ASSOCIATION BETWEEN SELF-EFFICACY AND DEPRESSIVE SYMPTOMS AMONG PATIENTS WITH DIABETES. A.L. Cherrington[1]; K.A. Wallston[2]; D. Davis[2]; R. Gregory[2]; R.M. Malone[1]; D. Dewalt[1]; M. Pignone[1]; T.A. Elasy[2]; R.L. Rothman[3]. [1]University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]Vanderbilt University, Nashville, TN; [3]Center for Health Services Research, Nashville, TN. *(Tracking ID # 154350)*

BACKGROUND: Depression affects 15–30% of all adults with diabetes and is associated with worse outcomes. Low self-efficacy has been proposed to contribute to increased depressive symptoms among patients with diabetes however studies examining this association are conflicting. This study examined the association between diabetes self-efficacy and depressive symptoms.
METHODS: We performed a cross-sectional study of patients with type 2 diabetes recruited from primary care clinics at two academic medical centers. We used the Perceived Diabetes Self Management Scale (PDSMS) as our measure of self-efficacy and the Center for Epidemiologic Studies Depression scale (CESD) as a measure of depressive symptoms. We evaluated the association between self-efficacy and depressive symptoms using Pearson's Correlation and then used multiple linear regression to further examine the relationship while adjusting for covariates.
RESULTS: 162 patients completed questionnaires. Mean age was 56 yrs, 60% were female, and 45% were African American, mean A1C was 7.6%. 43% reported a high school education, and 38% had <9th grade literacy. Mean score on the PDSMS was 28 (range 8–40, SD 6.7) and the mean score on the CES-D was 15.8 (range 0–50, SD 11.4). Lower perceived self-efficacy (PDSMS) was significantly correlated with increased depressive symptoms ($r=-0.25$, $p=.0014$). Perceived self-efficacy remained significantly associated with depressive symptoms (-0.30, 95%CI -0.57, -0.04) after adjusting for age, gender, race, literacy level and years with diabetes.
CONCLUSIONS: Low perception of diabetes self-efficacy is associated with increased depressive symptoms. Future studies need to prospectively examine the relationship between self-efficacy and depression to evaluate a possible causal relationship.

ASSOCIATION OF COMMUNICATION BETWEEN HOSPITAL-BASED PHYSICIANS AND PRIMARY CARE PROVIDERS WITH PATIENT OUTCOMES. C.M. Bell[1]; A.D. Auerbach[2]; P. Kaboli[3]; J.L. Schnipper[4]; T.B. Wetterneck[5]; D.V. Gonzales[6]; V. Arora[7]; J.X. Zhang[7]; D. Meltzer[7]. [1]University of Toronto, Toronto, Ontario; [2]University of California, San Francisco, San Francisco, CA; [3]University of Iowa, Iowa City, IA; [4]Brigham and Women's Hospital, Boston, MA; [5]University of Wisconsin-Madison, Madison, WI; [6]University of New Mexico, Albuquerque, NM; [7]University of Chicago, Chicago, IL. *(Tracking ID # 154348)*

BACKGROUND: Patients admitted to general medicine wards are increasingly cared for by hospital-based physicians who do not provide primary care. This creates the potential for communication problems between inpatient and outpatient physicians. This separation of hospital and ambulatory care may result in important care discontinuities after discharge that may affect patient outcomes. We sought to document primary care provider (PCP) knowledge of patient hospitalization to determine whether communication between hospital-based physicians and PCPs is associated with important patient outcomes.
METHODS: We approached consecutive patients admitted to general medicine services at 6 academic medical centers in the United States between July 2001 and June 2003. A random sample of the PCPs for consented patients was contacted 2 weeks after patient discharge. PCPs were surveyed about the type and quality of communication between them and the hospital medical team responsible for their patient's care. The primary question was whether the PCPs were aware of their patient's hospitalization. These results were linked with the 30-day composite patient outcomes of mortality, hospital readmission, and emergency department visits obtained through follow-up telephone survey and hospital record review. We used hierarchical multi-variable logistic regression to model whether communication with the patient's PCP was associated with the 30-day composite of emergency department visit, hospital readmission or death. We adjusted for patient age, race, sex, Charlson comorbidity score, and hospital center.
RESULTS: The 1,229 PCPs for 1,455 patients were surveyed. Overall, 861 PCPs for 1,019 patients responded and are included in the analysis (70% response rate). There were 163 patients from Brigham and Women's Hospital, 271 patients from the University of Chicago, 135 patients from the University of California San Francisco, 127 patients from the University of Iowa, 199 patients from the University of New Mexico, and 124 patients from the University of Wisconsin in this study. Overall, the PCPs for 788 patients (77%) were aware that their patient was admitted to hospital. Of this group, medical teams for 175 (22%) patients communicated directly with the PCP during the admission and 323 (41%) saw a discharge summary. Within 30 days of discharge, 55 (4%) patients died, 112 (11%) patients were readmitted to hospital, and 68 (7%) patients visited an Emergency department. The composite outcome occurred in a total of 201 (20%) patients. The multi-variable logistic regression showed that if the PCP was aware of their patient's admission to hospital, the adjusted odds ratio for the composite endpoint was 1.20 (95% Confidence Intervals 0.79 to 1.81).
CONCLUSIONS: Many primary care providers have little or no knowledge of their patient's hospital admission or even whether they were admitted to hospital at all. However, we found no statistically significant association between PCP awareness of their patient's hospital admission and 30-day composite patient outcomes of emergency department visit, hospital readmission or death. Still, communication between hospital-based physicians and primary care providers can be substantially improved.

ASSOCIATION OF DEPRESSIVE SYMPTOMS AND CANCER SCREENING IN POST-MENOPAUSAL WOMEN: THE WOMEN'S HEALTH INITIATIVE. A. Aggarwal[1]; K. Freund[2]; A. Sato[3]; B. Wallace[4]; A.M. Lopez[5]; J.K. Ockene[6]; L.L. Adams-Campbell[7]; L.S. Lessin[8]; C. Williams[7]; D. Bonds[9]. [1]Veterans Health Administration, Jamaica Plain, MA; [2]Boston University, Boston, MA; [3]Fred Hutchinson Cancer Research Center, Seattle, WA; [4]University of Iowa, Iowa City, IA; [5]Arizona State University, Phoenix, AZ; [6]University of Massachusetts Medical School (Worcester), Worcester, MA; [7]Howard University, Washington, DC; [8]Washington Cancer Institute, Washington, DC; [9]Wake Forest University, Winston-Salem, NC. *(Tracking ID # 154249)*

BACKGROUND: Women with depressive symptoms may have lower utilization of preventive services and poorer health outcomes. We investigated the association of depressive symptoms on cancer screening rates and stage of cancer among a cohort of post- menopausal women.
METHODS: 93,676 women in The Women's Health Initiative Observational Study were followed on average for 7.6 years. Women with a history of cancer other than non-melanoma skin cancer, dementia, psychosis, illicit drugs or alcohol abuse were excluded. Depressive symptoms were measured at baseline and at 3-years using a 6-item scale from the Center for Epidemiological Studies Depression scale (CES-D). Current breast cancer screening was defined as mammogram within last 12 months. Current colorectal screening was defined as annual fecal occult blood test (FOBT) or lower endoscopy or barium enema within last 5 years. Breast and colorectal cancers were staged based on Surveillance, Epidemiology and End Results (SEER) classification. We calculated a screening rate expressed as a proportion of the years that women were current with recommended screening over years in the study. The association between baseline depressive symptoms and a woman's average breast or colorectal cancer screening rate was estimated using linear regression, adjusting for demographic characteristics and cancer risk factors. The association between baseline depressive symptoms and stage at cancer diagnosis among women diagnosed with breast or colorectal cancer were estimated using logistic regression, also adjusting for relevant demographic characteristics and cancer risk factors.
RESULTS: 15.8% (12,621) women were positive for depressive symptoms at baseline and 6.8% (4777) were positive at both baseline screening and at 3 years. The average screening rate was 71% for breast cancer and 53% for colorectal cancer. The breast cancer-screening rate was 1.9% (1.3%, 2.4%), less among women who reported depressive symptoms at baseline than those who did not. The breast cancer-screening rate was 2.5% (1.7%, 3.4%) less among women who reported depressive symptoms both at baseline and at 3 years, than women who did not report depressive symptoms at either time point. Women who were White, had lower educational attainment, lower household income, had no health insurance, reported no alcohol consumption, no hormone replacement therapy use and had no first degree relative with breast cancer had lower breast cancer screening rates. Depressive symptoms were not a predictor for colorectal cancer screening. Lower rates of colorectal cancer screening were associated with the Black race, lower educational attainment, household income, no health insurance, and no first-degree relative with colorectal cancer. Stage of breast and colorectal cancer was not found to be associated with depressive symptoms after adjusting for age, race, body mass index, income, insurance, physical activity and cancer risk factors.
CONCLUSIONS: Among a healthy and self-motivated cohort of women, self-reported depressive symptoms were associated with slightly lower rates of screening mammography but not colorectal cancer screening.

ASSOCIATION OF NONSTEROIDAL ANTI-INFLAMMATORY DRUGS AND SUBSITE-SPECIFIC COLORECTAL CANCER. A. Mahipal[1]; K. Anderson[2]; A.R. Folsom[2]; P. Limburg[3]. [1]University of Connecticut, farmington, CT; [2]University of Minnesota, Minneapolis, MN; [3]Mayo Clinic College of Medicine, Minneapolis, MN. *(Tracking ID # 155887)*

BACKGROUND: Previous epidemiological studies have shown that regular use of nonsteroidal anti-inflammatory drugs (NSAIDs) is associated with decreased colorectal cancer (CRC) risk. However, few studies have examined associations between NSAID use and subsite-specific CRC risks. Because tumors of the proximal and distal colon differ with respect to their genetic alterations, clinicopathologic features and demographic distribution, further investigation of subsite-specific CRC risks may be rewarding.
METHODS: In 1986, a 16-page questionnaire was mailed out to 99,826 randomly selected women, between the ages of 55 and 69 years, who resided in Iowa and held a valid driver's license. The baseline questionnaire was completed by 41,836 women (42%) and they constituted the Iowa Women's Health Study (IWHS) cohort. Nonresponders to the initial questionnaire had similar demographic characteristics and CRC incidence rates as initial responders. Data regarding aspirin and nonaspirin-NSAID use were recorded by self-report in 1992 (n=27,160). All analyses were performed using SAS statistical software (SAS Institute Inc, Cary, NC). Proportional hazard regression analyses (SAS: PROC PHREG) were used to estimate the age-adjusted and multivariable-adjusted hazard ratios (HR) and 95% confidence intervals (CI). Adjustment was made for age, body mass index, waist:hip ratio, calcium intake, multivitamin use, estrogen use, family history of colon cancer, physical activity and smoking status.
RESULTS: In total, 637 women developed CRC during the 11 years of follow-up, including 365 proximal colon, 132 distal colon and 120 rectal cancer cases (11 overlapping and 9 not specified). For colon cancer, the multivariable-adjusted HRs for women reporting use of aspirin two to five times and six or more times per week (compared to nonusers of aspirin) were 0.79 (95%CI, 0.59–1.04) and 0.76 (95%CI, 0.58–1.00) respectively. The corresponding HRs for nonaspirin NSAIDs were 0.63 (95%CI, 0.41–0.96) and 0.85 (95%CI, 0.63–1.15) respectively. For proximal colon cancer, the multivariable-adjusted HRs for women reporting use of aspirin or nonaspirin-NSAIDs two or more times per week (compared to nonusers of each) were 0.67 (95%CI: 0.51–0.87) and 0.71 (95%CI: 0.52–0.97), respectively. Neither distal colon nor rectal cancer was significantly associated with aspirin or nonaspirin-NSAID use.
CONCLUSIONS: The strengths of our study were the large cohort, long follow-up and thorough case ascertainment. The response rates to the follow-up questionnaires were excellent. Information was also collected to enable adjustment for several potential confounders. Our study is consistent with a limited number of prior reports that have observed stronger associations between NSAID use and proximal versus distal CRC. Observational data strongly supports an inverse association between regular use of NSAIDs and decreased CRC risk. However, tumors originating in proximal and distal colon appear to have distinct pathogenetic mechanisms and NSAID use may differentially affect carcinogenesis in these CRC subsites. Additional clinical trials are needed to establish the role of NSAIDs in CRC chemoprevention and to further determine whether the association varies according to CRC subsite.

ASSOCIATION OF PERIOPERATIVE STATINS AND BETA-BLOCKERS WITH LONG TERM MORTALITY AFTER VASCULAR SURGERY. T.W. Barrett[1]; M. Mori[2]; D. De Boer[2]. [1]Portland VA Medical Center/Oregon Health & Science University, Portland, OR; [2]Oregon Health & Science University, Portland, OR. *(Tracking ID # 151689)*

BACKGROUND: The use of medicines to improve outcomes after surgery has centered on the use of perioperative beta-blockers. Recent studies have shown promising preliminary results suggesting perioperative statins, which have pleotrophic effects, may also improve outcomes after surgery. We sought to ascertain if the use of perioperative statins or beta-blockers was associated with a reduction in mortality over the whole study period, and specifically at 6 months, 1 year, and 2 years after surgery.
METHODS: We conducted a retrospective cohort study of patients presenting for vascular surgery between January 1998 and March 2005. The patients were identified using a regional Department of Veterans Affairs database, and survival status was ascertained using a national death index. Patients were categorized as using statins or beta-blockers if they filled a prescription for the study drug within 30 days of surgery. Survival analyses (Kaplan-Meier method, log-rank test, Cox regression method) were performed. Patients were censored five years after surgery. Propensity score methods were used to evaluate the effects of medication on overall survival.
RESULTS: There were 3,062 patients with an overall mean follow up of 2.7 years. The use of statins and beta-blockers within 30 days of surgery were associated with a reduction in mortality after vascular surgery over the study period, compared to non-users, unadjusted HR 0.66, (95%CI 0.58–0.75), $p<0.0001$ and HR 0.74, (95%CI 0.66–0.84), $p<0.0001$, respectively. The protective effects of statin and beta-blocker remained after adjusting for the propensity scores, HR 0.80 for statin, (95%CI 0.69–0.94), $p=0.005$, and HR 0.84 for beta-blocker, (95%CI 0.73–0.96), $p=0.010$. In addition, stratifying patients based on both statin and beta-blocker use into stain only, beta-blocker only, and both, compared to neither demonstrated an association with decreased mortality at 6 months, 1 year, and 2 years after surgery (Table 1). The revised cardiac risk score (RCRS) was also used to stratify these patients. Using a statin or beta-blocker was equivalent to using both for patients with a RCRS of 3 or greater, but using both drugs provided an additive benefit for patients with a RCRS of 2 or less. In addition, the use of a statin, beta-blocker, or both was associated with a decrease in mortality for all levels of risk.
CONCLUSIONS: Perioperative statins used alone or in combination with beta-blockers are associated with a reduction in long term mortality after vascular surgery and benefit patients at all levels of risk.

Table 1. Long term mortality, statin and beta-blocker usage

Group	Mortality								
	6 months			1 year			2 years		
	RRR	p	NNT	RRR	p	NNT	RRR	p	NNT
Statin Only	0.20	0.18	42	0.31	<0.01	17	0.22	<0.01	13
Beta-Blocker Only	0.33	<0.01	25	0.29	<0.01	18	0.23	<0.01	16
Statin+BB	0.50	<0.01	17	0.48	<0.01	11	0.41	<0.01	9

ATTENDING ROUNDS AND BEDSIDE CASE PRESENTATIONS: MEDICAL STUDENT AND MEDICINE RESIDENT ATTITUDES AND PERCEPTIONS. J. Gonzalo[1]; P.A. Masters[1]; R.J. Simons[1]; C.H. Chuang[1]. [1]Pennsylvania State University College of Medicine, Hershey, PA. *(Tracking ID # 153285)*

BACKGROUND: Attending rounds and case presentations have traditionally occurred at the patient's bedside. The bedside is an ideal place to teach history taking, physical diagnosis, communication, professionalism, as well as other important clinical skills. However, the recent trends have seen attending rounds and case presentations move away from the bedside and into hallways and conference rooms. In this study, we sought to describe learner experiences and attitudes regarding bedside attending rounds at an academic medical institution.
METHODS: In 2005, 153 medical students and Internal Medicine residents of the Pennsylvania State University College of Medicine completed a web-based survey regarding attending rounds. We assessed the percent of time spent, case presentations occurring, and physical diagnosis skills taught at the bedside as well as learner attitudes concerning bedside attending rounds during their general medicine hospital rotations.
RESULTS: One-hundred and fifty three students and residents responded to the web-based survey (response rate=75%). Respondents reported that during the majority of hospital rotations (68%), less than 30% of attending rounds was spent at the bedside. During 73% of hospital rotations, less than 25% of case presentations occurred at the bedside. Forty-four percent reported less than 1 physical diagnosis skill was reviewed per day on rounds. Respondents were significantly more likely to feel that patients preferred bedside case presentations than they did themselves (38% vs. 24%, $p=0.008$). Furthermore, learners experiencing bedside case presentations were more likely to prefer bedside case presentations (42% vs. 13%, $p<0.0001$) and to perceive that patients prefer bedside case presentations (54% vs. 29%, $p=0.003$). Despite concerns about freedom of discussion and patient feelings during bedside case presentations, learners believe bedside rounds are important for learning core clinical skills.
CONCLUSIONS: Internal Medicine has traditionally focused on patient-centered teaching activities, such as bedside rounds. Time spent at the bedside during rounds and learners' comfort with presenting cases at the bedside, however, is waning despite learners' beliefs that bedside learning is important for professional development. Our findings suggest that our current methods of teaching on Internal Medicine services may need to be re-examined in order to comply with the changing environment of inpatient medicine.

ATTITUDES AND ENVIRONMENTAL FACTORS AFFECTING CIGARETTE CONSUMPTION LEVELS IN CHINESE PHYSICIANS. E.K. Tong[1]; M.K. Ong[2]; Y. Jiang[3]; T. Hu[4]. [1]University of California, San Francisco, San Francisco, CA; [2]University of California, Los Angeles, Los Angeles, CA; [3]China Centers for Disease Control, Beijing; [4]University of California, Berkeley, Berkeley, CA. *(Tracking ID # 156903)*

BACKGROUND: China has the world's greatest number of smokers. Male physicians in China have a high smoking prevalence rate of 41%, but little is known about why they smoke. Our objective was to examine attitudes and environmental factors associated with cigarette consumption levels.
METHODS: We analyzed 840 current smokers from a 2004 survey of 3552 hospital-based physicians conducted by China's National Centers for Disease Control. We stratified smokers by their self-report of smoking daily or not every day (intermittent) and cigarette consumption. Cigarette consumption was defined as light (less than half a pack), moderate (half to one pack), and heavy (more than one pack). The survey questions analyzed included reasons to smoke and environmental factors associated with quitting. Chi-square statistical analyses adjusted for the clustering at the city and hospital level.
RESULTS: Of the 840 current smokers, 26% were intermittent, 32% were light daily, 24% were moderate daily, and 18% were heavy daily. Of the reasons to smoke, the heaviest smokers reported more that smoking was part of their life habit, made them alert, and helps them maintain good health. The lightest smokers reported more that smoking was a necessity in social gatherings. Of the factors associated with quitting, the heaviest smokers reported more that they wanted to quit but could not and that family members had asked them to quit,

although the latter was high for all smokers. The lightest smokers reported more that they have never tried seriously to quit, but there was a trend towards good implementation of smoke-free hospitals, although overall rates were low. There was no difference among smokers' opinions that a reduced amount of smoking is less harmful to health.
CONCLUSIONS: Light and intermittent smokers are more susceptible to social pressures of smoking, and better smoke-free hospitals may have helped reduce their consumption, rather than concern over health harms. Moderate and heavy daily smokers demonstrate greater addiction to smoking. Standard cessation strategies involving pharmacotherapy may not help half of these smokers, but reversing the social acceptability of smoking through enforcing smoke-free environments is needed. (Funded by NIH Fogarty grant R01 TW05938-01.)

Factors Affecting Consumption

	Intermittent (n=225)	Light Daily (n=265)	Moderate Daily (n=201)	Heavy Daily (n=149)	P value
Smoking is a life habit	25%	55%	77%	81%	<0.0001
Smoking makes me alert	48%	51%	60%	65%	0.02
Smoking maintains good health	20%	55%	77%	81%	<0.0001
Smoking is a social necessity	69%	60%	52%	56%	0.004
I want to quit but can't	20%	37%	47%	48%	0.0002
Never tried seriously to quit	53%	39%	31%	33%	0.001
Reduced smoking is less harmful	38%	32%	33%	45%	0.43
Good smoke-free hospital	32%	27%	24%	22%	0.10
Family asked me to quit	69%	79%	86%	81%	0.006

ATTITUDES TOWARD HEALTH CARE PROVIDERS COLLECTING INFORMATION ABOUT PRIMARY LANGUAGE AND ENGLISH PROFICIENCY. D. Baker[1]; N. Kandula[1]; V. Deltas[1]; J. Thompson[1]; R. Hasnain-Wynia[2]. [1]Northwestern University, Chicago, IL; [2]Health Research and Educational Trust, Chicago, IL. *(Tracking ID # 153408)*

BACKGROUND: 47 million U.S. residents speak a language other than English at home. National organizations have recommended that health care providers routinely assess patients' primary language, but no study has assessed the public's attitudes towards this.
METHODS: We conducted a telephone survey of Californians using a list-based sample designed to increase the number of non-English speaking participants. Interviews were conducted in English, Spanish, Cantonese, and Mandarin. One person from each household contacted was randomly selected to participate. We determined participants' preferred language and self-reported English proficiency and classified them as 1) Native English (NE), 2) Other Language, Good English Proficiency (good-excellent; GEP), or 3) Other Language, Limited English Proficiency (fair or poor; LEP). Participants were asked a series of questions about 1) their perceived importance of having providers collect data on patients' preferred language and English proficiency; 2) whether providers should routinely collect language information to ensure patients get an interpreter; and 3) whether the state should mandate that providers collect language information and make sure providers have enough interpreters. We also assessed how comfortable they would feel providing language information to health care providers and how worried they would be that this information could be used to discriminate against patients or to find undocumented immigrants. Differences in attitudes across the NE, GEP, and LEP groups were assessed using chi-square tests.
RESULTS: 336 people have completed the survey to date, including 199 (59%) NE, 27 (8%) GEP, and 110 (33%) LEP). Overall, 89% somewhat or strongly agreed providers should ask all patients their preferred language and English proficiency, 92% agreed providers should do this to make sure everyone who needs one gets an interpreter, and 86% agreed that the state should require providers to collect this information "to make sure they have enough interpreters." The LEP group was more likely than the NE group to say the government should mandate this and monitor interpreter adequacy (95% vs. 80; $p<0.001$); conversely, the percent that "somewhat" or "strongly" disagreed with this was higher for NE (13%) than for GEP (8%) and LEP (1%; $p<0.05$). Among all participants, 16% said they would feel offended if asked what language they felt most comfortable speaking; this was higher among GEP and LEP compared to NE participants (27%, 22%, and 11%, respectively; $p<0.05$ for both). One third of the GEP and LEP participants were uncomfortable (0–3 on 10 point scale) reporting their English proficiency to a clerk. Over half of all participants were worried that this information could be used to discriminate against patients or to find undocumented immigrants; these worries were much more common among the GEP and LEP group, but almost half of the NE group were somewhat or very worried.
CONCLUSIONS: There is a very high level of support for healthcare providers to ask patients routinely about their preferred language and English proficiency and for the state to use this information to monitor the adequacy of interpreter services. However, concerns about misuse of this information are also very high and could prevent patients from providing accurate information or from seeking care. Legislation protecting the confidentiality of patients' primary language may be needed to gain public trust.

ATTITUDES TOWARD NURSE PRACTITIONER-LED MANAGEMENT OF CHRONIC DISEASES IN PRIMARY CARE SETTINGS. C.N. Sciamanna[1]; J. Miller[2]; K. Alvarez[1]; T. Gary[3]; M. Bowen[1]. [1]Thomas Jefferson University, Philadelphia, PA; [2]Brandeis University, Waltham, MA; [3]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 154652)*

BACKGROUND: One of the largest gaps in quality of care in the United States is in the management chronic illness. Patients with diabetes, high blood pressure and heart disease, for example, receive recommended care approximately half of the time. Empowering nurse practitioners to treat patients using an evidence-based encounter form is a simple method that has been proven to be consistently effective and may improve the management of multiple chronic illnesses.
METHODS: We conduced a survey of primary care physicians and nurse practitioners to gain an understanding of physician and nurse-practitioners' attitude towards this model of care. We created a two page survey with the goal of introducing the proposed model of outpatient chronic disease management, and evaluating the level of support for it in a sample of primary care providers and nurse practitioners. Questions were designed to assess aspects of support for the model as well as characteristics of the provider and professional practice. All questions were asked on a four point Likert-type scale, with anchors at each point, from "disagree strongly," "disagree," "agree," to "agree strongly." A draft of our one-page hypertension care encounter form, based on clinical treatment algorithms, which is proposed for use at the point of care, accompanied the survey. A randomly generated list of 200 primary care physicians (Family Practice, Internal Medicine, General Practice) and 200 nurse practitioners in the Philadelphia, Pennsylvania area, was purchased from SK&A Information Services, Inc from their database of over 600,000 providers nationwide. All providers with an active license, who were located in a 5 mile radius of Thomas Jefferson University Hospital, were eligible. A two-page self-report survey was mailed to each provider, along with a 20$ gift card to Amazon.com, and the sample encounter form. The main outcome variables were the three attitude questions towards various aspects of the model of the care proposed. In addition, we combined the responses to the three questions into a summary measure, to represent the overall support for the model.
RESULTS: A total of 212 subjects completed the survey for a total response rate of 53% (physicians, 44%: nurse practitioners: 61%). The majority of physicians (79.5%) reported that nurse practitioners were seeing patients in their practice. Many respondents reported working in academic health centers (48.4%) and most seeing outpatients for at least four days per week (59.4%). Both Physicians and Nurse practitioners strongly agreed that the proposed model would make a positive impact on the control of chronic disease (80.0%, 95.7 respectively. $p=<.001$). Both physicians and nurse practitioner believed the model would be of interest to similar providers (73.8% 87.6 respectively, $p=.013$) though fewer agreed that the model would have a positive financial impact on their practice (46.3%, 64.3% respectively, $p=.016$). In general, support for the model was greater among nurse practitioners, and those who believed that future pay will be related, at least in part, to patient satisfaction.
CONCLUSIONS: Overall, the high level of support for the model and the presence of nurse practitioners in a high percentage of physician offices suggests that future studies are warranted to understand the efficacy of such a nurse practitioner based model of chronic disease management on the quality of care for chronic conditions.

AUGMENTING PROVIDERS' DETECTION OF UNPROTECTED SEX AND OTHER RISKY BEHAVIORS WITH A MULTIMEDIA RISK ASSESSMENT. P. Gilbert[1]; D. Danley[1]; D. Ciccarone[1]; D. Thakar[1]; K. Herzig[1]; B. Gerbert[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 153902)*

BACKGROUND: HIV care providers frequently have long-term, established relationships with their patients, leading to a level of trust and intimacy that may increase detection of risky behaviors. Yet studies show that many physicians do not routinely inquire about health-related behaviors, such as substance use and unsafe sex, raising the possibility that providers may miss opportunities for prevention counseling for patients' health. Many obstacles to routine screening for risky behaviors can be overcome by computerized screening tools. We developed such a tool to support providers' efforts to screen and counsel their patients' for behavioral risks.
METHODS: We compared the results of a multi-media risk assessment to those from a survey of providers about their patients' behaviors. The risk assessment was conducted as part of Positive Choice, a randomized, controlled trial of a brief intervention to reduce alcohol abuse, illicit drug use, unprotected sex, and failure to disclose HIV status to sex partners. Intervention participants received interactive, tailored risk-reduction messages from a "video doctor," and the program produced a cueing sheet to support risk-reduction counseling by the medical provider. A validation sub-study, consisting of a paired provider survey and patient interview, also assessed: 1) agreement between providers' knowledge of their patients' risks and the disclosure of risks through the computerized assessment; 2) the degree and direction of any provider underreporting of risks; and 3) the role of patients' "self-deception" and trust-in-provider in disclosing risky behaviors.
RESULTS: The program was implemented in five primary care outpatient clinics serving HIV-infected adults in the San Francisco Bay Area. Although data collection is ongoing, 856 patients have already completed an initial risk assessment. Baseline data show a high prevalence of risky behaviors, including anal or vaginal sex without a condom (32%), illicit drug use (24%), and risky alcohol drinking (21%). Validation sub-study data were obtained from 120 pairs of patients and their providers. Concordance between providers' knowledge and the computerized assessment was 66% for drug risks, 61% for alcohol, 64% for disclosure to a sex partner. Concordance about sex risk was lowest (49%). When asked whether an individual patient engaged in risky sex, 28% of providers

reported "don't know." For all risks, the computer program detected more risky behaviors than the providers anticipated. In interviews, most patients said that their providers should inquire about these risky behaviors, and 97% reported at least one relevant discussion with their provider. There were no significant differences between patients' "self-deception" and trust-in-provider scores and their risk profiles.
CONCLUSIONS: The Positive Choice program is highly acceptable to both patients and providers, and results in greater detection of risky behaviors than screening by providers alone. Sexual risks were identified more frequently by the program, suggesting the difficulty of communicating about sexual risks or that sexual risks may be more episodic and unpredictable. Patients recognized the association of these risky behaviors with their health, and welcomed discussions with their provider. Multi-media applications, such as the Positive Choice program, are an appropriate adjunct to providers' efforts to screen and counsel their patients about behavioral risks.

AWARENESS OF HEPATITIS C DIAGNOSIS IS ASSOCIATED WITH GREATER ABSTINENCE FROM ALCOHOL AMONG PERSONS CO-INFECTED WITH HIV. J.I. Tsui[1]; R. Saitz[2]; D. Nunes[2]; D.M. Cheng[3]; H. Libman[4]; J. Alperen[2]; J.H. Samet[2]. [1]University of California, San Francisco, San Francisco, CA; [2]Boston University, Boston, MA; [3]Boston University School of Public Health, Boston Medical Center, Boston, MA; [4]Harvard University, Boston, MA. *(Tracking ID # 152275)*

BACKGROUND: Alcohol use and HIV infection are both associated with progression of hepatitis C virus (HCV) infection. We hypothesized that awareness of HCV infection in co-infected persons would reduce risky drinking and increase abstinence, compared to HIV-infected subjects who were unaware of their HCV status or who were HCV seronegative.
METHODS: Study subjects were participants in the HIV-LIVE (HIV-Longitudinal Interrelationships of Viruses and Ethanol) study, a prospective, observational study of HIV-infected patients with past or current alcohol problems. Patients were enrolled between 8/01 and 7/03 and were considered eligible if they had a documented HIV test, two or more affirmative responses to the CAGE alcohol screening questionnaire or a diagnosis of alcoholism, and the ability to speak English or Spanish. Data were assessed at 6-months intervals for up to 42 months. We used general estimating equations (GEE) logistic regression to assess the association between having been told one had HCV and 1) abstinence and 2) at risk drinking (>14 standard drinks per week or >4 drinks on an occasion for men, >7 or >3 respectively for women). In the multivariable analysis we adjusted for age, sex, race, homelessness, lifetime injection drug use, depression and abnormal liver tests (AST/ALT).
RESULTS: Of the 401 study participants, 212 (53%) reported being told by a physician that they had HCV infection. Eighty-five percent of participants who were told they had HCV had detectable HCV RNA on testing. Of the participants who did not report being told that they had HCV, 12% were positive by HCV RNA testing. At study entry, participants who were told they had HCV more often reported being abstinent from alcohol (63% v. 52%, chi-square p-value=0.02); however, unhealthy drinking behaviors were not uncommon (28% reported at-risk drinking). In the multivariable logistic regression, being told one had HCV was associated with a higher odds of abstinence (adjusted OR 1.58, 95% CI: 1.12–2.24) and marginally associated with a lower odds of at risk drinking (adjusted OR 0.7, 95% CI 0.48–1.01).
CONCLUSIONS: Among HIV-infected persons with alcohol problems, awareness of having HCV infection appears to be associated with greater abstinence and less at-risk drinking. Testing HIV-infected patients for HCV and informing them of their serostatus may help decrease their alcohol use.

BARRIERS TO INFLUENZA VACCINATION AMONG AFRICAN AMERICAN OLDER ADULTS AND PERSONS AGED 18–64 YEARS WITH HIGH-RISK MEDICAL CONDITIONS. U.K. Ohuabunwa[1]; E. Safran[2]; C. Ohuabunwa[2]; E. Mensah[2]; M. Henriques[2]; A. Akomolafe[2]. [1]Emory University, Atlanta, GA; [2]Morehouse School of Medicine, Atlanta, GA. *(Tracking ID # 157147)*

BACKGROUND: In the United States pneumonia and influenza are the 5th leading cause of death. Influenza vaccination has been found to be an effective tool for preventing hospitalization and death among persons aged >65 years and among persons aged 18–64 years with medical conditions that increase the risk for influenza-related complications. Two national health objectives for 2010 are to increase influenza vaccination coverage to 90% among persons aged >65 years and to 60% among persons aged 18–64 years. Recent reports by CDC indicate that influenza vaccination coverage remains substantially below 2010 target levels. In addition, racial/ethnic disparities in coverage levels persist in both targeted populations. These disparities underscore the need to implement more widespread effective interventions especially among certain racial/ethnic populations to achieve national objectives. We therefore sought to determine the barriers to influenza vaccination in African American older adults and persons aged 18–64 years with high-risk medical conditions and the differences in the barriers between these two groups.
METHODS: Design: A cross sectional survey of outpatient clinic attendees was conducted using a pre-tested questionnaire based on the Triandis model over a one-month period. Barrier to influenza vaccination was defined as any factor hindering individual¡¦s acceptance or receipt of influenza vaccine in the preceding or concurrent flu season Study setting: Outpatient medical clinic of a 953-bed, urban, public hospital serving a patient population that is 75–80% African–American Participants: All African American patients aged ¡Ý 65 years or 18–64 years with high-risk medical condition, based on CDC recommendation for receipt of flu vaccine, who presented to the medical clinic on designated clinic days within the study period. Statistical analysis: Univariate and bivariate analyses were done using SAS version 8.2, Chi square and Fischer's exact tests were performed to determine association of patients' beliefs with their influenza vaccination status, or acceptance of vaccination, and to compare the elderly with the younger adult population.
RESULTS: Of the 103 patients studied, 44.7% were aged 23–49 years, 35.9% aged 50–64 years, and 19.4% aged ¡Ý 65 years. All patients were US born African Americans with 59.2% being females. 36% of the respondents had never received flu vaccine in the past, while 68% had not received the flu vaccine by the completion of the preceding flu season. About 77% of patients aged <65 were aware of the deleterious effect of influenza in the elderly, compared to 65% (P=0.07) among the older adults. Only 42% of persons aged <65 and 45% of persons >65 had the flu shot recommended by their healthcare provider. About 67% of these younger adults said they would get the flu shot if recommended, compared to 75% of the older adults (p=0.77). The most common barrier to vaccination identified in both groups was a lack of awareness that they needed the vaccination reported by 19% of persons aged <65 and 15% of persons aged >65.
CONCLUSIONS: A lack of awareness of need for influenza vaccination seems to be the most common barrier to vaccination among both younger and older African Americans. There is a need for improvement in recommendation of vaccination by healthcare providers and widespread campaigns in order to achieve national objectives for influenza vaccination coverage.

BARRIERS TO RATIONAL SELF-MANAGEMENT AMONG LATINAS WITH DIABETES MELLITUS. C.E. Schwartz[1]; J. Levine[1]; E. Korin[1]; A.K. Karasz[1]; M. McKee[1]. [1]Albert Einstein College of Medicine, Bronx, NY. *(Tracking ID # 153726)*

BACKGROUND: The current focus on improving diabetes mellitus (DM) care emphasizes adoption of principles of the chronic care model, particularly health care organization and self-management support. However, a full understanding of the mental health, socio-cultural, and family issues that affect diabetes care and control is lacking, especially for low-income Latinas.
METHODS: Objective: To investigate the socio-cultural context of diabetes care with emphasis on barriers to successful management. Design: In-depth interviews with Latina women with Type II DM conducted in English or Spanish, audio-taped, transcribed, and analyzed using a grounded theory approach. Setting: Two family medicine practices serving low-income patients in the Bronx. Participants: Eligible women had at least two visits to the practice in the previous year. Participants (n=20) were either out of control (HgbAIC >9.5 on two occasions or >10.5 on one reading) or in-control (HgbAIC less than 7.5).
RESULTS: Participants with out-of control DM (n=11) and in-control DM (n=9) both experienced a variety of mental health problems, including depression, anxiety, PTSD, somatoform disorders, grief, and thought disorders. Barriers to rational self-management included contextual (socio-economic) barriers and psychological factors including: 1) depression and unresolved grief, 2) somatization with "blurring" of mental health and diabetes-related symptoms, 3) schizotypal/thought disorder, 4) "catastrophizing" the illness, 5) fatalism, often associated with help-rejection, and 6) "good talkers" with mismatch between talk and outcomes. Strengths that promote control despite these factors include a sense of agency and purpose, belief that risk for diabetes and its outcomes are modifiable, and family support. Themes related to Latina heritage include emphasis on familial legacy of DM, psychological identification with other family members with DM, importance of role as caretaker in the family, and culturally-insensitive dietary advice.
CONCLUSIONS: Diverse psychological and sociocultural issues are common among urban Latinas with DM and may create the barriers to optimal self-management.

BARRIERS TO WEIGHT LOSS AND BARIATRIC SURGERY FROM THE PERSPECTIVE OF OBESE AFRICAN-AMERICAN WOMEN. C.S. Lynch[1]; J.C. Chang[1]; A.F. Ford[1]; S.A. Ibrahim[2]. [1]University of Pittsburgh, Pittsburgh, PA; [2]Veterans Administration, Pittsburgh, PA. *(Tracking ID # 154365)*

BACKGROUND: Nearly half of African American (AA) women are obese and bear a disproportionate burden of weight-related conditions like diabetes, hypertension, and osteoarthritis. Conventional weight loss methods (diet and exercise) have limited success in weight reduction. Presently, bariatric surgery is the most effective treatment option for obesity yet it is primarily used by White women. What contributes to obesity rates among AA women exceeding that of other racial/ethnic groups remain unclear. To gain further perspective on weight control issues, we conducted focus groups to explore obese AA women's perceptions about barriers to weight loss and barriers to acceptance of bariatric surgery as a treatment option.
METHODS: In collaboration with a local community health promotion organization, we recruited 41 obese, adult AA women using community advertisements and snowball sampling. Eligible women had a body mass index (BMI) of 30 kg/m^2 calculated from self-reported weight and height. Two AA women, using a semi-structured question guide, moderated 6 audiotaped focus group discussions on views regarding barriers to losing weight and specific weight reduction therapies such as bariatric surgery. Discussions were transcribed verbatim and an initial coding scheme was generated by one of the investigators. Subsequently, 2 independent coders used an iterative process of reviewing transcripts to apply and refine codes to attain a final coding scheme. We then identified themes and mapped them to elements of perceived barriers from the Health Belief Model.

RESULTS: Participants' mean age was 48.8 years and mean BMI was 36.3 kg/m^2. Themes regarding general barriers to weight loss include: (1) lack of time and access to resources; (2) issues regarding control—worries over one's self control, feeling that weight and weight loss dictates one's life, indignation about others' limited definition of beauty and health; (3) identification with a larger body state ("In my family every woman easily weighed over 200 pounds [I waited] to grow so I could look my grandmother and mother and be in sync with the family."). Themes regarding barriers to bariatric surgery include: (1) perception of bariatric surgery as an extreme therapy ("I don't want to lose a drastic amount of weight") or option of "last resort" ("where I could die if I didn't do anything") and (2) concern regarding expected and unexpected changes from surgery (i.e., surgical complications, physical and lifestyle restrictions, dramatic changes in appearance, and changed relationships with others).
CONCLUSIONS: Our findings suggest obese AA women's perceptions of weight and weight loss methods are influenced by self-perception linked to sociocultural factors and/or group identity that accepts a larger body image. Additionally, risk perceptions and issues of control likely alter obese AA women's attitudes regarding weight loss and various weight reduction methods especially related to bariatric surgery. Weight loss interventions among obese AA women should consider sociocultural factors and focus on identifying and maintaining equilibrium between the benefits and risks of weight loss to promote efforts for improved health.

BEREAVEMENT: A STUDY OF OLDER ADULTS. R.M. Bain[1]; C. Min[2]; E. Hurwitz[3]; C. Pan[3]. [1]Wake Forest University, Winston-Salem, NC; [2]New York University, New York, NY; [3]Mount Sinai School of Medicine, New York, NY. *(Tracking ID # 151628)*

BACKGROUND: Background: Grief is the universal response to death of a loved one and is associated with increased morbidity and mortality. Although physicians are well positioned to intervene at many points along the grief continuum, medical education places little emphasis on providing adequate training to recognize and meet this need. Purpose: Our purpose was to investigate aspects of grief that have received little attention in the literature: 1) the effect of cumulative loss, 2) prevalence of physician awareness and assistance, and 3) impact on social and health outcomes.
METHODS: Methods: A cross-sectional, convenience sample, survey was conducted in the outpatient geriatrics practice of a large tertiary-care academic medical center. English-speaking older adults aged 65 and older with a MMSE > 21 were recruited to participate. Structured interviews were conducted during ambulatory visits. A questionnaire was developed from the literature by our research team with input from field experts and a survey specialist. To refine the survey instrument, a pilot study was conducted with hospitalized older adults.
RESULTS: Results: 32 subjects were recruited for our study (87.5% female, 37.5% Black, 34.4% White, 25% Hispanic). 47% of subjects had suffered a significant loss within the past year. Only 5 subjects had ever received structured bereavement counseling in their lifetimes and only 2 had ever been referred for bereavement counseling by their primary care provider. Subjects reported an average of 4.78 types of losses (spouse, parent, grandparent, sibling, child, grandchild, friend, pet). 87.5% of subjects felt they would be "somewhat" or "very comfortable" talking about death and grief with their physician, but only 21.9% ever had such a discussion. When asked whether grieving becomes more manageable with successive losses, 75% responded "no" or "don't know".
CONCLUSIONS: Conclusions: Our study is unique in that it investigates patterns of grief during the course of a lifetime. Older adults suffer multiple losses by the time they reach 65. Despite these losses, primary healthcare providers offer little support during periods of bereavement. Older adults report feeling comfortable talking about death and grief, but conversations with physicians are not taking place. Further research will elucidate the value of physician education to improve bereavement services and health outcomes.

BETA-BLOCKER USE AMONG VETERANS WITH SYSTOLIC HEART FAILURE. S. Sinha[1]; M. Goldstein[2]; C.T. Tenner[3]; M. Kamran[1]; J. Penrod[1]; G. Cohen[3]; T. Hochman[1]; M. Schwartz[3]. [1]Department of Veterans Affairs, Bronx, NY; [2]Mount Sinai School of Medicine, New York, NY; [3]Department of Veterans Affairs, New York, NY. *(Tracking ID # 153739)*

BACKGROUND: Chronic Heart Failure (CHF) is the most common cause of hospitalization in the Medicare population, affecting 10% of people over the age of 75, with annual health care costs exceeding $27 billion. Strong evidence for efficacy of beta-blockade therapy in reducing morbidity and mortality in patients with systolic CHF has existed since the mid 1990's. Despite this evidence, recent studies report beta-blocker utilization rates in CHF below 50%. We sought to examine the rate of beta-blocker prescription among patients with systolic CHF at primary care VA clinics, and its change over time; and, to determine factors associated with non-prescription of beta-blockers in these CHF patients.
METHODS: We identified patients with documented systolic heart failure seen in primary care clinics at 3 VA medical centers from August, 2002–August, 2004, and retrospectively extracted clinical and demographic information from an electronic medical record. The primary outcome was beta-blocker prescription status at the most recent visit. Prescription status was dichotomized as current versus not currently prescribed - and those not currently on a beta-blocker were further split into those previously versus never prescribed. Reviewers collected demographic factors (e.g. age, gender, race, site of care); characteristics of care (number of visits, visit to cardiologist, current medications); number of comorbidities; and, presence of adverse reactions or symptoms related to beta-blockers. Clinical and demographic characteristics of patients were compared between those prescribed and not prescribed beta-blockers using chi-square tests and t-tests as appropriate. Factors significantly associated with beta-blocker prescription in the bivariate analysis were entered in logistic regression models to determine independent predictors of beta-blocker prescription.
RESULTS: Of the 368 patients that were suitable for study, 82% (95% CI, 78.4%–86.3%) were prescribed a beta-blocker, with half of the remaining patients having been previously prescribed one. The prescription rate rose steadily from 45% in 1998–2000 to 64% in 2000–2002 to 82% in the current period ($p < 0.001$ for trend). Patients with more severely depressed ejection fractions (EF < 30%) were 75% more likely to be on a beta-blocker than patients with less severe disease. Patients were less likely to be on a beta-blocker if they had COPD (adjusted OR = 0.39, 95% CI 0.20–0.77), asthma (adjusted OR = 0.21, 0.08–0.56), or depression (adjusted OR = 0.34, 0.13–0.89). Patients younger than 65 years were 12 times more likely to receive beta-blockers than those over 85 years old.
CONCLUSIONS: Primary care providers at VA Medical Centers achieved high rates of beta-blocker prescription for chronic systolic heart failure patients, rates similar to those found in large clinical trials. Subgroups with lower prescription rates should be targeted for quality improvement initiatives.

Multivariate Logistic Model of Factors Independently Associated with Beta-Blocker Prescription

Patient Characteristic	Adjusted Odds Ratio (95% CI)	p-value
Age < 65	Reference	
Age 65–74	0.21(0.06–0.80)	0.022
Age 75–84	0.15(0.04–0.53)	0.003
Age 85+	0.08(0.02–0.34)	< 0.0001
Severe EF	1.75(0.94–3.26)	0.079
COPD	0.39(0.20–0.77)	0.0006
Asthma	0.21(0.08–0.56)	0.002
Depression	0.34(0.13–0.89)	0.028

BEYOND PAN-HANDLING: THE IMPACT OF HOUSING INSTABILITY ON ACCESS TO CARE. K.W. Reid[1]; E. Vittinghoff[1]; M. Kushel[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 153014)*

BACKGROUND: The homeless population has limited access to health care and high utilization of acute care services. Most studies dichotomize housing status as homeless versus housed. However, there is a spectrum of housing instability. Little is known about the association between the severity of housing instability and access to health care and health service utilization. We sought to investigate the relationship between varying levels of housing status and measures of access to ambulatory care, use of acute care services and health insurance status.
METHODS: We performed a meta-regression using four nationally representative surveys; the Medical Expenditure Survey (MEPS), the National Health Interview Survey (NHIS), the National Survey of American Families (NSAF), and the National Survey of Homeless Assistance Providers and Clients (NSHAPC). The main independent variable was an ordered measure of housing instability, based on income and housing status, characterizing sub-populations for which summary statistics have been published. We defined the rank order as: 1) general population (MEPS and NHIS), 2) low-income population (NHIS and NSAF), 3) people who use homeless services but have never been homeless (NSHAPC), 4) the unstably housed (NSAF), 5) the formerly homeless (NSHAPC), and 6) the currently homeless (NSHAPC). The main outcome measures were self-report of five measures of healthcare access: 1) not having a usual source of care, 2) no ambulatory care visits, 3) postponing needed medical care, 4) postponing medications and 5) having no health insurance; and two measures of health service utilization: 1) emergency department (ED) visits, and 2) hospitalizations.
RESULTS: We found a linear trend toward poorer access to care with worsening housing instability among three of our five measures: postponing needed medical care (3.3% per unit increase in the housing instability measure, 95% CI 1.9–4.7%, $p = 0.001$), postponing medications (6.1%, 95% CI 1.5–10.6%, $p = 0.035$) and having no health insurance (5.4%, 95% CI 1.7–9.2%, $p = 0.011$) and a non-significant trend in the two other measures: having no ambulatory care visits and no usual source of care. Hospitalization rates were significantly higher with worsening degrees of housing instability (2.9%, 95% CI 1.2–4.6%, $p = 0.008$); there was no significant relationship to ED use.
CONCLUSIONS: There is a progressive linear decline in access to care and increase in hospitalization rates from the general population to the actively homeless. The risks associated with active homelessness begin prior to the actual loss of housing. The spectrum of housing instability, in addition to active homelessness, should be considered a risk factor for poor access to care.

BEYOND WORK HOURS: MAJOR, DIFFICULT EVENTS IN THE PERSONAL LIVES OF RESIDENT PHYSICIANS AT AN ACADEMIC MEDICAL CENTER. H.T. Cousins[1]; S.J. McPhee[1]; G.L. Gildengorin[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 154821)*

BACKGROUND: Residency training traditionally has involved long hours in the hospital, with work duties taking precedence over residents' personal lives. In

the last few years, work-hours restrictions have caused most residency programs to redesign their schedules to ensure adequate sleep for residents. Beyond the need for sleep, however, many other factors in residents' personal lives may impact their job performance.
METHODS: We administered a survey to 693 residents during 2004–2005 at an academic medical center to determine the prevalence and type of major, difficult events in residents' personal lives. We asked respondents to describe the residency culture surrounding these events.
RESULTS: Among 214 respondents, we found that 37% of residents had experienced a difficult personal event, such as the death or illness of a loved one, a divorce or major relationship difficulty, or a personal illness. Of residents with personal difficulties, 50% wanted to take time off, but only 25% did. Residents commonly felt unsupported during times of personal crisis. Although few residents took any time off due to personal problems, 39% of all respondents reported having to cover the duties of these absent residents. Most residents were dissatisfied with the prevailing coverage systems.
CONCLUSIONS: Residency programs often fail to adequately support residents who experience major personal problems, despite the prevalence of such problems. As programs restructure to ensure work-hours compliance, they should adopt policies that support residents through personal difficulties. Such policies could include formal coverage systems, flexible scheduling options, and more accessible support services.

BLACK PATIENTS WITH PULMONARY EMBOLISM HAVE A HIGHER 30-DAY MORTALITY THAN WHITE PATIENTS. D. Aujesky[1]; R.A. Stone[2]; J. Sartorius[2]; D.S. Obrosky[2]; M.J. Fine[2]; S.A. Ibrahim[2]. [1]University of Lausanne, Lausanne, ; [2]VA Pittsburgh Healthcare System, Pittsburgh, PA. *(Tracking ID # 151682)*

BACKGROUND: Prior studies reported a higher short-term mortality for black patients with pulmonary embolism (PE) than for white patients. Because these studies did not adjust for potential differences in patient or hospital characteristics, it is unclear whether the higher observed death rates among black patients with PE represent a true disparity or an outcome of confounding. We compared mortality between black and white patients with PE adjusting for relevant patient and hospital factors.
METHODS: This retrospective cohort study used administrative and clinical data, collected by the Pennsylvania Health Care Cost Containment Council and MediQual Atlas for 14,253 inpatients discharged with a primary ICD-9-CM diagnosis of PE from 186 Pennsylvania acute care hospitals between January 2000 and November 2002. The primary outcome was 30-day all-cause mortality ascertained from the National Death Index. We used random-effects logistic regression to model mortality for black and white patients, adjusting for patient demographic and clinical characteristics, insurance status, and hospital volume.
RESULTS: The unadjusted 30-day mortality rate was 10.3% for black and 9.0% for white patients. When adjusted for severity of disease using a validated clinical prognostic model for PE, black patients had 30% higher odds of mortality compared to white patients at the same site (adjusted odds ratio=1.3, 95% CI: 1.1 to 1.6). Neither insurance status nor hospital volume were significant predictors of mortality.
CONCLUSIONS: Black patients with PE had significantly higher odds of 30-day mortality compared to white patients. Further studies are needed to examine the processes of care among black and white patients hospitalized with PE, to ascertain whether differences in these processes could account for the observed inequity in mortality.

BODY SIZE, WEIGHT-RELATED COMORBIDITY AND EMOTIONAL-PSYCHOLOGICAL FACTORS IN OLDER WOMEN–EXPLORING RACIAL/ETHNIC DIFFERENCES. C.S. Lynch[1]; K.M. McTigue[1]; J.E. Bost[1]; L.H. Kuller[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 154442)*

BACKGROUND: Epidemic obesity trends in the US are concerning as obesity is a risk factor for serious health conditions and linked with diminished quality of life. Minority women are particularly prone to developing excess weight and its associated conditions. Investigations of the relationship between obesity and quality of life have primarily focused on White populations. Here we examine how physical health and emotional-psychological factors (possible mediators between obesity and quality of life) differ with body size in women of diverse racial/ethnic backgrounds.
METHODS: A secondary analysis was performed using cross-sectional data from the Women's Health Initiative (WHI), a multi-site US trial comprised of postmenopausal women age 50–79 years. Physical health measures included prevalence of major obesity-related conditions (e.g., coronary heart disease-CHD, diabetes, hypertension, osteoarthritis and asthma) and pain. Emotional-psychological factors included history of a mood disorder, negative life events, living alone, having a pet, social support, strong religious affiliation, being active in groups and having a caregiver role. We examined the association of clinical weight class (normal weight or above by standard body mass index, BMI, category) with physical and emotional-psychological factors within each racial/ethnic group using chi-square tests. Statistical significance was achieved at the level of $p<.05$ for all results presented.
RESULTS: A total of 161,393 postmenopausal women with BMI 18.5 kg/m^2 were included in this analysis. The sample comprised of 133,534 non-Hispanic Whites (NHW), 14,627 African Americans (AA), 6,512 Hispanic/Latinos (HL), 4,192 Asian/Pacific Islanders (API), and 715 American Indians (AI). AA and AI women had the highest proportion of women in the obese categories (class 1 obesity: 26–27%, class 2 obesity: 12–14% and class 3 obesity: 8–10%) while API and NHW women had greater proportions in the normal weight category (55%, 36%, respectively) than other races. Physical health measures generally increased with clinical weight class in all racial/ethnic groups. The exceptions were that CHD prevalence showed borderline significance in HL women ($p=0.052$) and osteoarthritis showed no association with BMI in AI women. When we examined emotional-psychological factors, only a history of mood disorder and 5 negative life events showed a significant (generally positive) relationship with weight class in all racial/ethnic groups. All other emotional-psychological factors were associated with obesity in only some of the racial/ethnic groups. For example, in both AA and NHW women with increasing BMI, the prevalence of good social support generally declined. Percentages of women living alone decreased as weight class increased within the AA and HL populations and differed significantly by weight category but showed no clear pattern with increasing BMI in NHW women. Furthermore, only among API and NHW women, having a pet was more common among those with higher BMI status.
CONCLUSIONS: While the relationship between obesity and physical health is similar across racial/ethnic groups in this large sample of older women, the associations between emotional-psychological factors differ with race/ethnicity. These racial/ethnic differences in the relationships between obesity and emotional-psychological factors may lead to a better understanding of racial/ethnic-specific influences of obesity on quality of life.

BREADTH OF PRESCRIBING IN PALLIATIVE CARE, A PROSPECTIVE COHORT STUDY. M. Martin[1]; D.C. Currow[2]; A.P. Abernethy[1]. [1]Duke University Medical Center, Durham, NC; [2]Flinders University of South Australia, Daw Park, South Australia. *(Tracking ID # 156394)*

BACKGROUND: A recent World Health Organization (WHO) mandate called for earlier involvement by clinicians with an interest in palliative care in the natural history of terminal diseases. Patients with life-limiting illness present with a wide array of sources of distress that must be addressed by the generalist physician or palliative care practitioner. What is the scope of medications that these practitioners must manage?
METHODS: This analysis focuses on a subset of 408 patients from a larger $2 \times 2 \times 2$ factorial randomized trial of pain education and care coordination conducted in South Australia. The model of palliative care in South Australia is consistent with the 2004 United States (US) National Consensus Project Clinical Practice Guidelines for Quality Palliative Care and the definition of palliative care advocated by the World Health Organization. Participants were adults referred to a community palliative care service with pain in the preceding 3 months with full medication information available (408 of the total 461 enrolled in the trial). Enrolled patients minimally underwent community-based nurse reviews at baseline, fortnightly for 3 months, and then monthly until death. All medications were recorded at each time point. Medications were coded by class, subclass, and individually, and then summarized using basic descriptive statistics.
RESULTS: Mean age was 71 (standard deviation (SD) 12), 93% had cancer, half were female, and the mean length of stay was 136 days (SD 130). A total of 21,767 drugs were documented for the 408 participants, representing 36 classes, 218 subclasses, and 373 individual medications. Mean number of different medications per individual was 11.6 (SD 5.8); mean number of classes per individual was 8.4 (SD 3.3). Five classes accounted for 47% of the prescriptions and were, in descending order, strong opoids, non-steroidal anti-inflammatory agents, laxatives, anti-hypertensive agents, and agents for gastric protection. The most common medications were acetaminophen, docusate with senna, oxycodone, dexamethasone, and metoclopramide. Over 60% of persons took a medication from each of the following classes: anti-inflammatory agents, strong opoids, laxatives, and corticosteroids.
CONCLUSIONS: Medications for symptom control and pain management comprise the majority of prescriptions for people with life-limiting illness. Clinicians who include palliative care within their usual clinical practice must be competent to manage these important medications for relieving distress.

BREAKING BAD NEWS: A SURVEY OF PHYSICIANS' AND PATIENTS' BELIEFS AT A UNIVERSITY HOSPITAL IN LIMA, PERU. J. Munoz Mendoza[1]; L.Y. Bayes Santos[2]. [1]Albert Einstein Medical Center, Philadelphia, PA; [2]Universidad Nacional Mayor de San Marcos, Lima, . *(Tracking ID # 151273)*

BACKGROUND: Physicians frequently have to deliver bad news. Some studies have shown that most patients want to know the truth about their illnesses. This study evaluated the beliefs of physicians in breaking bad news, specifically the diagnosis of cancer, and the patients' preferences about it.
METHODS: Physicians and hospitalized patients from medical, surgical and gynecology wards in a university hospital in Lima Peru were surveyed using a questionnaire which explored aspects related to demographics, beliefs and personal preferences, barriers to effective disclosure, and their opinion about a previously published approach to breaking bad news.
RESULTS: Eighty three physicians and 90 patients responded the questionnaire. 89% of physicians were male and all of the patients were female. Ninety four percent of physicians and 77% of patients agreed that the diagnosis of cancer must be disclosed to the patient. However 20 patients disagreed with it. 55% of physicians and 82% of the patients said that the physician must always specify whether the illness is curable or not. Eighty eight percent of physicians believed that it is important not to say "Nothing more can be done" or "You have just a few months of live". However, more than a third of the patients wanted to be told honestly that nothing more could be done or that their life span was limited. Fifty four percent of patients indicated that honesty and use of clear

language are the most important factors when receiving bad news. 37 patients felt that assessing patients' perceptions and what they already know about their illness before breaking bad news as the most important factor. Physicians expressed their fears when breaking bad news to: being blamed by the patient (17%); not knowing all of the answers sought by the patient (55%); not knowing how to manage the patient's reactions (51%); difficulty in dealing with their own fears of illness and death (45%). Fifty nine physicians (72%) believed that they were competent in delivering bad news, even though only 10 physicians (12%) had undergone formal training. Twelve physicians preferred to defer the task to a psychiatrist or another colleague. Eighty percent of physicians admitted that they did not follow the suggested approach to breaking bad news. However 88% of physicians and 67% of patients agreed that these recommendations could be learned and put in practice.
CONCLUSIONS: Most patients and physicians believed that the diagnosis of cancer must be told to the patient. Honesty and use of clear language were considered the most important attributes when delivering bad news. Most physicians lack formal training in delivering bad news but they agreed that these skills can be learned and put into practice.

BREAST CANCER SCREENING AMONG CHAMORROS ON GUAM. R.G. Balajadia[1]; L. Wenzel[2]; J. Sweningson[2]; F.A. Hubbell[3]. [1]Centers for Disease Control and Prevention (CDC), Atlanta, GA; [2]University of California, Irvine, Irvine, CA; [3]University of California, Irvine, Orange, CA. *(Tracking ID # 152640)*

BACKGROUND: Chamorros, the indigenous people of Guam, are the third most populous Pacific Islander group in the United States (US). Approximately 60,000 Chamorros live on Guam. The largest populations on the mainland US live on the west coast. Guam is a civilian territory and residents are US citizens; however, surprisingly little is known about the cancer control needs of Chamorros. Therefore, this study evaluated knowledge, attitudes, and behaviors related to breast cancer in this population.
METHODS: The investigators conducted a self-administered survey in English among 149 self-reported Chamorro women over the age of 50 years on Guam. They employed a non-probability purposive sample design in recruiting the participants from 10 (of a total of 19) Guam villages. Volunteers in the villages completed the survey and were provided a traditional Chamorro meal. Trained Chamorro interviewers were available at the meetings to answer questions. The survey took approximately 30 minutes to complete. The instrument contained questions from the National Health Interview Survey (NHIS) and focus group findings. As a measure of acculturation, the investigators employed a widely used language assimilation scale. Descriptive, bivariate, and logistic regression analyses were performed.
RESULTS: Of the 149 respondents, 77% had at least a high school education, 61% were currently married, 70% had household incomes >$25,000, 100% spoke at least some English (66% spoke English and Chamorro equally), 67% had some form of health insurance, and 93% had a usual source of care. Ninety seven percent of the women reported ever having a mammogram and 83% reported having one in the past 2 years. The table below displays bivariate analysis of selected participant characteristics/beliefs and mammogram use. Logistic regression analysis, controlling for potentially confounding variables, revealed that having health insurance (OR 3.6; CI 1.0–12.3) and believing that family history was an important risk factor (OR 7.0; CI 2.1–23.4) increased mammogram use. Fearing that the mammogram would find breast cancer (OR 0.21; CI 0.06–0.67) decreased use.
CONCLUSIONS: Relatively high proportions of Chamorro women reported appropriate mammography screening. Beliefs that influenced mammogram use should be addressed in breast cancer prevention programs on Guam.

Participant Characteristics, Beliefs and Mammogram Use within the Past Two Years (n=149)

Characteristic	Mammogram %	No Mammogram %	P-values
< HS Education	93	7	0.10
>HS Education	80	20	
Income <$24,999	81	19	0.85
Income >$25,000	83	17	
Married	83	17	0.97
Not Married	83	17	
Speak English and Chamorro equally	85	15	0.51
Speak Chamorro more	79	21	
Insured	86	14	0.05
Uninsured	70	30	
Believes family history is important	88	12	0.02
Believes family history is not important	71	29	
No fear that mammogram will find cancer	89	11	0.05
Fear that mammogram will find cancer	75	25	

CAN A USUAL SOURCE OF CARE BE PROVIDED FOR LOW-INCOME AND UNINSURED PATIENTS?. A.L. Diamant[1]; L. Gelberg[1]; S.A. Mohanty[2]; E. Fielder[1]; I. Dyer[3]; A. Steven[1]. [1]University of California, Los Angeles, Los Angeles, CA; [2]University of Southern California, Los Angeles, CA; [3]Los Angeles County Department of Health Services, Los Angeles, CA. *(Tracking ID # 153764)*

BACKGROUND: The Los Angeles County Department of Health Services (LAC-DHS) plays an integral role in the provision of health care to many low-income and uninsured people. In conjunction with a variety of community clinics, it provides a health care safety net for a growing number of patients who are at increased risk for having unmet health care needs and poor health. Having a usual source of care (USOC) is known to improve the likelihood that people receive necessary medical care for acute, chronic and preventive health care needs, regardless of health insurance status.
METHODS: As part of the third Patient Assessment Survey (PAS III) the target population for this project includes both previous users of the system and new patients. Patients were interviewed on-site at 34 LAC-DHS facilities and community partner sites throughout Los Angeles County. Sites were selected based on geographic representation and probability proportional to volume. Patients from general adult medicine, family medicine and urgent care/walk-in were randomly sampled for this project. 866 participants completed the interview from January 2005 through March 2005, for a response rate of 78.3%. Participants were asked if they had a place they regularly went for their medical care, not including an emergency department. We examined USOC status by patient and system characteristics, as well as a comparison of USOC status over time using data from the PAS I, II and III surveys, performed in 1999, 2002 and 2005 respectively.
RESULTS: Two thirds (66%) of PAS III patients reported having a USOC, an increase from 46% and 35% (PAS II and PAS I respectively). In PAS III, women more commonly than men had a USOC (74% vs. 50%, p.001); while Asian/Pacific Islanders had the highest rate and African Americans had the lowest rate (71% vs. 54%, $p<.05$). Participants with insurance, more commonly than those without insurance, reported having a USOC (80% vs. 58%, $p<.001$). Additionally patients at LAC-DHS community clinics had the highest rate and those at LAC-DHS hospital-based clinics had the lowest rate (72% vs. 52%, $p<.01$). Furthermore we found that the duration that people had a USOC had increased over time. Continuity of care improved from the time of PAS I to PAS III. Whereas in PAS I 41% of patients had been going to a USOC for less than a year, this declined to 23% in PAS III ($p<.001$), while only 18% of patients in PAS I had been going to a USOC for >2 to 5 years, this increased to 33% ($p<.01$) in PAS III.
CONCLUSIONS: It is possible for low-income patients who rely on a county health system to have a usual source of care, where they can have their acute, chronic and preventive health care needs met. Based on partnering with community providers, the proportion of adult patients with a USOC has increased over time. Systems of care for low-income and uninsured populations should develop structures to maximize having a USOC for its patient population.

CAN COMPUTERIZED SCREENING DETECT DIAGNOSTIC ERRORS IN PRIMARY CARE?. H. Singh[1]; E.J. Thomas[2]; L.A. Petersen[1]. [1]Michael E. DeBakey Veterans Affairs Medical Center and Baylor College of Medicine, Houston, TX; [2]University of Texas Health Science Center at Houston, Houston, TX. *(Tracking ID # 153893)*

BACKGROUND: Diagnostic errors are the most common type of medical errors in primary care and are the leading basis for malpractice claims. Computerized techniques for screening and identifying other types of medical errors (e.g. medication-related errors) have been developed. The goal was to test the use of computerized screening to detect diagnostic errors in primary care.
METHODS: Primary care clinic visits in the General Medicine clinic of a tertiary care VA were screened using the electronic medical record system. Using a Structured Query Language (SQL) based program, all scheduled and unscheduled patient visits were evaluated for presence of one of two mutually exclusive screening criteria: Screen One: a hospitalization preceded by a primary care visit (index visit) made by the same patient in the prior 10 days; Screen Two: A primary care visit (index visit) followed by 1 or more primary care visit(s), an urgent care visit or an ER visit within 10 days but excluding index visits that were positive in Screen One. After a brief chart review, index visits with a diagnostic plan that included hospitalization for further work-up and those associated with a future elective hospitalization were excluded. The eligible visits with positive screens and a random sample of 99 screen-negative eligible visits were then reviewed by 3 chief or senior residents from a different institution, blinded to the goals of the study and the presence or absence of the screens. We used an explicit definition from the literature for the assessment of diagnostic errors. Data were reviewed by two independent reviewers to validate the findings of medical record review and differences were resolved by discussion.
RESULTS: Screen One was applied to all 15,580 patient visits from 8/1/04–9/30/05 to yield 190 Screen One positive visits (1.2%). After excluding 36 visits associated with admissions that were deemed to be elective or directly originating from the index primary care visit, the first 100 Screen One positive visits in the study period have been reviewed to date. Screen Two was applied to 5267 visits between 3/1/05–7/31/05. 58 visits that were positive for Screen One were excluded yielding 162 Screen Two positive visits (3.1%). We have reviewed the first 111 Screen Two positive visits in the study period thus far. From 1274 visits between 3/1/05–3/31/05, 105 non-screen positive controls were chosen randomly. Because of an immediate hospitalization from the visit, 6 control visits were excluded from full review. Review of Screen One charts yielded 30 confirmed diagnostic errors (PPV=30%) and 8 additional types of errors; Review of Screen Two charts yielded 12 confirmed diagnostic errors (PPV=11%) and 13 additional types of errors. There were 3 diagnostic errors and 2 additional types

of errors in the control group. In comparison, overall PPV for computerized screening to detect adverse drug events in the ambulatory setting has ranged from 7.5–8.8%.
CONCLUSIONS: Computerized screening of electronic medical records has the potential to detect diagnostic errors in primary care delivery systems, and the performance for detecting diagnostic errors is comparable to that for medication-related errors. Although this approach still involves chart review to verify the error, it is less costly and cumbersome than review of unscreened charts and offers a feasible, alternative mechanism to identify and study diagnostic errors in primary care.

CAN ETHICS BE TAUGHT? A RANDOMIZED TRIAL COMPARING TWO INTERVENTIONS TO TEACH INFORMED CONSENT TO INTERNAL MEDICINE INTERNS. R.M. Farrell[1]; J. Tilburt[1]; T. Rice[1]; J.A. Carrese[2]; J. Sugarman[1]; M.T. Hughes[2]. [1]Johns Hopkins University, Baltimore, MD; [2]Johns Hopkins Medical Institutions, Baltimore, MD. *(Tracking ID # 156144)*

BACKGROUND: Studies suggest that practicing physicians are not obtaining adequate informed consent. Despite the widely recognized importance of informed consent for clinical ethics education, little is known about effective strategies to improve informed consent knowledge and skills for internal medicine trainees. The objective of this study was to test the effectiveness of two practical educational strategies to improve intern knowledge of key concepts of informed consent.
METHODS: We used a randomized, unblinded, comparison trial of two interventions that both met the ACGME's requirements for training in informed consent and addressed the foundational elements of informed consent (e.g. Decision-making Capacity, Disclosure, Understanding, Voluntariness). Incoming interns at 2 university-based internal medicine residency programs were asked to fill out a demographic survey and baseline pretest and then were assigned to one of two analogous case-based educational interventions: 1) an internet-based computer learning module (COMP), or 2) a small group didactic session (DIDAC). After the intervention, participants completed a post-test and a survey on the usefulness of the curriculum. All testing items were developed with feedback from clinical ethics faculty and piloted with existing housestaff. Descriptive statistics, chi-square analyses, and t-tests were used to analyze the data.
RESULTS: All but one intern (N=56) from both programs agreed to participate. There were no statistically significant differences in baseline characteristics between the COMP (N=26) and DIDAC (N=30) groups. Median age category was 26–30 years. The majority of interns were female (64%) and had an undergraduate science major (75%). Most interns (91%) had ethics training in the first 2 years of medical school, and their ethics curriculum was rated as fair to good. Most (83%) had prior experience obtaining informed consent, and 74% felt confident at baseline in their ability to obtain informed consent. Overall baseline knowledge of informed consent was very good, with pretest scores of 83.0% for COMP and 80.5% DIDAC. Post-test scores improved (88.2% COMP; 88.1% DIDAC), and were significantly different from the pretest score for the DIDAC group ($p=.02$). Both groups showed particular improvement in 2 of the 7 key concepts: patient understanding (COMP 67% to 96% ($p=.02$), DIDAC 55% to 87% ($p=.01$)) and patient authorization (COMP 57% to 96% ($p<.001$), DIDAC 67% to 93% ($p=.01$)). Average curricular time was 15–30 minutes for COMP and 30–45 minutes for DIDAC ($p=.06$). Regardless of intervention, interns thought allotted time was just right (85%) and educational session was somewhat or very useful (90%). Most (96%) rated it likely/very likely that they would apply what they had learned to future clinical encounters.
CONCLUSIONS: Interns' baseline knowledge of informed consent, while good, demonstrated room for improvement. This study showed that key elements of informed consent can be taught either by didactic or computer methods. The comparison of overall change in testing favored a didactic approach; however, computer methods were more efficient in delivering the content. Both interventions were well received and felt to be useful. The next phase of this study will examine if knowledge is correlated with skills and behavior (i.e. adequate ability to obtain informed consent).

CAN RESIDENTS AUDIT THEIR OWN PERFORMANCE ACCURATELY?. T.K. Houston[1]; G.R. Heudebert[1]; C.I. Kiefe[1]; L.L. Willett[1]; K.P. Palonen[1]; J.J. Allison[1]. [1]University of Alabama at Birmingham, Birmingham VA Medical Center, Birmingham, AL. *(Tracking ID # 153310)*

BACKGROUND: The ACGME Outcome Project requires training programs to objectively measure resident performance. One recommended tool is chart audit by trained abstractors. However, use of chart audit is limited by cost and feasibility. An alternative, self-abstraction, is now supported as part of recertification by the American Board of Internal Medicine, but has not been extensively evaluated. Our objective was to compare agreement in performance of preventive services, as measured by trained abstractors and residents' self-abstraction of paper charts.
METHODS: As part of an ongoing quality improvement project, charts are being routinely abstracted on patients seen at the internal medicine residents' clinic. Two research assistants who have been trained abstractors audit the paper charts to assess performance of six preventive health care indicators: mammography, colon cancer screening, advice to quit smoking, current use of tobacco, pneumovax vaccination, and lipid screening. The two research assistants have been rigorously trained and have low (less than 3%) documented coding error rates. Based on national guidelines, we defined performance on each indicator as the proportion of patients appropriate to receive the preventive service (eg: women over 50 for mammography) who had documentation of that preventive service being offered, ordered, or obtained. Residents (n=31) were asked to abstract their own charts (n=120 charts) after receiving brief instruction on how to locate data on the medical record and on how to utilize the data abstraction form. First, using the patient as the unit of analysis, we compared the overall performance (percent of appropriate patients receiving services) assessed by residents and abstractors using a reasonable standard of agreement (within five percent), and evaluated differences using McNemar's chi-square tests. We then assessed disagreement rates at the individual variable level.
RESULTS: Resident-measured performance was similar (within 5%) to that of the chart abstractor for five indicators (Table). Colon cancer screening was different (83% for residents, 92% for abstractors, McNemar's $p=0.02$). Aggregate resident-measured performance was lower than that of the abstractors for four of the six indicators. At the variable level, 13.4% of residents' abstractions disagreed with the chart abstractors' (83 of 618 possible errors). Individual variable disagreement rates varied by performance measure - from 7.8% for advice to quit smoking to 20.4% for pneumonia vaccine.
CONCLUSIONS: Overall measured performance for the group of residents was similar, but accuracy was imperfect. Residents did not over-estimate their performance. Aggregated at the clinic level, residents' self-abstraction can be an alternative to costly trained abstractors. Appropriate use of these data should be carefully considered, acknowledging the limitations.

Comparing Resident and Abstractor Measured Performance (percent of appropriate patients receiving indicated service)

	Resident self-abstraction	Abstraction by trained abstractor
Smoking Screening	63.7%	67.0%
Smoking Advice	77.0%	73.5%
Breast Cancer Screen	88.4%	91.9%
Colon Cancer Screen	83.1%	92%
Lipid Screening	94.2%	91.3%
Pneumovax Vaccine	67.2%	70.4%

CAN WE MEASURE COMPETENCY IN PAIN MANAGEMENT? RESULTS AND VALIDITY OF A 3-STATION OSCE. D.L. Stevens[1]; K. Hanley[1]; S. Zabar[1]; B.P. Dreyer[1]; C. Tseng[1]. [1]New York University, New York, NY. *(Tracking ID # 156966)*

BACKGROUND: The medical community is increasingly criticized for falling short on pain management. New approaches are needed to ensure medical students are prepared to meet this challenge. We implemented and assessed a 3-station Observed Structured Clinical Examination (OSCE) to measure medical students' competency in the complex tasks of pain management, including advanced communication skills, detailed knowledge and a strong commitment to relieve suffering.
METHODS: The Pain OSCE was developed in conjunction with a new Pain Management Curriculum for 2nd year medical students. Besides the OSCE, the curriculum consisted of 4 lectures and 2 small group seminars. Three cases were selected for the Pain OSCE to allow assessment of students in a variety of pain scenarios requiring some overlapping and some unique skills and knowledge. The 3 cases were: Acute Neck Pain ("whiplash") in a 24 year old male African American artist, Chronic Low Back Pain in a 40 year old overweight male bricklayer, and metastatic bone (hip) pain in a 64 year old female architect. All students rotated through all 3 stations, each requiring students to: perform a comprehensive pain assessment (including impact of pain, effectiveness of current regimen, risks of addiction); develop a therapeutic relationship/handle strong emotions; and negotiate a treatment plan with the patient (including agreeing on goals of pain control and management of side effects of pain medication). Students had 12 minutes to complete each station. Standardized patients (SPs) were trained to play the part of the patient with consistency in both clinical and emotional content as well as degree of difficulty. SPs assessed students using an 22 item behaviorally-specific checklist. Each item was scored on a 3 point scale (0=not done; 1=partially done; 2=well done). Checklist items were grouped into 8 domains: Data Gathering Skill, Content of Pain Assessment, Relationship Building, Addiction Assessment, Collaborative Goal Setting, Patient Counseling Skills, Pain Management Knowledge. There was also an Overall Performance item, scored on a 5 point scale. A Summary Score was calculated for each student for each case as the mean performance over all domains on that case. The validity of the OSCE was assessed by correlating student Summary Scores across the three cases and comparing Summary Scores with students' self-assessment. The educational value of the OSCE was assessed using a student survey.
RESULTS: Of 160 students participated in the OSCE, 144 (90%) agreed to participate in the study. Mean Summary Scores were: Acute case: 1.60 ± 0.3, Chronic case: 1.52 ± 0.3; Cancer case: 1.55 ± 0.3. Across cases, performance in Addiction Assessment was worst (1.09 ± 0.8) while Data Gathering (1.76 ± 0.8) and Relationship Building (1.76 ± 0.8) were best. SP Ratings correlated very highly with student self-assessments for all 3 cases ($p<0.001$ for all 3 cases). Chronic case performance correlated with cancer case performance ($p=0.017$) but neither correlated with acute pain performance, suggesting the acute case required different skills. Students rated the

educational impact of the OSCE quite highly, stating that it was an accurate reflection of their clnical skills (2.9 ± 0.4) and helped develop their skills (2.9 ± 0.4).
CONCLUSIONS: The Pain OSCE was a useful educational experience and is a valid student assessment. Aggregate performance data identified Addiction Assessment as an area requiring improved medical student training.

CAREER CHOICE IN ACADEMIC MEDICINE: SYSTEMATIC REVIEW. S.E. Straus[1]; K. Tzanetos[1]; C. Straus[1]. [1]University of Toronto, Toronto, Ontario. *(Tracking ID # 151840)*

BACKGROUND: Many threats exist to the future of academic medicine including lack of leadership and innovation. Contributing to the concerns about the status of academic medicine is the perceived diminished workforce in academic medicine. This study was undertaken to systematically review the evidence about what factors influence physicians to choose or reject academic medicine as a career path.
METHODS: Searches of The Cochrane Library, Medline (using Ovid and PubMed) and EMBASE from 1990 to May 2005 were completed to identify relevant studies that explored the influential factors. Additional articles were identified from searching the bibliographies of retrieved articles. We attempted to identify studies that included residents, fellows, or staff physicians. No restrictions were placed on the study methodologies identified and all articles presenting empirical evidence were retrieved. For cohort, case control and cross sectional studies, minimum inclusion criteria were the presence of defined groups, and the ability to extract relevant data. For surveys, minimum inclusion criteria were a description of the population, and the availability of extractable data. Minimum inclusion criteria for qualitative studies were descriptions of the sampling strategy and methods.
RESULTS: The search identified 251 abstracts and 25 articles were included in this review. Completion of an MD with a graduate degree or fellowship program is associated with a career in academic medicine. Of the articles identified in this review, this finding is supported by the highest quality of evidence. Similarly, the completion of research and publication of this research in medical school and residency are associated with a career in academic medicine. The desire to teach, conduct research and the intellectual stimulation and challenge provided in academia may also persuade people to choose this career path. Influence of a role model or mentor was reported by physicians to influence their decision making. Trainees' interest in academic medicine wanes as they progress through their residency.
CONCLUSIONS: In order to revitalise academic medicine, interested candidates could be encouraged to complete a fellowship or graduate training and engage in research throughout their training. More flexibility should be introduced into career pathways in academia.

CAREER DEVELOPMENT AND ADVOCACY: LESSONS FROM THE PHYSICIAN ADVOCACY FELLOWSHIP. C.M. Calhoon[1]; D. Rothman[1]; D. Buchanan[2]; T. O'Toole[3]. [1]Columbia University, New York, NY; [2]Rush University Medical Center, Chicago, IL; [3]Georgetown University, Washington, DC. *(Tracking ID # 156657)*

BACKGROUND: The Program on Medicine as a Profession, first at the Open Society Institute and then at Columbia University, has supported thirty-six physicians to advocate for change that will benefit the patients and communities they serve. Fourteen of the Physician Advocacy Fellows are general internal medicine physicians. The program's success shows that clinicians who care for patients are privy to the impact of structural inequalities on their patients' lives and can have a powerful role in bringing the voice of their patients and communities into policy debates and discussions. For advocacy to become institutionalized within medicine, however, physician advocates need to be able to advance academically. Can physicians in academic medicine who advocate for their patients and communities be productive by academic metrics? How can physician advocacy work be profiled academically?
METHODS: Qualitative and quantitative data were collected on the fourteen Physician Advocacy Fellows who are general internists. Progress reports from the fellows and their partnering advocacy organizations were reviewed. A PubMed search for articles relevant to the advocacy work of the subgroup was completed.
RESULTS: Of the fourteen general internists that participated in the program, thirteen have academic appointments in nine major medical centers throughout the country. This includes one person recruited by an academic medical center from a community health center shortly before the end of her fellowship. Between 2000 and 2005, seven out of fourteen fellows were awarded promotions by their home institutions. During this period, this group of general internists published 35 articles relevant to their advocacy work in peer reviewed journals. In addition to this, seven fellows were awarded grants for research that was related to their advocacy work. A broader analysis of the entire cohort of fellows is ongoing.
CONCLUSIONS: With protected time to develop a strategy in pursuit of their goals and with mentorship from an advocacy organization, physicians can develop a practice as an advocate that will continue to inspire and challenge them for the duration of their careers. Medical students, residents, and colleagues are often inspired by these physicians, who in turn become role models and mentors for others. The success of generalist physicians who participated in the fellowship shows that clinicians can sustain an academic career through advocacy efforts. Furthermore, advocacy can enhance the academic profiles of physicians, serving as the basis for peer-reviewed publication, funding, and academic promotion.

Advocacy Project of Generalist Physician Advocacy Fellows

Topic	Number of General Internists Advocating in this Area
Pharmaceutical Influence in Medical Education	1
Prison/Detention	4
AIDS	2
Health Care Access	2
Health Disparities	2
Health Literacy/Low English Proficiency Health	2
Homelessness	2

CERTIFICATE OF NEED REGULATIONS AND CARDIAC CATHETERIZATION APPROPRIATENESS POST-ACUTE MYOCARDIAL INFARCTION. J.S. Ross[1]; V. Ho[2]; Y. Wang[1]; S.S. Cha[1]; A.J. Epstein[1]; F.A. Masoudi[3]; H.M. Krumholz[1]. [1]Yale University, New Haven, CT; [2]Rice University, Houston, TX; [3]University of Colorado Health Sciences Center, Denver, CO. *(Tracking ID # 156757)*

BACKGROUND: Certificate of need (CON) regulations were intended to control health care costs, improve quality of care, and ensure clinical proficiency by limiting the number of health care facilities providing complex medical procedures. Few studies have directly examined the relationship between CON regulations and quality of care. Our objective was to examine whether cardiac catheterization use after admission for acute myocardial infarction (AMI) varied between states with and without CON regulations for cardiac catheterization services by procedure appropriateness.
METHODS: We performed a cross-sectional analysis of data from the Cooperative Cardiovascular Project, a retrospective medical record review of a national sample of Medicare patients hospitalized for AMI between 1994 and 1996 in U.S. acute-care hospitals. Our main outcome measure was cardiac catheterization within 60 days of hospitalization for AMI. Appropriateness criteria were derived from the 1996 ACC/AHA guidelines and all cardiac catheterization indications were categorized as strong, equivocal, or weak. CON regulations for cardiac catheterization were present in 32 states and absent in 19. We used three-level (patient, hospital, and state) hierarchical linear models to examine the association between state CON regulation status and use of cardiac catheterization post-AMI, stratified by procedure appropriateness. First-level modeling adjusted for patient socio-demographic characteristics, clinical presentation, past medical history, co-morbid conditions and physician characteristics, including socio-demographic characteristics, specialty, and practice type. Second-level modeling adjusted for hospital characteristics, including cardiac care facility level, ownership, teaching status, and mean AMI volume. Presence of CON regulations was considered in third-level modeling.
RESULTS: 93,986 patients (68%) were hospitalized in states with CON regulations and 43,293 patients (32%) were hospitalized in states without CON regulations. States with CON regulations had a slight but significantly lower crude rate of cardiac catheterization when compared with states without CON regulations (45.8% vs. 46.5%, OR=0.97, 95% CI, 0.95–0.99; p=0.016). Adjusted rates of cardiac catheterization were similar in states with and without CON regulations (OR=0.92, 95% CI, 0.80–1.06; p=0.27). CON regulations were not associated with differences in cardiac catheterization use by appropriateness of the indication. Adjusted analyses demonstrated that states with CON regulations were as likely to perform strongly-indicated cardiac catheterizations (OR=0.99, 95% CI, 0.87–1.12; p=0.88), equivocally-indicated cardiac catheterizations (OR=0.87, 95% CI, 0.72–1.05; p=0.14), and weakly-indicated cardiac catheterizations (OR=0.89, 95% CI, 0.75–1.06; p=0.21) when compared with states without CON regulations.
CONCLUSIONS: Cardiac catheterization use after admission for AMI did not vary overall or by procedure appropriateness between states with and without CON regulations for cardiac catheterization services. CON regulations for cardiac catheterization were neither associated with an increased rate of strongly-indicated catheterizations nor a decreased rate of weakly-indicated catheterizations post-AMI, challenging the intent of the regulations that limiting the number of health care facilities authorized to provide complex medical procedures leads to improved quality of care.

CERVICAL CANCER PREVENTION: LATINO COUPLES' PERCEPTIONS. J. McMullin[1]; O. Chida[2]; I. De Alba[2]. [1]University of California, Riverside, Riverside, CA; [2]University of California, Irvine, Irvine, CA. *(Tracking ID # 154668)*

BACKGROUND: Cervical cancer continues to disproportionatelly afect Latinas. Although the primary etiologic agent of cervical cancer, the human papilloma virus (HPV), is carried by both men and women, the prevention of cervical cancer has typically focused on the behaviors of women (i.e. multiple sexual partners, condom use and Pap exams). Yet, attitudes and behaviors of men concerning cervical cancer may also have a profound impact on their partner, and vice versa. Despite the important role of both members of a couple on cervical cancer etiology and prevention, few studies have focused on the couple as the unit of analysis. A better understanding of the views of both partners may lead to more effective interventions for prevention and early diagnosis of cervical cancer. This paper examines the perceptions and practices of Latino couples regarding primary preventive and early detection measures for cervical cancer.
METHODS: Latino couples were invited to participate in 16 focus groups conducted in Santa Ana, California. Flyers were posted at a Community Based Organization that serves the needs of the Latino community. Respondents, who

were older than 18 and were together for 6 months or more, were asked to participate in a two-hour focus group discussing cervical cancer, early screening, and cancer prevention. Because of the sensitive nature of the subject, and to contrast points of view, men and women were included in separate same-gender groups. All focus groups were conducted in Spanish. With the permission of the participants the conversations were tape recorded. The tape recordings were transcribed and translated into English. The text analysis program, AskSam, was used to analyze the qualitative data. Recurring themes in the data were identified through content analysis.
RESULTS: We focused specifically on themes that were categorized as barriers to primary prevention (condom use) and use of early detection screening. Cervical cancer was generally perceived as in connection to sex or as a consequence of a sexually transmitted disease that was left unattended, although specific knowledge of HPV was absent. The Latina group often focused on issues of machismo and lack of knowledge as barriers to prevention. Latino men highlighted issues of embarrassment, on the part of the women, as the main barrier to screening. Discussions of prevention measures, such as using a condom or seeking a Pap exam, often were viewed as a questioning of the morality, trust and fidelity of their partner.
CONCLUSIONS: Views and attitudes of one member of a Latino couple may influence cervical cancer related behaviors in the other member. Lack of knowledge, machismo, embarrasment and the perception that cervical cancer is linked to morality are perceived as barriers to primary prevention and early diagnosis of cervical cancer by Latino couples. These findings may guide the development of more effective interventions aimed at improving cervical cancer prevention and early diagnosis among Latinas. The findings may also suggest that targeting couples, rather than individuals, may improve the effectiveness of these interventions.

CHANGES IN RESIDENCY WORK HOURS: THE IMPACT OF THE SHORT CALL TEAM ON LENGTH OF STAY AND QUALITY OF CARE FOR DECOMPENSATED HEART FAILURE. J.L. Schuberth[1]; C.L. Roumie[2]; J. Butler[3]; R. Greevy[3]; T. Speroff[2]; R.S. Dittus[2]; T.A. Elasy[2]. [1]VA National Quality Scholars Fellowship Program, Veterans Affairs Tennessee Valley Healthcare System, Vanderbilt University, Nashville, TN; [2]VA Tennessee Valley Healthcare System, Vanderbilt University, Nashville, TN; [3]Vanderbilt University, Nashville, TN. *(Tracking ID # 153373)*

BACKGROUND: Recent Accreditation Council for Graduate Medical Education (ACGME) regulations led to residency program restructuring including night float systems and creation of short call teams, necessitating an increase in patient "handoffs". Heart failure (HF) guidelines recommend early diuresis which may be compromised by such patient handoffs. We sought to examine the effect of early handoffs on the care of patients with decompensated HF.
METHODS: We identified a retrospective cohort of HF patients hospitalized at the Nashville VA Medical Center between 7/1/2003 and 6/30/2005. A chart review was conducted to exclude patients not admitted to the general medicine service, transferred to the ICU within 4 hrs of admission, on dialysis prior to admission, and not meeting Framingham criteria for heart failure at the time of admission. The admitting team was determined through chart review. Long call teams remain in the hospital for no more than the 24+6 hours mandated by the ACGME restriction, while short call teams admit in the morning and handoff patient care to the long call team overnight. The primary outcome, length of stay, and secondary outcomes, early weight change and diuretic dosing, were determined through a combination of administrative data and chart review.
RESULTS: 391 patient admissions met inclusion criteria. 275 (70.3%) were assigned to long call and 116 (29.7%) were assigned to short call. The majority of the patients were male (99.3% long call vs. 99.1% short call, $p=0.9$), Caucasian (77.8% for long vs. 74.1% for short call, $p=0.4$), with an average age of 69.4 ± 11.3 vs. 67.5 ± 11.2 years, ($p=0.12$). Of the 338 (86.4%) patients with known left ventricular ejection fraction (EF) prior to admission, the average EF was $35.1 \pm 16.0\%$ vs. $35.2 \pm 16.7\%$, ($p=0.9$). HF treatment at admission included: beta blockers 58.5% vs. 64.7%, ($p=0.2$), ACE Inhibitor or angiotensin receptor blockers 61.1% vs. 64.8%, ($p=0.6$), aldosterone antagonists 19.3% vs. 17.2%, ($p=0.6$), and diuretics 68.0% vs. 69.0%, ($p=0.9$), with no significant difference between long and short call teams, respectively. The median length of stay was 4 days (interquartile range 3–7) for long call vs. 5 days (interquartile range 3–8, $p=0.12$) for short call patients. 47.3% of long call and 57.8% of short call admissions had a length of stay greater than 4 days, ($p=0.058$). Long call patients were more likely to have a weight recorded within 24 hours of admission (69.1% long call vs. 58.6% short call, $p=0.046$), although there was no statistically significant difference in weight change at 48 hours (-7.3 ± 10.3 vs. -8.0 ± 7.7 lbs, $p=0.7$). On average, long call patients received more doses of loop diuretics during the first 24 hours of hospitalization (2.2 ± 1.0) than short call patients (2.0 ± 0.9, $p=0.046$).
CONCLUSIONS: Our study shows a non-statistically significant trend towards prolonged length of stay among patients admitted to the short call team. This raises concerns about the effect of early handoffs on patient outcomes. Further studies are needed to confirm these results and further evaluate the impact of work hour restrictions on quality of care.

CHARACTERISTICS AND IMPACT OF DRUG DETAILING FOR GABAPENTIN. M.A. Steinman[1]; G.M. Harper[1]; M. Chren[1]; C.S. Landefeld[2]; L.A. Bero[2]. [1]San Francisco VA Medical Center, San Francisco, CA; [2]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 153002)*

BACKGROUND: Sales visits by pharmaceutical representatives ("drug detailing") are common. However, little is known about the content of these visits, or about the impact of visit characteristics on prescribing behavior.
METHODS: We evaluated market research forms completed by physicians after receiving a detail visit for gabapentin (Neurontin) in 1995–1999. These forms, which are typically used by pharmaceutical firms for market research purposes, were subpoenaed for use in United States of America ex rel. David Franklin v. Pfizer, Inc, and Parke-Davis, Division of Warner-Lambert Company, litigation that alleged promotion of gabapentin for indications not approved by the FDA. Our main outcome measures were self-reported visit characteristics and intention to increase prescribing or recommendation of gabapentin in the future.
RESULTS: Detail visit reporting forms were available for 97 physicians reporting on 116 detail visits. Three-quarters of recorded visits (91/116) occurred in 1996, 67% (72/107) were 5 minutes or less duration, and 65% (73/113) were rated of high informational value. Although gabapentin was approved by the FDA only for the adjunctive treatment of partial seizures during the period of this study, over half (63/112) of detail visits were to non-neurologists, and in 38% of visits (44/115) the "main message" of the visit involved at least one unapproved use. After receiving the detail visit, 46% (50/108) of physicians reported the intention to increase their prescribing or recommendation of gabapentin in the future. On multivariable analysis, factors associated with the intent to increase future prescribing or recommendation of gabapentin included receiving the detail in a small group setting (OR 11.2, 95% CI 1.1–110.1 for visits involving 2–3 physicians, compared with one-on-one visits) and low or absent baseline prescribing or recommendation of the drug (OR 11.0, 95% CI 2.6–46.7 for no baseline activity, OR 4.9, 95% CI 1.2–19.3 for low baseline activity, compared with medium baseline activity). Visit duration, focus on approved vs. unapproved indications, and the perceived informational value of the presentation were not significantly associated with the intention to prescribe or recommend gabapentin more often in the future.
CONCLUSIONS: Detail visits for gabapentin often involved messages about unapproved uses and were perceived by physicians to have high informational value. Despite their short duration, detail visits were frequently followed by physician intentions to increase their future prescribing or recommendation of gabapentin.

CHARACTERISTICS AND OUTCOMES OF PATIENTS UNDERGOING HIP AND KNEE REPLACEMENT IN SPECIALTY ORTHOPEDIC AND COMPETING GENERAL HOSPITALS. P. Cram[1]; M.S. Vaughan Sarrazin[1]; B.R. Wolf[1]; J. Katz[2]; G.E. Rosenthal[1]. [1]University of Iowa, Iowa City, IA; [2]Harvard University, Boston, MA. *(Tracking ID # 153105)*

BACKGROUND: The emergence of specialty hospitals focusing on procedural areas of medicine has generated widespread controversy but little is known about the quality of care they deliver. The objective of this study was to compare the characteristics and outcomes of patients undergoing total hip replacement (THR) and total knee replacement (TKR) surgery in specialty orthopedic and competing general hospitals.
METHODS: Using Medicare Provider and Analysis Review (MedPAR) Part A data files, ICD9-CM procedure codes were used to identify all patients who underwent major joint replacement surgery (either THR or TKR) during 1999–2003. Next, we identified the 100 most specialized orthopedic hospitals in the United States, defined as those hospitals with the highest proportion of their total 2003 Medicare admissions categorized as Major Diagnostic Category (MDC) 8 (Diseases of the Musculoskeletal System). We excluded all hospitals providing general obstetrical or pediatric care ($N=55$) and all teaching hospitals ($N=7$) as there is widespread consensus that such hospitals do not qualify as specialty orthopedic hospitals, resulting in the identification of 38 specialty orthopedic hospitals. Competing general hospitals were defined as all hospitals performing major joint replacement in the same geographic region as one or more specialty hospitals ($N=517$). We compared demographics, comorbidities, socio-economic status (as measured by zip-code level Census data) of patients treated in specialty orthopedic and general hospitals, and hospital procedural volume (THR and TKR). Logistic regression models were used to assess the risk of adverse outcomes (defined as a composite endpoint of death, readmission, or selected surgical complications) for patients in specialty orthopedic hospitals relative to general hospitals after adjusting for patients' characteristics and procedural volume.
RESULTS: The specialty and competing general hospitals performed 4,683 and 47,105 THR procedures respectively and performed 10,234 and 89,531 TKRs respectively. Demographic characteristics were similar in specialty and general hospitals, but patients in specialty hospitals had lower rates of most important comorbid conditions including diabetes, heart failure, and renal failure ($P<.05$ for all) and resided in zip-codes with higher incomes and housing values than patients in general hospitals. Specialty hospitals had significantly greater procedural volumes for both THR (33 vs. 20 procedures in 2003: $P=.05$) and TKR (75 vs. 40; $P=.006$). In unadjusted analyses, adverse outcomes were significantly less common in specialty hospitals compared to general hospitals for THR (3.0% vs. 6.9%; $P<.001$) and TKR (2.1% vs. 3.5%; $P<.001$). In regression models, after adjusting for patients' characteristics, hospital procedural volume, and type of procedure (THR or TKR) the odds of adverse outcomes were significantly reduced for patients in specialty hospitals relative to general hospitals (OR 0.62, 95% CI 0.54–0.72; $P<.001$).
CONCLUSIONS: After adjusting for differences in patients' characteristics and procedural volume, specialty orthopedic hospitals demonstrate significantly improved outcomes relative to competing general hospitals. Specialty orthopedic hospitals may represent an opportunity to substantially improve orthopedic outcomes if their expertise can be generalized to other institutions.

CHARACTERISTICS AND SEXUAL ACTIVITIES OF PEOPLE LIVING WITH HIV/AIDS (PLWHA) FOR MEN WHO HAVE SEX WITH MEN, HETEROSEXUAL MEN AND WOMEN. C. Golin[1]; J. Wright[2]; M. Gerkovich[2]; B. Quinlivan[3]; H. Tien[3]; S.N. Patel[4]. [1]University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]University of Missouri-Kansas City, Kansas City, MO; [3]University of North Carolina, Chapel Hill, NC; [4]University of North Carolina at Chapel Hill, Durham, NC. *(Tracking ID # 154630)*

BACKGROUND: Interventions to help PLWHA reduce transmission risk behaviors are needed but require a detailed understanding of their sexual practices. Few studies have conducted detailed assessments of sexual practices separately for MSM (men who have sex with men), women, and MSW (men who have sex with women) among a broad sample of PLWHA.
METHODS: We assessed the baseline prevalence of risky sexual activities and sexually transmitted infections (STIs) among 1100 adult HIV-infected patients who were sexually active or used drugs, from 7 clinics in 6 U.S. cities. From April-Sept, 2004, before we implemented a prevention program, study subjects completed an Audio Computer-Assisted Self Interview (ACASI) to assess their risky sexual behaviors, socio-demographics, clinical setting, clinical and psychosocial factors. Information about viral load, CD4 counts, and STIs was abstracted from medical records.
RESULTS: Of the 1100 in our sample, 43% were MSM, 21% were MSW, 2% were MSMW, and 30% were women. 61% of the sample was African American, 31% white, 7% other or multiple races. 62% of MSM had more than a high school education compared with only 42%, 29%, and 30% of MSMW, MSW, and women respectively. 37% were married or in committed partnerships, 20% had CD4 counts <200; 45% had viral loads <400. 23% reported binge drinking at least once per week and 16% crack cocaine use in the last 3 months; 9% had traded sex for drugs, money or shelter. 34% had not disclosed their serostatus to any sexual partners. 1050 of the 1100 reported sexual activity in the last 3 months. By chart review only, 2.6% had a positive test result for an STI in the last 6 months. Overall, 21% engaged in unprotected vaginal or anal intercourse (UVAI) with a negative or unknown serostatus partner (proportions and total # of episodes by group listed in Table).
CONCLUSIONS: Among PLWHA, approximately 21% engaged in unprotected anal or vaginal intercourse with an at-risk partner but varied by subgroup: relatively smaller proportions of MSM and greater of proportions of MSMW practiced unsafe sex compared with women. Research to explain these differences and to apply this knowledge to implementation and evaluation of successful "prevention with positives" programs is needed.

	Total (N=1050)	MSM n=471	MSW n=227	MSMW n=26	W n=326
Engaged in any UAVI with an HIV-neg or unknown serostatus partner in last 3 months–% (n)	21.19%	22.08% (104)	12.33% (28)	38.46% (10)	27.91% (91)
Total # of episodes of UAVI with an HIV-neg or unknown serostatus partner in last 3 months–mean (range)	1.94 (0–123)	1.32 (0–100)	3.08 (0–27)	2.04 (0–91)	

CHARACTERISTICS OF NOT KNOWING THE CD4 CELL COUNT WHEN LIVING WITH HIV. A.R. Hoellein[1]; C.H. Griffith[1]; J.F. Wilson[1]; A.C. Thornton[1]. [1]University of Kentucky, Lexington, KY. *(Tracking ID # 154522)*

BACKGROUND: The CD4+T Helper cell count is a critical value when managing HIV disease as it holds clear ramifications for both primary disease severity and susceptibility to opportunistic infections. One would imagine, therefore, that persons living with HIV (PLWH) are well-aware of their own CD4 count. The purpose of this study is to examine variables related to unawareness of patients' own CD4 count to better understand uninformed or perhaps even harmful behaviors.
METHODS: Patients presenting to the University of Kentucky HIV Clinic were asked to complete a voluntary, IRB-approved, questionnaire regarding their physical and mental health. A particular item requested self report of the participants' CD4 count with an option to select "Don't know". Data were analyzed with respect to CD4 awareness by simple means, standard deviations, Pearson product moment correlations, and multiple regression approaches solving for demographic variables, HIV risk, medication adherence, and other co-morbidities.
RESULTS: Of the 123 surveys delivered, 102 (82.9%) were returned. Mean age was 40.6 ± 9.1 (22–67). Eighty-five were men (83%) and seventeen (17%) were women. There were 82 (80%) Caucasians, 15 (15%) African-Americans, 3 (3%) Hispanic/Latinos, and one (1%) Asian. Sixty-four respondents (67%) are men who have sex with men, 13 (14%) report high-risk heterosexual activity, 4 (4%) have a history of intravenous drug use, 2 (2%) indicate blood exposure, and 13 (13%) don't know their HIV risk factor. Fifty-one (50%) count depression and 29 (28.4%) anxiety as concommittant diseases. Twenty-eight (29%) do not know their CD4 count. Mean CD4 for those reporting a number (62) is 465/μL with a range of 3–1500/μL. Lack of knowledge of CD4 counts cannot be attributed to generalized lack of knowledge or low education. Other than viral load, ($r=.777$, $p<.001$), not knowing the CD4 count was not correlated with other "don't know" indices such as HIV risk factor, medications, advanced directives, and intimate partner violence. Further, there were no significant correlations with age, education, income, depression, or anxiety. Signficant independent variables in our model predictive of not knowing one's CD4 count include perceived discrimination ($p=.005$), likelihood of church attendance ($p=.042$), and illegal drug use ($p=.047$). Interesting trends from the regression model include being a woman ($p<.10$), poorer medication adherence ($p<.10$), and higher spirituality scores ($p<.15$).
CONCLUSIONS: In this sample, nearly one-third of respondents did not know their CD4 count. Such a high rate is most alarming in the face of conceivably well-known prognostic and therapeutic utility. A possible explanation may lie with the observed association with "faith" variables such as spitituality and church attendance. Alternatively, the highly significant positive responses regarding discrimination may belie some "avoidant" tendencies. Nevertheless, these data suggest that a subgroup of PLWH are in dire need of HIV education or otherwise greatly improved participation in their own disease management.

CHINESE PHYSICIANS: SMOKING BEHAVIOR, SMOKING CESSATION ATTITUDES, AND SMOKING CESSATION PRACTICES. Y. Jiang[1]; M.K. Ong[2]; E.K. Tong[3]; Y. Yang[1]; Y. Nan[1]; Q. Gan[4]; T. Hu[4]. [1]China Centers for Disease Control, Beijing, ; [2]University of California, Los Angeles, Los Angeles, CA; [3]University of California, San Francisco, San Francisco, CA; [4]University of California, Berkeley, Berkeley, CA. *(Tracking ID # 152516)*

BACKGROUND: China has the most smokers in the world. Physicians play a key role in smoking cessation but little is known about Chinese physician smoking behavior, and smoking cessation attitudes and practices. This analysis aimed to determine Chinese physician smoking behavior, smoking cessation attitudes, and smoking cessation practices.
METHODS: We surveyed 3552 hospital-based physicians from six Chinese cities in 2004. Physicians were surveyed on their own smoking prevalence, attitudes and behavior regarding smoking at work, and attitudes and behavior regarding smoking cessation for patients. Chi-square statistical analyses accounted for clustering at the city and hospital level.
RESULTS: Overall, 23% of Chinese physicians smoke; significant gender differences exist as 41% of men (n=1958) and 1% of women smoke. Among Chinese physician smokers, 83% smoke less than a pack a day. While 76% of physicians state they usually advise smokers to quit, only 48% of physicians usually ask about smoking status and 29% of physicians think most smokers will follow their cessation advice. Although 86% think physicians should set a non-smoking example, 37% of current smokers have smoked in front of their patients. Less than 7% of physicians usually set quit dates or use nicotine replacement therapy when helping smokers quit. Men significantly differ ($p<0.05$) from women on smoking behavior and attitudes regarding smoking behavior and smoking cessation, but not on smoking cessation practices. There are fewer significant differences between genders when restricted to never smokers. Significant differences exist between men never smokers and ever smokers, but not for women. The most prevalent specialties surveyed were internists (27%) and surgeons (26%). Even after restricting analyses to men to account for gender differences, internists significantly smoked less than surgeons and other specialties.
CONCLUSIONS: Chinese physicians smoke substantially more than their U.S. colleagues (3%). Physician smoking in front of patients suggest lax enforcement of smoke-free health care facilities. Although most Chinese physicians state they usually advise smokers to quit, their low confidence in the effectiveness of such advice likely contributes to their low rate of asking about smoking status; many Chinese smokers likely go unidentified. Few Chinese physicians use established smoking cessation practices, which exacerbates the ineffectiveness of physician smoking cessation advice. Physician smoking cessation, education on smoking cessation techniques, and smoke-free workplaces need to be increased among Chinese physicians, particularly among men and non-internists. These improvements can help reduce the Chinese and worldwide health burden from smoking. (Funding: 1 R01 TW05938. Tobacco Research Framework Program, Fogarty International Center, U.S. National Institutes of Health)

CHOOSING LOW MORTALITY HOSPITALS: HOW DOES THE HOSPITAL QUALITY ALLIANCE COMPARE TO OTHER METRICS?. A. Jha[1]; E.J. Orav[2]; Z. Li[1]; A.M. Epstein[1]. [1]Harvard University, Boston, MA; [2]Brigham and Women's Hospital, Boston, MA. *(Tracking ID # 152311)*

BACKGROUND: The Hospital Quality Alliance (HQA) program is the first national program to report publicly on the quality of hospital care. How the HQA program compares with other publicly available hospital rating programs and how effectively it identifies low mortality hospitals is largely unknown.
METHODS: We calculated the HQA summary score for process- based quality indicators for acute myocardial infarction (AMI), congestive heart failure (CHF), and pneumonia for each hospital and examined its relationship with three other metrics of hospital quality: reporting to the Leapfrog Group; being named a top hospital by the U.S. News and World Report ranking program; and being a teaching hospital. We also examined the relationship between performance on the four quality markers (HQA, Leapfrog reports, U.S. News and World Report rank, and hospital teaching status) and risk-adjusted mortality among fee for service Medicare enrollees 65 years of age or older. Mortality analyses were performed seperately for each clinical condition (AMI, CHF and pneumonia).
RESULTS: There were 3,720 hospitals that reported sufficient data to the HQA program to allow for the generation of at least one HQA summary score. Significantly higher HQA-based performance on AMI and CHF, but not pneumonia, was found among hospitals that reported data to the Leapfrog Group, hospitals that were highly ranked by U.S. News and World Report, and teaching hospitals. Patients treated at hospitals that were in the top quartile of performance on the HQA indicators had 11% lower odds of dying from AMI (95% confidence interval [CI] 0.85 to 0.94, $p<0.001$), 7% lower odds of dying from

CHF (95% CI 0.88 to 0.98, p=0.006), and 15% lower odds of dying from pneumonia (95% CI 0.81 to 0.89, p<0.001) than patients treated at hospitals in the bottom quartile of performance. Similarly, patients treated at hospitals that reported to Leapfrog had 5% to 12% lower odds of dying depending on the condition (p<0.05 for each) than those that did not, while patients in the U.S. News hospitals had 18% to 25% lower odds of dying (p<0.001 for each) than those in hospitals not ranked by U.S. News. Teaching hospital status was not associated with lower mortality rates for any of the three conditions.
CONCLUSIONS: Patients who choose hospitals based on the ratings in the Leapfrog program, U.S. News rakings, or on teaching status will identify hospitals with better process quality. Patients that are treated at hospitals that perform well on the HQA program, U.S. News rankings or report data to the Leapfrog Group have lower odds of dying from common medical conditions.

CHOOSING YOUR WORDS CAREFULLY: HOW PHYSICIANS WOULD DISCLOSE HARMFUL MEDICAL ERRORS TO PATIENTS. T.H. Gallagher[1]; A.D. Waterman[2]; J. Garbutt[2]; E.B. Larson[1]; V.J. Fraser[2]; W. Dunagan[2]; W. Levinson[3]. [1]University of Washington, Seattle, WA; [2]Washington University in St. Louis, St. Louis, MO; [3]University of Toronto, Toronto, Ontario. *(Tracking ID # 153119)*

BACKGROUND: A gap exists between patients' desire to be told about medical errors and present practice. Calls are increasing to fully disclose errors to patients, but little is known about how physicians currently approach disclosure. Therefore we sought to measure how physicians would disclose errors to patients and explore the factors associated with disclosure.
METHODS: Mailed survey of 2637 medical and surgical physicians in academic and private practice in the U.S. (Missouri and Washington) and Canada (national sample). Participants received one of four scenarios depicting serious errors that varied by specialty (medical scenarios; surgical scenarios) and by how obvious the error would be to the patient if not disclosed ("more apparent;" "less apparent"). Five questions measured what respondents would disclose using scripted statements representing increasing disclosure.
RESULTS: The response rate was 63%. Wide variation existed regarding what information respondents would disclose. 56% chose statements that mentioned the adverse event but not the error, while 42% would explicitly state that an error occurred. Some physicians disclosed little information: 19% would not volunteer any information about the error's cause, and 63% would not provide specific information about preventing future errors. Disclosure was affected by the nature of the error and by physician specialty. 51% of respondents who received the more apparent error scenarios chose statements that explicitly mentioned the error, compared with 32% of physicians who received the less apparent errors (P<.0001). 58% of medical specialists chose statements that explicitly mentioned the error, compared with 19% of surgical specialists (P<.0001). Respondents in both specialties disclosed more information if they had positive general disclosure attitudes, had prior positive experiences disclosing errors, and were Canadian.
CONCLUSIONS: Physicians vary widely in how they disclose errors to patients, suggesting that effective disclosure standards are lacking. Disclosure standards and training are necessary to meet public expectations and promote professional responsibility following harmful errors.

CHRONIC CARE MODEL PROGRAM FOR OBESITY IN RURAL KANSAS PRIMARY CARE. A. Charbonneau[1]; A. Banitt[1]; M. Smith[2]; K. Greiner[1]; P.C. Rhode[1]; E.F. Ellerbeck[1]. [1]University of Kansas, Kansas City, KS; [2]University of Missouri-Kansas City, Kansas City, MO. *(Tracking ID # 153284)*

BACKGROUND: Improving the recognition and treatment of obesity in primary care settings is a critical initiative. The chronic care model (CCM) has been identified as a potential mechanism for improving healthcare quality. The CCM is a systems-based, multidisciplinary team approach to chronic disease management that engages patients, health professionals, health system administrators, and communities. A CCM for obesity may be one method of closing the quality gap between currently observed low rates of nutritional, physical activity, and general obesity counseling in primary care settings, and guideline-recommended obesity care. The overall goal of this study is to test a CCM for obesity in rural Kansas primary care. Rural populations suffer with a disproportionately higher burden of obesity and cardiovascular disease, and have been relatively understudied in these areas.
METHODS: We are recruiting 150 participants for a 6-month, 2-armed, randomized trial comparing a CCM for obesity with usual care in 3 rural Kansas primary care practices. Our primary outcome is weight change at 90 days. Secondary outcomes are weight change at 6 months, change in diet and physical activity at 3 and 6 months, and change in weight loss motivation at 3 and 6 months. The usual care arm receives standardized weight loss written materials and face-to-face outcome assessments at day 0, 90, and 180. The active arm will receive the same elements as the usual care arm plus a multicomponent obesity CCM described as follows: 1) a high-intensity regimen of telephone-based counseling biweekly during months 0–3 and monthly following that time for the remainder of the intervention, 2) electronic disease registry with physician updates on patient progress and office visit recommendations, 3) decision support tools for physicians (i.e., clinical guidelines), 4) self-management motivators for patients (i.e., food and physical activity diaries and pedometers), and 5) physician and patient reminders of existing community weight loss resources.
RESULTS: We have enrolled 85 participants since 6/30/05 (73% women, mean ± SD age of 48 ± 14 years). Of the 11 participants who have completed day 90 assessments to date, the active arm (n=6) demonstrated a weight change of −6.0 ± 9.1 pounds (mean ± SD), and the usual care arm (n=5) demonstrated a weight change of 3.2 ± 10.7 pounds (mean ± SD). The overall difference in weight change between the two groups was not significant (p=.15, 95% CI −4.3 to 22.7 pounds).
CONCLUSIONS: Obesity is a leading preventable cause of death in the US, and a strong independent predictor of coronary artery disease, diabetes mellitus, hypertension, and hyperlipidemia. Rural populations suffer disproportionately with obesity, and better methods of delivering obesity care are needed for this population. Although this project has not identified a significant difference in primary outcome between arms to date, we are encouraged by the positive response to this CCM program among both participants and the study practices. We look forward to continued recruitment and follow up. A chronic disease management program for obesity incorporating telephone-based counseling may be an effective weight control method for rural primary care.

CLINICIANS' CLEAR COMMUNICATION IS ASSOCIATED WITH INCREASED PATIENT SATISFACTION WITH MEDICATION REGIMEN AND IMPROVED GLUCOSE CONTROL IN PATIENTS WITH TYPE 2 DIABETES. Q. Ngo-Metzger[1]; D. Sorkin[1]; K. August[1]; J. Billlimek[1]; D. Mukamel[1]; S. Greenfield[1]; S. Kaplan[1]. [1]University of California, Irvine, Irvine, CA. *(Tracking ID # 153122)*

BACKGROUND: Successful management of chronic diseases such as Type 2 Diabetes requires that clinicians be able to communicate effectively with patients and develop a medication regimen that is satisfactory to the patient. We sought to determine whether clear communication by clinicians is associated with greater patient satisfaction with medication regimen, which in turn may result in lower hemoglobin A1c (A1C) levels.
METHODS: We conducted a cross-sectional survey of 245 patients with Type 2 Diabetes seen at three university-based practices. Clear communication was measured using a five item scale (cronbach's alpha 0.95) that included questions such as how well the doctor explained treatment alternatives and medication side effects. Medication satisfaction was measured by the question "How satisfied are you with medication(s) you now take for your diabetes?" Response categories ranged on a five point scale from Very Dissatisfied to Very Satisfied. The main clinical outcome variable was A1C measured as a continuous variable. We conducted bivariate analyses and multivariable linear regression, adjusting for patient age and gender, first entering communication and medication satisfaction as separate predictors of A1c. We then conducted a path analysis to test medication satisfaction as a mediating variable linking communication to A1C.
RESULTS: Mean age of the study sample was 64.9 (standard deviation 11.1). Fifty seven percent were female. Mean clear communication score was 81.4 (range 0–100, higher score is better communication). Mean medication satisfaction score (range 1–5) was 4.4 (SD 0.7). Mean A1C level was 6.8 (SD 1.0). In bivariate analyses, clear communication by the clinician was significantly associated with both greater patient satisfaction with medication regimen (p<0.001) and lower A1C levels (p<0.01). These findings remain significant in multivariable analyses adjusting for patient age and gender (Beta 0.45, p<0.001 for greater medication satisfaction, Beta −0.12, p<0.05 for lower AIC levels). When clinician clear communication and patient satisfaction with medication regimen were included as independent predictors of A1C in the same multivariate model, results suggest that patient satisfaction with medication is a mediating variable linking clinician clear communication to lower A1C (Beta −0.14, p<0.05).
CONCLUSIONS: Clear communication by clinicians is significantly associated with both greater patient satisfaction with medication regimen and lower hemoglobin A1c levels. Path analysis suggests that patient satisfaction with medication regimen may be a key factor connecting improved communication to glycemic control. Educating clinicians to improve their communications skills may increase diabetic patients' satisfaction with their medication regimens, which in turn may promote adherence and ultimately enhance glycemic control.

CLINICIANS RECOGNIZE VALUE OF PATIENT REVIEW OF THEIR ELECTRONIC HEALTH RECORD DATA. E. Siteman[1]; A.C. Businger[1]; T.K. Gandhi[2]; R.W. Grant[3]; E.G. Poon[2]; J.L. Schnipper[2]; L.A. Volk[4]; J.S. Wald[4]; B. Middleton[5]. [1]Brigham and Women's Hospital, Wellesley, MA; [2]Brigham and Women's Hospital, Boston, MA; [3]Partners HealthCare System, Boston, MA; [4]Partners HealthCare System, Wellesley, MA; [5]Harvard University, Wellesley, MA. *(Tracking ID # 153740)*

BACKGROUND: Increasing patient demands for convenient access to their own health care information has led to the development of "patient portals" that allow limited patient access to ambulatory electronic health records (EHR). Little is known about clinicians' attitudes towards this new model of health care. In our study, we collected baseline information about primary care providers' (PCP) usage of a secure, web-based patient portal linked to the ambulatory EHR. We also assessed providers' initial perceptions of these technologies as facilitators of patient-provider communications and the potential for these tools to improve quality of outpatient care.
METHODS: We conducted a survey of PCPs at 11 practices within an integrated delivery system. The survey solicited providers' attitudes regarding the impact and value of patients reviewing and commenting on EHR data specific to medications, care regimens for diabetic patients, family medical history, and health maintenance. Respondents who completed and returned the survey each received a $15 gift certificate.
RESULTS: Of the 113 providers contacted, 72 completed and returned the survey (63.7% response rate). Among the participating providers, only 30% reported that they believe there is enough time to review all the necessary information with a patient during a visit. Over half of the respondents (52.2%)

agreed that they would have to spend more time with the patient during the visit if a patient was able to view and comment on his/her EHR chart information prior to a visit. Similarly, 52.2% believed that their overall workload would increase because of the patient portal. However, 51.4% of providers reported that their knowledge and awareness of their patients' health would increase, as would their ability to update patient data in the EHR (55.7%). 57.4% of providers reported that their ability to communicate with their patients would improve. Most providers agreed or strongly agreed that the accuracy of information documented in the EHR would improve and the knowledge and understanding on the part of the patient would increase (Table 1).
CONCLUSIONS: Providers place great value on their patients as sources of clinical information. Despite the perceived added burden to their overall workload, most providers recognized the benefit of patients' ability to review and comment on their medical chart information prior to a visit. Results of our survey indicate that the development of patient portals to view EHRs would likely result in improved EHR documentation, patient knowledge, and quality of care, provided that such tools support an efficient process for clinician review and incorporation of data into the EHR. The full use of patient portals may also require new ways to compensate physicians for their time. Further study is underway to evaluate the utility of such tools for patients and clinicians and their impact on workflow.

Table 1. Percentage of providers who agreed or strongly agreed that patient review and comment on patient medical chart information positively impacts care

Survey Item	Medications	Diabetic Care Regimen	Family Medical History	Health Maintenance
Improve accuracy of EHR documentation	84.7%	87.3%	90.0%	92.8%
Increase patient knowledge and understanding	76.4%	74.6%	81.2%	89.9%

CLINICS THAT SERVE MINORITY PATIENTS: SUSTAINING PATIENT TRUST AND SATISFACTION IN THE FACE OF LIMITED RESOURCES. A.B. Varkey[1]; L.B. Manwell[2]; S. Ibrahim[3]; J.A. Bobula[2]; M.P. Mundt[2]; M. Linzer[2]. [1]Rush University Medical Center, Chicago, IL; [2]University of Wisconsin-Madison, Madison, WI; [3]Veterans Administration, Pittsburgh, PA. *(Tracking ID # 153948)*

BACKGROUND: Minority patients who receive care at predominately non-minority clinics report dissatisfaction with care and poor trust in the health system. Few studies have explored perceptions from clinics where the patient population is disproportionately minority. We sought to investigate the experience in minority clinics (MCs) regarding patient satisfaction and trust.
METHODS: Study data were drawn from MEMO (Minimizing Error, Maximizing Outcome), a longitudinal study of primary care physicians and their patients from 101 clinics in New York City and rural and urban clinics in the upper Midwest. Physicians were surveyed regarding access to clinical resources and referrals, time pressure (percent additional time needed for physical exam), stress, and burnout. Clinic managers provided information on staffing ratios, exam rooms, and payer mix. Patients ranked satisfaction on a 5-point scale. Four questions queried trust in the doctor's judgment about their medical care, trust that care is put above financial considerations or health plan rules, and overall trust in the physician. Clinics with 30% or more minority patients are defined as minority clinics (MCs). Regression analyses assessed the impact of resources on patient satisfaction and trust in MCs.
RESULTS: Of 420 physicians, 23% were minority. Of 1,785 patients, 63% were Caucasian, 22% African American, 2% Asian, 2% Native American, 6% other, and 12% Hispanic. Twenty-seven of the 101 clinics met our definition for MCs: 7 had a patient population of 30–50% minority, 6 had 50–70%, and 14 had more than 70% minority. Compared with non-minority clinics (NMCs), MCs had less access to resources, more uninsured/Medicaid patients, more time pressure, and higher physician burnout rates. MCs and NMCs had comparable patient satisfaction and trust. Within MCs, patient satisfaction was not associated with resources, staffing ratios, exam rooms, or referral access, nor was it associated with physician time pressure, stress, or burnout. Higher physician burnout, however, was associated with lower patient trust ($p=.005$). Average scores for MCs varied from 1.2 to 2.4 for patient satisfaction (1=best) and 4.0 to 4.8 (5=best) for trust. Organizational resources explained only about 1% of the variation in patient satisfaction and about 4% of the variation in patient trust, but explained 21% of the variation in physician satisfaction.
CONCLUSIONS: Despite a challenging work environment, clinics that serve minority patients have maintained levels of patient trust and satisfaction comparable to non-minority clinics. Within MCs, organizational resources explain little of the variation in patient satisfaction and trust. Patient satisfaction and trust in MCs may depend on factors such as positive interactions with physicians and staff or tolerance with limitations imposed by fewer resources. Future research should address mechanisms via which satisfaction and trust, two crucial components of care quality, are sustained in under-resourced settings.

COFFEE AND TEA INTAKE AND C-REACTIVE PROTEIN. M. Benedict[1]; J. Tsevat[1]; M.H. Eckman[1]. [1]University of Cincinnati, Cincinnati, OH. *(Tracking ID # 153853)*

BACKGROUND: Diets high in food substances with anti-oxidant/anti-inflammatory properties are associated with a reduced risk of cardiovascular disease. Recent studies have shown coffee and tea to be major sources of anti-oxidants in the diet. However, the relationship between coffee and tea intake and levels of the inflammatory marker C-reactive protein are unknown.
METHODS: We analyzed data on 10,218 adult participants in the Third National Health and Nutrition Examination survey (NHANES III). Participants were excluded if they had liver disease or malignancy, were currently pregnant or breastfeeding or were taking oral steroids. Average coffee intake over the past month was categorized into 0 cups/day (C1), <1 cup/day (C2), 1–3 cups/day (C3) and >3 cups/day (C4). Tea intake was similarly categorized into 0 cups/day (T1), <1 cup/day (T2), 1–3 cups/day (T3) and >3 cups/day (T4). C-reactive protein (CRP) was considered to be elevated if it was >3.0 mg/L. We performed multiple logistic regression to estimate the odds ratio (OR) of an elevated CRP using SUDAAN to account for the complex, multilevel sampling design of the study.
RESULTS: The mean age of subjects was 44 years; 51% were female. The number of subjects (%) in each group were for coffee intake: C1: n=3518 (31%); C2: n=1482 (15%); C3: n=4174 (40%) and C4: n=1044 (14%); and tea intake: T1 n=5382 (50%); T2: n=2970 (29%); T3: n=1614 (17%) and T4: n=252 (4%). In a univariate analysis the OR (95% CI) for an elevated CRP in each group relative to non-drinkers were for coffee: C2 OR=0.84 (0.66–1.07); C3 OR=1.03 (0.89–1.20); and C4 OR=0.73 (0.53–1.00); and for tea: T2 OR=0.94 (0.79–1.11); T3 OR=1.09 (0.92–1.28) and T4 OR=1.16 (0.88–1.54). After adjusting for age, gender, body mass index, waist circumference, race/ethnicity, smoking, physical activity, high-density lipoprotein cholesterol, education, hypertension, diabetes, cardiovascular disease, alcohol intake, health status, medications (aspirin, statins, estrogen, NSAID's), vitamin use, diet, periodontal disease, and other inflammatory disease the odds of an elevated CRP was significantly lower in coffee drinkers: C2 OR=0.95 (0.71–1.31); C3 OR=0.89 (0.76–1.05) and C4 OR=0.67 (0.50–0.90), (p for trend=0.01); but not in tea drinkers: T2 OR=0.96 (0.78–1.18); T3 OR=1.01 (0.84–1.22) and T4 OR=1.13 (0.70–1.83), (p for trend=0.80).
CONCLUSIONS: Dietary intake of coffee but not tea is associated with lower rates of elevated CRP. Findings may be related to the amount and types of bioactive compounds present in these beverages. Further research should explore possible effects of coffee intake on risk of inflammatory mediated diseases.

COGNITIVE IMPAIRMENT IN THE OLDEST OLD: HOSPITALIZATION AND MORTALITY. D.E. Freedberg[1]; J.K. Dave[1]; T. Kurth[1]; J. Gaziano[1]; J. Bludau[1]. [1]Divisions of Aging and Preventive Medicine, Brigham and Women's Hospital, Boston, MA. *(Tracking ID # 151268)*

BACKGROUND: The risks of cognitive impairment among the hospitalized oldest old are not adequately defined. Previous studies set in the hospital tend to employ diagnostic criteria more stringent than what is used in actual clinical practice, focus only on risk of death during hospitalization, and restrict analysis to younger populations. The oldest old, the fasting growing segment of our population, contribute few members to the cohorts studied. Yet these are the patients who are most likely to suffer from cognitive impairment. We sought to characterize the hospital stays and long-term mortality rates of patients over age 85 with clinical cognitive impairment during hospitalization at our institution.
METHODS: Electronic methods were used to identify inpatients over 85 years old with appropriate ICD codes who were hospitalized between November 1, 2003 and October 31, 2004. Within this population, 100 patients showing cognitive impairment and 100 patients matched for age and admission date were randomly chosen for analysis. Discharge summaries, pharmacy records, and demographic data were electronically reviewed to determine sex, marital status, ethnicity, living situation, past medical history, reason for admission, length of hospital stay, Charlson Comorbidity Index (CCI), non-fatal adverse events, and mortality up to 18 months after discharge. Odds ratios were calculated unadjusted and after adjustment for age, sex, marital status, nursing home residency status, and CCI scores with logistic regression.
RESULTS: After adjustment for covariates, patients over age 85 with cognitive impairment had increased risk of death within the hospital, in the first year after hospitalization, and cumulatively (see table). Cognitively impaired geriatric inpatients also were admitted with more infections (OR, 2.48; 95% CI 1.19 to 5.14; P=.015) and neuropsychiatric complaints (OR, 5.27; 95% CI 1.71 to 16.19; P=.004) than their non-cognitively impaired peers. Conversely, they were admitted with fewer cardiovascular complaints (OR, 0.32; 95% CI 0.16 to 0.65; P=.032) and for fewer elective orthopedic procedures (OR, 0.09; 95% CI 0.01 to 0.72; P=.024). Although both groups presented with similarly complex medical histories, there was a trend toward longer hospitalizations for patients with CI.
CONCLUSIONS: In this cohort of the hospitalized oldest old, cognitive impairment was associated with a greatly increased risk of death that persisted after discharge. This study suggests that reason for admission alone may provoke clinical suspicion of cognitive impairment in patients over 85 years of age. Patients with cognitive impairment should be treated with increased vigilance. Future research should focus on specific interventions to reduce in- and post-hospitalization mortality for these patients.

Outcomes Associated with Cognitive Impairment

Outcome	Unadjusted OR (95% confidence interval)	P-value	Adjusted OR (95% confidence interval)	P-value
In-hospital mortality	1.55 (0.53–4.53)	.423	4.00 (0.41–29.38)	.234
In-hospital mortality or adverse event	1.87 (0.75–4.68)	.180	3.34 (0.79–14.06)	.100
Post-discharge mortality	2.83 (1.44–5.55)	.002	2.26 (0.94–5.46)	.069
Cumulative mortality	2.63 (1.43–4.85)	.001	2.55 (1.09–5.97)	.003

COMMON MEDICAL CONDITIONS ASSOCIATED WITH THE USE OF MIND BODY MEDICINE: RESULTS FROM A NATIONAL SURVEY. S.M. Bertisch[1]; C. Wee[2]; R.S. Phillips[1]; E.P. McCarthy[2]. [1]Harvard Medical School-Osher Institute; Division of General Medicine and Primary Care, Beth Israel Deaconess Medical Center, Boston, MA; [2]Division of General Medicine and Primary Care, Beth Israel Deaconess Medical Center, Boston, MA. *(Tracking ID # 154048)*

BACKGROUND: Evidence has shown that Mind Body Medicine (MBM) benefits patients with chronic low back pain, headaches, insomnia, and coronary artery disease (CAD). Little is know about the extent to which MBM is used by adults with common medical conditions.
METHODS: To explore this relationship, we examined the use of MBM, within the past 12 months, among patients with common medical conditions. We used data from the 2002 National Health Interview Survey Alternative Medicine Supplement, a U.S. population based survey which collects information on 74 medical conditions and 19 Complementary and Alternative Medicine therapies (n=31,044). MBM included relaxation techniques (deep breathing exercises, guided imagery, meditation and progressive muscle relaxation) and physical modalities (Yoga, Tai Chi, and Qigong). We used bivariable and multivariable models, adjusted for age, sex, race, education, income, marital status, foreign born status, type of insurance and region of residence, to identify medical conditions associated with high use of MBM. All analyses were performed using SUDAAN to account for the NHIS complex sampling scheme, and were weighted to reflect national estimates.
RESULTS: Overall 17% of adults used at least one MBM therapy, 14% of adults used a relaxation technique and 6% used a physical modality. Table 1 presents the medical conditions significantly associated with MBM before and after adjustment. Neck pain within the past 3 months, history of joint symptoms >3 months duration, anxiety or depression, insomnia and neuropathy were associated with the highest use of MBM. Except for neuropathy, these conditions were also associated with higher use of both and relaxation techniques and physical modalities.
CONCLUSIONS: Patients suffering from pain related conditions and insomnia were more likely to use MBM, which is consistent with evidence in the current literature. Despite the benefit of MBM in patients with coronary artery disease, we found no association between CAD and MBM use. However, patients with other common medical conditions were more likely to use MBM, though the reasons for use remain unclear.

Table 1: Use of MBM in past 12 months by Medical Condition:

Condition	% of Adults with Condition	% with condition Using MBM	MBM-overall*	Relaxation* Technique	Physical* Modalities
History of					
Joint Symptom (>3M)	26	23	1.6 (1.4, 1.8)	1.7 (1.5, 1.9)	1.5 (1.3, 1.8)
Insomnia	18	26	1.5 (1.3, 1.7)	1.5 (1.4, 1.8)	1.3 (1.1, 1.6)
Asthma	11	24	1.3 (1.1, 1.4)	1.3 (1.1, 1.4)	1.4 (1.2, 1.7)
Bowel Disease	6	27	1.4 (1.1, 1.6)	1.4 (1.2, 1.7)	1.4 (1.1, 1.9)
Urinary Problems	8	24	1.3 (1.1, 1.5)	1.3 (1.1, 1.5)	ns
Thyroid Disease	7	23	1.2 (1.0, 1.4)	1.2 (1.1, 1.5)	ns
Neuropathy	1	27	1.7 (1.2, 2.5)	1.8 (1.2, 2.6)	ns
Dx within 12 Months					
Anxiety/Depression	17	25.5	1.5 (1.3, 1.7)	1.5 (1.4, 1.8)	ns
Sinusitis	14	25.0	1.3 (1.2, 1.5)	1.4 (1.2, 1.6)	ns
Dx within 3 Months					
Low Back Pain	27	22.4	1.4 (1.3, 1.6)	1.5 (1.3, 1.6)	1.4 (1.2, 1.7)
Neck Pain	14	28.0	1.7 (1.5, 2.0)	1.7 (1.5, 2.0)	2.0 (1.6, 2.5)
Severe Headaches	15	26.5	1.3 (1.2, 1.5)	1.4 (1.2, 1.5)	ns

*After Adjustment; ns= non-significant

COMMUNICATION BETWEEN DIVERSE PATIENTS AND THEIR PHYSICIANS IN OUTPATIENT CARDIAC CARE. K. Bibbins-Domingo[1]; D. Schillinger[1]; L. Karliner[1]; A. NáPoles-Springer[1]; E.J. Perez-Stable[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 152312)*

BACKGROUND: Communication between patients and physicians is central to the outpatient encounter, particularly for chronic conditions such as cardiac disease. The extent to which patients and physicians communicate effectively in cardiac outpatient care has not been well documented.
METHODS: We enrolled diverse patients from the cardiology clinic of an urban public teaching hospital and explored communication across 4 domains: 1)Symptoms, 2)Barriers to care, 3)Diagnoses, 4)Treatment plans. After the encounter, we asked patients and physicians identical questions and examined whether their reports differed. **Symptoms**: We assessed New York Heart Association (NYHA) Class (1–4) and measured whether physicians recognized the existence or extent of symptoms reported by the patient (>1 NYHA unit difference between patient and physician). **Barriers**: We asked whether medication use was affected by running out of pills, ability to pay, concern about side effects, concern about effectiveness, or limited understanding of instructions, and measured whether physicians identified medication barriers reported by the patient. We assessed psychosocial barriers to care–finances, family concerns, housing, pain–and determined whether physicians identifed psychosocial barriers reported by the patient. **Diagnoses**: We asked patients and physicians to identify up to three cardiac diagnoses related to the visit, coded open-ended responses into diagnostic categories, and evaluated patients' ability to match at least one diagnosis reported by their physician. **Treatments**: Physicians reported whether cardiac medications had been started or stopped, or dosages increased or decreased, and we determined whether patients reported these changes.
RESULTS: We enrolled 179 patients treated by 56 physicians. Patients had a mean age of 54 years; 53% were women, 8% White, 48% Latino, 21% Asian and 19% Black. 58% spoke Spanish or Cantonese and 44% of these patients (46/104) used a professional interpreter or had a physician fluent in their language; 11% (11/104) had no interpreter. **Symptoms**: Most patients (118/179, 66%) reported cardiac symptoms (NYHA Class II-IV); in a third of cases (42/118, 36%) physicians failed to recognize the existence or extent of symptoms. **Barriers**: One third of patients (57/179, 32%) reported at least one medication barrier; physicians did not report these barriers in most cases (47/57, 82%). Nearly half of patients (88/179, 49%) reported at least one psychosocial barrier; in most cases (81/88, 92%) physicians did not identify these barriers. **Diagnoses**: Physicians reported at least one of the following diagnoses in most patients–coronary disease, heart failure, congenital heart disease, arrhythmia, hypertension (162/179, 90%). Most patients failed to match at least one of these diagnoses (86/162, 53%). **Treatments**: Physicians reported medication changes in nearly two-thirds of patients (113/179, 63%); patients failed to identify these changes in 39% (44/113) of cases. In multivariate analyses, we observed no significant association between patient characteristics (age, sex, race, language, interpreter use, diagnosis) and failed communication in each of these domains.
CONCLUSIONS: In a diverse population of outpatients with cardiac disease, patients and physicians often fail to communicate effectively, particularly with respect to barriers to care. The determinants of failed communication and its implications for clinical decision-making, adherence, and outcomes require further investigation.

"COMO SE SIENTE": ASKING ABOUT INTIMATE PARTNER VIOLENCE IN SPANISH-SPEAKING WOMEN. J. Wrangle[1]; A. Paranjape[1]. [1]Emory University, Atlanta, GA. *(Tracking ID # 156821)*

BACKGROUND: Intimate partner violence (IPV), is a common public health problem affecting women irrespective of ethnic background. Primary care visits provide an excellent opportunity to identify IPV survivors, however, in immigrant Latina patients communication presents an additional barrier to those experienced when provider and patient share a language. While there are several IPV screening questions available in English, only one screening tool has been tested in Spanish. In this study we sought to assess the screening characteristics of seven translated screening questions in an immigrant, uninsured Latina population.
METHODS: Participants: One hundred and five Spanish-speaking Latina women, between 18 and 64 years old, seen for primary care in the International Clinic of an urban teaching hospital. Measures: (i) Screening questions: Seven validated dichotomous response-option questions, professionally translated into Spanish (ii) Comparison standard: Index of Spouse Abuse, also translated into Spanish, adapted for lifetime IPV. The sensitivity and specificity of the seven questions were estimated using 2 by 2 tables. The two questions with the highest sensitivity were grouped; the sensitivity and specificity with 95% confidence intervals (CI) were estimated for this combination.
RESULTS: Mean participant age was 38.5 years (SD 11.4); almost all were uninsured (89.5%) and 33% reported lifetime IPV. Of seven English language questions estimated to have sensitivities of >70%, only 3 questions showed >70% sensitivity in their Spanish language translation. The Spanish versions of the following two questions: "Have you ever been in a relationship where you have felt controlled by your partner?" and "Have you ever been in a relationship where you have felt lonely?" had sensitivities of 85% and 88% respectively. Corresponding specificities were 72% and 67%. In combination, the sensitivity of an affirmative response to any one question was 94% (95% CI: 86%, 100%), and the sensitivity of affirmative responses to both questions was 79% (95% CI: 65%, 93%).
CONCLUSIONS: Two simple screening questions when used together can effectively identify lifetime IPV in Spanish speaking women. In this population, the questions that did not function well as screening questions were questions regarding acts of violence and threats of violence. The questions that did function well addressed control and loneliness; clinicians working with immigrant communities should incorporate such questions to inquire about IPV in immigrant Latina women.

COMPARING RESIDENT QUALITY OF LIFE BEFORE AND AFTER WORK HOUR RESTRICTIONS. A.S. Tackett[1]; J.F. Wilson[1]; C.H. Griffith[1]. [1]University of Kentucky, Lexington, KY. *(Tracking ID # 153744)*

BACKGROUND: A monumental change in medical resident training occurred in July 2003 when the Accreditation Council for Graduate Medical Education implemented new guidelines restricting resident work hours. One of the factors involved in this decision was the perceived negative effect working long hours had on a resident's quality of life (QOL). The purpose of this study was to determine if work hour restrictions improved our residents' quality of life.

METHODS: A voluntary survey was given to internal medicine residents in the academic years of 1995–1996 and 2005–2006. Residents were asked to rate their own quality of life as well as that of the average medical resident and the average person now, the previous year, and the year to come on a 9 point Likert scale (one being the best and nine the worst.) A final question had residents select from several qualitative descriptions about their own quality of life. Answers from 1995 and 2005 were analyzed using means, standard errors and a T test.
RESULTS: In 1995, 57 residents responded to this survey giving a response rate of 71%; in 2005, 52 residents responded giving a response rate of 67%. Our results showed no substantial difference in quality of life between our residents in 1995 and 2005. (1995 to 2005: Current year 6.4 vs. 6.2, previous year 6.0 vs. 6.1, next year 7.3 vs. 7.0.) The results also showed that our 2005 residents perceived their QOL as better than the average medical resident (6.2 to 5.6) and rated average medical residents as worse than the average person (5.6 to 6.3). Other comparison groups showed that our residents' QOL was better than a chronic pain patient, worse than a first year medical student, and much better than a second year medical student (6.2 to 4.8). Of interest, all groups thought their QOL was not essentially different from the previous year (1995: 6.4 to 6.0, 2005: 6.2 to 6.1) but would be significantly better the next year (1995: 6.4 to 7.3, 2005: 6.2 to 7.0).
CONCLUSIONS: This study does not indicate a significant difference in our residents' self- reported quality of life before and after the implementation of work hour restrictions. However, residents continue to feel optimistic regarding their future quality of life.

COMPARISON OF ABDOMINAL PAIN DIAGNOSES BETWEEN ELDERLY MEN AND WOMEN WHO PRESENT TO THE EMERGENCY DEPARTMENT. R.L. Gardner[1]; J.H. Maselli[1]; A.D. Auerbach[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 154654)*

BACKGROUND: Prior research has shown a difference between young men and women in the distribution of abdominal pain diagnoses, but it is unknown whether this distinction persists as patients age. The objective of this study was to examine differences in evaluation, management, and diagnosis between elderly male and female patients who present to the emergency department with abdominal pain.
METHODS: Retrospective review of charts from 131 consecutive patients 70 years of age or older who presented to our university teaching hospital with a chief complaint of nontraumatic abdominal pain. The primary outcome was differences between men and women in frequencies of 3 diagnoses: medical causes of abdominal pain, surgical causes of abdominal pain, and non-specific abdominal pain.
RESULTS: Of the 131 patients entered, 52 (40%) were men and 79 (60%) were women. The mean age was 81 for men and 80 for women. Other characteristics were similar in both groups, including ethnicity, insurance status, and past medical history. There were no differences between elderly men and women in the frequency with which they were assigned a diagnosis of medical (56% vs. 57%), surgical (25% vs. 18%), or non-specific abdominal pain (19% vs. 25%; $p=0.52$ for heterogeneity among the three groups). Evaluation in the emergency room was similar in both groups, including the proportion undergoing abdominal imaging (62% vs. 68%, $p=0.42$), receiving antibiotics (29% vs. 30%, $p=0.85$), and receiving treatment for pain with opiates (35% vs. 41%, $p=0.50$). Similar proportions were admitted (60% vs. 71%, $p=0.20$) and underwent an operation (10% vs. 14%, $p=0.46$). Among those who were admitted, the emergency department diagnosis correlated with the hospital discharge diagnosis 48% of the time in men and 66% of the time in women ($p=0.11$).
CONCLUSIONS: Unlike previous research in younger patients, we noted no difference in diagnoses between older men and women who presented with abdominal pain. Our study requires confirmation in larger settings.

COMPARISON OF UK AND US SCORING ALGORITHMS FOR THE EUROQOL-5D: EFFECT ON THE FINDINGS OF AN ECONOMIC EVALUATION. F. Shrive[1]; W.A. Ghali[1]; J. Johnson[2]; B. Manns[1]. [1]University of Calgary, Calgary, Alberta; [2]University of Alberta, Edmonton, Alberta. *(Tracking ID # 150517)*

BACKGROUND: The EuroQol-5D (EQ-5D) is commonly used to measure health related quality of life. Currently, the scoring algorithm is based on preferences solicited from the general UK population. Another algorithm was developed using preferences solicited from the general US population. Previous studies have shown meaningful differences in the estimates from the US and UK algorithms. The impact of the new algorithm on the results of cost-utility studies requires consideration. Previously, we published an economic evaluation comparing drug-eluting stents to bare metal stents in patients undergoing percutaneous coronary intervention (PCI). The objectives of this study are 1) to rescore EQ-5D raw data using the US algorithm, 2) to describe and compare the resulting utility scores of the two algorithms, and 3) to explore the difference in the resulting incremental cost-effectiveness ratio (ICER) using our previously published economic evaluation.
METHODS: EQ-5D data were obtained from the Alberta Provincial Project for Outcomes Assessment in Coronary Heart (APPROACH) disease registry 1-year follow-up survey. Each individual's response was scored twice; once with each algorithm. The difference was calculated for each individual (US score - UK score). The mean, standard deviation and range for scores derived from each algorithm were described. Subgroups based on age and diabetic status were considered. All statistical analyses were completed using SAS version 8.0. Lastly, our Markov model was run twice; once with utilities assigned from each algorithm. The resulting ICERs were compared using Monte Carlo simulation. Modeling was done in DATA 4.0.
RESULTS: 1,954 APPROACH patients undergoing stented PCI completed the EQ-5D from 1998–2000. This cohort was selected to meet the requirements of our decision model. The table presents the differences between the two algorithms. The resulting ICERs are CAN$58,635 (95% CI: $58,360–$58,909) per quality-adjusted life year (QALY) for the UK algorithm and CAN$58,229 (95% CI: $58,095–$58,364) per QALY for the US algorithm. The estimates are not statistical different (p-value: 0.07).
CONCLUSIONS: The two algorithms produce quite notable differences within individuals. However, the effect on the mean score is less pronounced. In the context of our economic evaluation, the effect of the US algorithm is negligible and would not change the interpretation of the results in a policy setting. Recognizing that our findings may not apply to other clinical populations or economic evaluations, researchers should consider similar sensitivity analysis using both algorithms.

		UK Algorithm		US Algorithm		Within Individual Difference (US-UK)	
	N	Mean (SD)	Range	Mean (SD)	Range	Mean (SD)	Range
Overall	**1954**	**0.83 (0.20)**	**-0.31-1.0**	**0.87 (0.15)**	**0.05-1.0**	**0.04 (0.06)**	**-0.02-0.41**
Age Subgroup							
Under 65 yrs.	1218	0.84 (0.20)	-0.31-1.0	0.88 (0.15)	0.05-1.0	0.03 (0.06)	-0.02-0.41
65-75 yrs.	551	0.83 (0.20)	-0.18-1.0	0.87 (0.14)	0.20-1.0	0.03 (0.06)	-0.02-0.38
Over 75 yrs.	185	0.77 (0.22)	-0.02-1.0	0.82 (0.16)	0.31-1.0	0.05 (0.07)	-0.02-0.32
Diabetic Status Subgroup							
No Diabetes	1666	0.84 (0.19)	-0.31-1.0	0.88 (0.14)	-0.31-1.0	0.03 (0.06)	-0.02-0.41
Diabetes	288	0.76 (0.24)	-0.18-1.0	0.82 (0.17)	0.20-1.0	0.05 (0.08)	-0.02-0.38

COMPLEMENTARY AND ALTERNATIVE MEDICINE USE AMONG OVERWEIGHT AND OBESE ADULTS: RESULTS FROM A NATIONAL SURVEY. S.M. Bertisch[1]; C. Wee[2]; E.P. McCarthy[2]. [1]Harvard Medical School-Osher Institute; Division of General Medicine and Primary Care, Beth Israel Deaconess Medical Center, Boston, MA; [2]Division of General Medicine and Primary Care, Beth Israel Deaconess Medical Center, Boston, MA. *(Tracking ID # 153725)*

BACKGROUND: While obesity is a leading cause of many chronic health conditions, evidence suggests that obesity and the stigma associated with it may pose a barrier to some forms of conventional health care. In addition, few effective conventional therapies exist to treat obesity. In this context, we examined whether higher Body Mass Index (BMI) is associated with higher use of Complementary and Alternative Medicine (CAM) therapies.
METHODS: We used data from the 2002 National Health Interview Survey Alternative Medicine Supplement, which collected information on the use of 19 Complementary and Alternative Medicine therapies ($n=31,044$). We compared use of CAM, within the past 12 months, between normal weight (BMI 18 to <25), overweight (25 to <30), mildly obese (30 to <35), moderately obese (35 to <40) and extremely obese individuals (>40). We used descriptive and bivariable analyses to characterize the 2002 NHIS Alternative Medicine respondent sample. For the primary analysis, our multivariable model was adjusted for sociodemographic factors (age, sex, race, income, education, marital status, region of residence, place of birth), insurance status, and medical conditions. We performed additional analyses to explore the association of BMI and the use of specific categories of CAM, including: Mind Body Medicine (Relaxation techniques, Yoga, Tai Chi and Qigong), Manipulation (Chiropractic, Massage, Acupuncture), Herbs, and "Special" Diets (vegetarian, macrobiotic, Atkins, Pritkin, Ornish and Zone diets). All analyses were performed using SUDAAN to account for the NHIS complex sampling scheme, and were weighted to reflect national estimates.
RESULTS: Overall, 39% adults were of normal weight, 35% overweight, 15% mildly obese, 5% moderately obese, and 3% extremely obese. Approximately 36% of adults used at least one CAM modality within the past 12 months: 17% used MBM, 15% used manipulation therapies, 19% used herbal products, and 5% used "special" diets. Table 1 details the use of CAM use by BMI after adjustment. The overall likelihood of using CAM decreased with increasing BMI category (p-value for trend $<.0001$). The use of Mind Body Medicine, Manipulation Therapies, and Herbs also decreased significantly with increasing BMI categories (p-values for trend all $<.0001$). The use of special diets increased significantly with increasing BMI category (p-value for trend $<.001$).
CONCLUSIONS: With the exception of diet therapy, adults with higher BMI were substantially less likely to use CAM, suggesting that CAM may not be viewed as a major alternative to conventional medicine among adults with obesity.

Table 1: Use of CAM in past 12 months by BMI category after adjustment

BMI	CAM	Mind Body	Manipulation	Herbs	Diet
Normal Weight	1.0	1.0	1.0	1.0	1.0
Overweight	.99 (.92, 1.07)	.93 (.85, 1.02)	1.02 (.91, 1.15)	.97 (.88, 1.06)	**1.38 (1.15, 1.66)**
Mildly Obese	**.88 (.80, .97)**	**.75 (.66, .83)**	.86 (.73, 1.00)	**.87 (.76, .98)**	**1.35 (1.06, 1.73)**
Moderately Obese	.88 (.75, 1.02)	**.80 (.66, .96)**	.82 (.64, 1.04)	**.76 (.63, .93)**	**1.69 (1.18, 2.42)**
Extremely Obese	.91 (.73,1.10)	**.77 (.60, .99)**	.78 (.59, 1.02)	.83 (.63, 1.10)	**2.12 (1.47, 3.06)**

CONCOMITANT USE OF CHOLINESTERASE INHIBITORS AND BLADDER ANTICHOLINERGICS ACCELERATES FUNCTIONAL DECLINE. K.M. Sink[1]; J. Thomas[2]; H. Xu[2]; S.B. Kritchevsky[1]; B.A. Craig[2]; L.P. Sands[2]. [1]Wake Forest University, Winston-Salem, NC; [2]Purdue University, West Lafayette, IN. *(Tracking ID # 154378)*

BACKGROUND: Dementia and urinary incontinence commonly coexist, but concomitant use of cholinesterase inhibitors (ChI), approved for treatment of dementia, and bladder anticholinergics may not be rational since the drugs have

pharmacologically opposed actions. Patient outcomes associated with the combination have not been well documented, however. Therefore, our objective was to determine the cognitive and functional consequences of concomitant use of ChI and the bladder anticholinergics oxybutynin or tolterodine in nursing home (NH) residents.
METHODS: We linked Indiana Medicaid data and Minimum Data Set (MDS) data to identify 3647 NH residents $\geq$65 years old with at least 2 MDS assessments (excluding the admission assessment) who were prescribed a ChI between 1/1/2003 and 12/31/2004. 413 residents were prescribed bladder anticholinergics concomitant with ChI during the study period. Residents using other anticholinergics were excluded. Repeated measures analyses were performed using mixed effects models to assess the effects of concomitant therapy on change in cognitive function measured by the MDS-cogs (scored 0–10) and change in ADL function using the 7 ADL items in the MDS (scored 0–28) with higher values indicating worse functioning on both measures. Covariates included age, sex, race, number of medications used, Charlson comorbidity index, and baseline function.
RESULTS: Residents were 75.6% female, 89.2% white, and 71.8% were 80 or older. At the baseline assessment, the mean (SD) MDS-cogs and ADL function scores were 4.65 (2.44) and 12.19 (8.12) respectively. The mean (SD) follow-up was 356 (206) days. Though there was a trend toward greater decline in cognitive function in residents on concomitant therapy, it was not statistically significant. However, residents prescribed bladder anticholinergics concomitantly declined an average of 0.002 ADL points more per day exposed than those on ChI alone ($p=0.048$). For residents exposed to bladder anticholinergics for one year, the mean decline in ADL function would be 0.66 points more than the decline seen in residents on ChI alone, resulting in 25% excess disability.
CONCLUSIONS: The use of bladder anticholinergics in NH patients on ChI is associated with greater functional decline and suggests that clinicians should avoid concomitant therapy. Prospective studies using more sensitive measures of cognitive change are needed to determine the effect of concomitant use of anticholinergics in combination with ChI on cognition.

CONSULTATION PATTERNS AND CLINICAL CORRELATES OF CONSULTATION IN A TERTIARY CARE SETTING. M.R. Jordan[1]; J. Conley[1]; D.A. Southern[1]; W.A. Ghali[1]. [1]University of Calgary, Calgary, Alberta. *(Tracking ID # 154599)*

BACKGROUND: Consultation is an important element of inpatient care. Despite the high volume of consultation and its considerable resource use consequences, there is a relative paucity of data on patterns of consultation and its clinical correlates. Patients hospitalized on the medical teaching units (MTU) of a Canadian medical school were studied to document the consultation patterns to medical subspecialists and the patient factors that may influence consultation.
METHODS: Administrative hospital discharge data were obtained for all Calgary Health Region patients discharged from the MTU in two Calgary, Alberta tertiary care hospitals over a 2-year period (2003–2004). Consults requested to the subspecialty services of internal medicine were identified, and then reported by type and frequency. Information on demographic factors, clinical diagnoses (defined by the Elixhauser comorbidity coding method), length of stay (LOS), time in critical care units, and disposition were compared for patients with and without consultation ($p<0.05$). Logistic regression with backward elimination was used to identify certain clinical diagnoses that were associated with any subspecialty consultation or consultation to a specific subspecialty ($p<0.01$).
RESULTS: A total of 3979 patients were hospitalized under the care of the MTU during the two-year period. From this population, 2881 consultations were generated to subspecialty services of internal medicine. Almost half of the patient population received at least one subspecialty consultation (48.1%, $n=1913$), with consults per patient ranging from 0–6. Gastroenterology (26.3%), infectious diseases (14.6%) and respirology (13.6%) were the three services most frequently consulted by the MTU. Patients with consultation had a greater average of total diagnoses than patients without (7.3 vs. 5.5, $P<0.001$). The clinical diagnoses correlated well with the subspecialty consulted. For example, haematology was significantly more likely to be consulted if there was a diagnosis of lymphoma (odds ratio=21.9, $P<0.01$). The group of patients who had at least one consult had a greater mean LOS (15.9 vs. 6.8 days, $P<0.001$), were more likely to spend time in the ICU (11.5% vs. 3.5%, $P<0.001$) and CCU (4.3% vs. 1.2%, $P<0.001$), and were more likely to expire in hospital (10.7% vs. 4.9%, $P<0.001$). Age and gender were not independent predictors of consultation.
CONCLUSIONS: Internal medicine subspecialty consultation on the MTU happens frequently, with the most frequent consults occurring in the areas of gastroenterology, infectious diseases, and respirology. The analysis of clinical correlates of consultation reveals a clinically coherent consultation pattern, with consults appropriately ordered for more complex patients. Such analysis of hospital specific consultation patterns can inform resource planning and assist in the future projection of human resource needs for the consultation process.

CORRELATES OF ELECTRONIC HEALTH RECORD ADOPTION IN OFFICE PRACTICES: A STATEWIDE SURVEY. S.R. Simon[1]; R. Kaushal[2]; P.D. Cleary[1]; C. Jenter[3]; L. Volk[4]; E.G. Poon[5]; D. Williams[5]; E. Orav[5]; D.W. Bates[5]. [1]Harvard University, Boston, MA; [2]Harvard University, Brookline, MA; [3]Brigham and Women's Hospital, Wellesley, MA; [4]Partners HealthCare System, Wellesley, MA; [5]Brigham and Women's Hospital, Boston, MA. *(Tracking ID # 154381)*

BACKGROUND: Despite emerging evidence of the positive impact of electronic health records (EHRs) on the efficiency and quality of medical care, most physicians in office practice in the United States do not currently use an EHR. Few studies have systematically examined the barriers to and facilitators of EHR adoption.
METHODS: We selected a stratified random sample of all medical practices (primary care+specialty) in Massachusetts in 2005 and randomly sampled one physician per practice for a mailed survey. The initial mailing, which included a $20 cash incentive, was followed by a second and third mailing to non-respondents one month and two months later. The survey assessed the presence of EHR in the practice, characteristics of the practice, and perceived barriers to EHR adoption. We used logistic regression to model the predictors of the main outcome measure, the presence of EHR in the practice.
RESULTS: The response rate was 71% (1304/1904). Overall, 32% of physicians reported that their office had an EHR. Practice size was strongly correlated with EHR adoption; 57% of practices with 7 or more physicians had an EHR, as compared with 15% of solo practices (adjusted odds ratio [OR] 2.72; 95% confidence interval [CI] 1.40–5.30). Hospital-based practices were more likely to have EHR (OR 2.66; 95% CI 1.72–4.10). Having computerized office systems, including e-mail (OR 2.06; 95% CI 1.25–3.39), a computerized scheduling system (OR 2.06; 95% CI 1.21–3.48) and electronic prescribing (OR 6.24; 95% CI 4.14–9.41), was strongly correlated with having EHR in the practice. Barriers to beginning or expanding the use of computer technology cited by respondents included start-up financial costs (75%), ongoing financial costs (72%), loss of productivity (73%), technical limitations of systems (73%), lack of uniform standards within the industry (73%), lack of time to acquire knowledge about systems (73%), lack of technical support (62%), lack of computer skills (57%), skepticism about benefits (54%) and privacy or security concerns (48%). Physicians identifying start-up costs (OR 0.27; 95% CI 0.16–0.46) and loss of productivity (OR 0.53; 95% CI 0.31–0.89) as barriers to EHR adoption were less likely to have EHR in their practices.
CONCLUSIONS: About 3 in 10 practices in Massachusetts have EHRs, but adoption rates are lower in smaller practices. The higher adoption rates among larger practices suggests that these practices are more likely to have financial and human capital to overcome the financial and technical barriers to adoption. Interventions to increase the uptake of EHRs in office practice should address both financial and non-financial barriers of adoption.

COST-BENEFIT ANALYSIS OF AN INPATIENT PHARMACY BARCODE SOLUTION. S. Maviglia[1]; J. Yoo[2]; C. Franz[3]; E. Featherstone[1]; W. Churchill[1]; D.W. Bates[1]; T. Gandhi[1]; E.G. Poon[1]. [1]Brigham and Women's Hospital, Boston, MA; [2]Medical College of Virginia, Richmond, VA; [3]ERG, Inc., Lexington, MA. *(Tracking ID # 152054)*

BACKGROUND: Bar-coding is widely used outside medicine, but its use is only recently growing within the medication use process. A recent study suggested it can reduce dispensing error rates, but it is unclear whether its benefits justify its costs.
METHODS: We performed a cost-benefit analysis of a bar code system implemented in a large, tertiary care hospital pharmacy. In addition to bar code scanning for stocking/dispensing unit doses, the system included an on-site repackaging center for medications that did not carry a scannable barcode on the individual dose level. The analysis of the intervention was done from the implementing hospital's perspective over a five-year horizon. Itemized costs and benefits were measured beginning with planning, through development and implementation, to steady state operations; recurring costs and benefits after steady state were extrapolated out to five years. The primary benefit of bar-code technology was the cost savings from preventing adverse drug events (ADEs). This was calculated from observed pre- and post-intervention dispensing errors, assessments of their potential to cause ADEs, and published estimates of the frequency of dispensing errors which are intercepted (34%), the rate at which potential ADEs result in actual ADEs (13.4%), and the average cost of preventable ADEs ($4600 in 1995 dollars). Because the savings from an averted ADE accrue to the hospital only under a prospective payment system, the savings were multiplied by the proportion of such patients at our institution (73%). The primary outcome measure of the model was the net financial cost/benefit during the initial 5-year period; the secondary outcome measure was the time until total benefits equaled total costs (if ever). One-way sensitivity analyses were performed on all data inputs; additional two-way sensitivity analyses were performed for non-measured inputs, as well an analysis restricted to serious averted ADEs only. Finally, to assess the generalizability of the model as a whole, all the cost/benefit inputs were simultaneously varied in a Monte Carlo simulation.
RESULTS: In inflation and time-value adjusted 2004 dollars, total costs over 5 years were $2.26 million, consisting of $1.34 million in one-time costs spent during the initial 3.5 years, followed by $338 thousand per year in recurring costs. Notably, planning expenses made up 61% of the one-time costs. The primary benefit was a decrease in ADEs from dispensing errors, projected to be 517 events per year, resulting in an annual savings of $2.23 million. The estimated net benefit from using a bar code system over a 5-year period was $3.26 million. The break-even point for the hospital's investment occurred in the first quarter of the fourth year, or within 1 year after becoming fully operational. A net benefit was achieved within 10 years under almost all sensitivity scenarios examined. In the Monte Carlo simulation, the net benefit over five years was $2.99 million, (90% CI $763 thousand to $5.83 million, and the break-even point for return on investment occurred after 2.6 years (90% CI 2.5 to 2.8 years).
CONCLUSIONS: Across a broad range of assumptions, implementation of a hospital-based pharmacy bar code system for dispensing medications was not only favorable, but cost saving within a 5 to 10 year time horizon. Since benefits from avoided pain, suffering, and lost productivity from averted ADEs were not included, it is likely that this technology would be even more beneficial from a societal perspective.

C-REACTIVE PROTEIN PREDICTS HEART FAILURE IN PATIENTS WITH CORONARY DISEASE: DATA FROM THE HEART AND SOUL STUDY. E.S. Williams[1]; B. Na[1]; M.A. Whooley[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 153194)*

BACKGROUND: C-reactive protein (CRP) is an inflammatory marker that predicts incident coronary heart disease (CHD) in healthy adults and adverse outcomes in patients with known CHD. Whether elevated CRP levels predict heart failure (HF) is not known.
METHODS: We measured serum CRP in a cohort of 985 outpatients with established CHD from the Heart and Soul Study. During an average 3 years (range 2 to 4 years) of follow-up, we interviewed study participants (or their proxies) and reviewed medical records, coroner reports, and death certificates for any reported "heart trouble." We defined hospitalization for HF using Framingham criteria. We compared rates of death and hospitalization for HF in participants with elevated (>3 mg/L) vs. normal (<=3 mg/L) CRP levels using proportional hazards models adjusted for potential confounding variables, including traditional cardiovascular risk factors, measures of baseline CHD severity, 24-hour urinary creatinine clearance (CrCl), and use of preventive medications.
RESULTS: Of the 390 participants with elevated CRP levels, 15% (56/390) were hospitalized for HF, compared with 7% (43/595) of those with normal CRP (p=0.0003). This association between elevated CRP and HF persisted after adjustment for potential confounding variables [adjusted Hazard Ratio (HR) 1.7, 95% Confidence Interval (CI), 1.1–2.7; p=0.03]. Likewise, 16% (63/390) of participants with elevated CRP levels died, compared with 11% (68/595) of those with normal CRP levels (p=0.03), and this association persisted after adjusting for potential confounding variables (HR 1.6, 95% CI, 1.1–2.4; p=0.01). Among the 812 participants without a history of HF, 21% (62/303) of those with elevated CRP were hospitalized for HF or died, compared with 13% (66/509) of those with normal CRP (adjusted HR 1.6, 95% CI, 1.1–2.4; p=0.01). However, this association differed by the presence of chronic kidney disease (p for interaction=0.09). Among the 216 participants with chronic kidney disease (CrCl<60 ml/min) and no history of HF, elevated CRP levels were not associated with hospitalization for HF or death (adjusted HR 1.3, 95% CI, 0.7–2.3; p=0.4). However, among the 596 participants with normal kidney function (CrCl >60 ml/min) and no history of HF, elevated CRP levels predicted hospitalization for HF or all-cause mortality (adjusted HR 2.2, 95% CI, 1.3–3.8; p=0.005).
CONCLUSIONS: Among outpatients with stable CHD, elevated CRP levels predict hospitalization for heart failure and all-cause mortality. This association appears to be present in patients with normal kidney function, but absent in patients with kidney disease. Serum CRP identifies a high-risk population of CHD patients that may benefit from interventions to prevent HF.

CROSS-CULTURAL COMMUNICATION IN URBAN CLINICAL PRACTICE: RESIDENT EXPERIENCES. L. Williams[1]; S. McDowell[1]; C.R. Horowitz[2]. [1]North General Hospital, New York, NY; [2]Mount Sinai School of Medicine, New York, NY. *(Tracking ID # 153647)*

BACKGROUND: Disparities in health and health care have been linked to clinicians providing lower quality of care to minority patients and to patients' cultural beliefs and behaviors. Social and cultural mismatches between physicians and minority patients may exaggerate disparities. Efforts to improve physicians' care of diverse patient population has led to the development of cultural competency training programs in many United States Medical Schools. Research is emerging about the experiences of United States Medical School Graduates' (USMGs) preparedness to provide culturally appropriate care. However, little data is available regarding challenges faced by International Medical Graduates (IMGs), who in 2004–2005 made up 26% of trainees in ACGME accredited graduate medical education programs. The purpose of this study was to compare and contrast IMGs and USMGs preparedness for and provision of cross-cultural care.
METHODS: We conducted focus groups to assess residents' knowledge, attitudes, beliefs and experiences with patients from different cultural backgrounds, and how their training environment fostered or detracted from the development of cultural competence, and to assess if differences existed between IMGs and USMGs. We conducted five focus groups with PGY-2 and PGY-3 internal medicine residents at a community based hospital (CBH) and an academic medical center in the same urban catchment area of New York City. The two groups at the CBH teaching program consisted of IMGs, and the three groups of residents at the academic center consisted of under-represented minority residents (1 group) and non-minority residents (2 groups). Using qualitative analysis software, three researchers trained in qualitative analysis developed a coding scheme and analyzed all focus group transcripts.
RESULTS: A total of 43 residents participated: 23 USMGs, 5 of whom were African-American or Latino, and 20 IMGs. Both IMGs and USMGs perceive difficulties in providing cross-cultural care. All groups identified several common themes: 1) unfamiliarity with the culture of their patients led to miscommunication and frustration; 2) experiencing bias from patients caused anger and disillusionment; 3) residents originating from diverse communities found it easier to care for the diverse patient populations, and 4) difficulty overcoming patient distrust of physicians and the health system due to patients' prior experiences with racism. For IMGs additional challenges stemmed from little prior knowledge of customs and beliefs of those from other cultures, unfamiliarity with the United States health care system and results of feeling others doubted their capabilities. In all groups, some residents expressed surprise that being from the same race as the patient did not ease the difficulties of cross-cultural communication. Many of the residents described the lack of and expressed a need for faculty role models.
CONCLUSIONS: Cross-cultural challenges are broad and exist even when "race" is not a variable. Residents need training and perhaps an opportunity to discuss these challenges. Faculty also need to develop and model competency in cross-cultural communication to facilitate residents' development of these skills.

CROSS-NATIONAL COMPARISON OF THREE VERSIONS OF THE ICD-10 CHARLSON INDEX. V. Sundararajan[1]; H. Quan[2]; P. Halfon[3]; K. Fushimi[4]; W.A. Ghali[2]. [1]Victorian Department of Human Services, Melbourne, Victoria; [2]University of Calgary, Calgary, Alberta; [3]Institut universitaire de médecine sociale et préventiv, Lausanne, ; [4]Tokyo Medical and Dental University Graduate School, Tokyo, . *(Tracking ID # 152835)*

BACKGROUND: Charlson comorbidity index has been widely used for risk adjustment in outcome studies using administrative data. Recently, three ICD-10 translations have been formulated for Charlson comorbidities. This study was conducted to compare the properties of the Australian, Canadian and Switzerland versions of ICD-10 coding algorithms using data from four countries.
METHODS: Data from Alberta, Canada (2002/2003, up to 16 diagnosis codes); Canton de Vaud, Switzerland (1999/2001, unlimited number of diagnoses), Victoria, Australia (2000–2001, 25 diagnoses) and Japan (2003, 11 diagnoses) were used for the analysis. For patients with more than one admission, only the first admission with a length of stay of 2 days or longer for each patient was included. Three ICD-10 coding algorithms were applied in these four datasets to define Charlson comorbidities. Logistic regression was fitted using in-hospital mortality as the dependent variable and individual comorbidities as independent variables and then was fitted again using weighted Charlson index score as independent variables. C-statistic and its 95% confident interval (CI) were employed to evaluate model performance.
RESULTS: Inpatients from Alberta, the Canton de Vaud and Victoria were similar in age, in-hospital mortality and length of stay, whereas Japan's inpatients were older, with higher mortality and longer length of stay. Within each locality's data, the distribution of comorbidity levels was similar across the three translations of the coding algorithms. The models with either individual comorbidity or Charlson score as independent variables produced slightly higher C-statistic for Canadian version than for Australia and Swaziland version in each dataset. For example while fitting the logistic model using individual comorbidities in Japan data, C statistics was 0.709 for Australian coding algorithm, 0.712 for Canadian algorithm and 0.694 for Switzerland algorithm. However, the difference was not statistically significant.
CONCLUSIONS: Our analyses show that although all three versions of the ICD-10 Charlson Index coding algorithms have good to excellent discrimination in their ability to predict in-hospital mortality, the Canadian algorithm consistently demonstrates slightly higher discrimination, not only in Canadian data but also in data from Australia, Switzerland and Japan. Use of the individual comorbidities in model building is preferable to the use of the weighted index.

DEGREE OF DISABILITY AND PATTERNS OF CAREGIVING AMONG OLDER COMMUNITY-DWELLING ADULTS WITH CONGESTIVE HEART FAILURE. T.R. Ruff[1]; M.U. Kabeto[2]; C.S. Blaum[2]; K.M. Langa[2]. [1]VA Center for Practice Management and Outcomes Research, Ann Arbor, MI; [2]University of Michigan, Ann Arbor, MI. *(Tracking ID # 151810)*

BACKGROUND: Although congestive heart failure (CHF) is a common, debilitating, and costly disease, we do not have good estimates of the extent of disability suffered by people with CHF, nor their use of caregiving. To assess the clinical, social, and economic impact of CHF on older Americans, we used a nationally representative survey to: 1) determine the rates of physical disability and comorbid illness; 2) quantify the formal (paid) and informal (unpaid) home care received; and 3) determine the likelihood of nursing home admission.
METHODS: We used the 2000 wave of the Heath and Retirement Study (HRS), a biennial, longitudinal survey of US adults 50 yrs and older. We compared individuals in 3 categories: no heart disease; heart disease, but without CHF; and heart disease with CHF.
RESULTS: Of the 10,626 community-dwelling respondents age >=65, 2,863 (27%) had heart disease without CHF and 400 (4%) had CHF. Compared to those without CHF, CHF respondents were more likely to have multiple comorbid illnesses, especially geriatric syndromes. In addition, as compared to those without CHF, CHF respondents were more likely to report at least 4 ADL and IADL impairments. Individuals with CHF received significantly more informal and formal caregiving. Adjusting for multiple covariates, the average weekly formal care hours for respondents with CHF was 1.3+/−.27 hours; informal care hours, 6.7+/−.61. By contrast, respondents with heart disease, no CHF had an average of 0.9+/−.14 formal care hours and 4.1+/−.31 informal care hours, while respondents without heart disease received 0.5+/−.09 formal care hours and 5.1+/−.38 informal care hours. Individuals with CHF were twice as likely to enter a nursing home in the prior 2 years as those without CHF.
CONCLUSIONS: As compared to those without CHF, the CHF population is frailer and more medically complex. CHF imposes a significant burden on patients, families, and the long-term care system. Family-members spend a substantial amount of time addressing the daily needs of this disabled population, and there may be unmet formal caregiving needs for individuals with CHF. Interventions that target community and home-based services to this vulnerable population could improve outcomes for patients and families.

DELAY IN ADDRESSING ELEVATED CHOLESTEROL IN HYPERTENSIVE PATIENTS AT MODERATE OR HIGH RISK OF CORONARY ARTERY DISEASE: ANOTHER CASE OF GENDER AND RACIAL DISPARITIES?. B.J. Turner[1]; M.G. Weiner[1]; C. Hollenbeak[2]; Y. Lin[1]; S. Tang[3]. [1]University of Pennsylvania, Philadelphia, PA; [2]Penn State College of Medicine, Hershey, PA; [3]Pfizer Global Pharmaceuticals, New York, NY. *(Tracking ID # 153927)*

BACKGROUND: In patients at increased risk of coronary artery disease (CAD), an important quality of care measure is reducing an elevated low density lipoprotein (LDL) according to National Cholesterol Education Program (NCEP) guidelines. This study examines the association of gender, race, and comorbidities on addressing an elevated LDL among patients with moderate or high CAD risk. We predicted that LDL care would be poorer in women and minorities compared to non-minority men but improved in patients with conditions that increase risk of CAD.
METHODS: From electronic medical records linked to administrative and physician data, we identified 17,559 patients with HTN who had at least 3 visits from 1/1/03 to 2/8/05 to one of 7 academic primary care practices. We analyzed 12,188 HTN patients at increased risk of CAD per NCEP guidelines due to older age (>45 if male and >55 if female). Of these, 11,536 patients (95%) had an LDL measured from 1/1/00 until 2/28/05. In 6,497 of these patients (56%), the last LDL before 1/1/03 or a subsequent LDL after that date was elevated (i.e., >130 mg/dl if moderate risk or >100 mg/dl if high risk due to diabetes, CAD, or CAD equivalent). We created four gender-race groups for analysis with self-reported race categorized as: minority (black) or non-minority (i.e., white [95%], Asian [5%]). We examined time from the 1st visit in the database after the high LDL until the outcome – LDL care – as indicated by lipid-lowering therapy prescribed for at least 3 months or a normal LDL test on recheck. Patients without LDL care were censored 6 months after the last visit or the end of study. In Cox models, we examined the adjusted association of the following key variables with the outcome: gender-race group, prescribed HTN medications, CAD risk (moderate vs. high), non-cardiac comorbidities from the Elixhauser measure, and renal insufficency. Models also adjust for: patient demographics (age, income, insurance), other clinical factors (smoking, obesity), provider factors (gender, race, MD training level/RN, workload), and time from elevated LDL until the 1st visit (in quartiles). We repeated models in moderate and high CAD risk patients.
RESULTS: Overall, 59% of the cohort received LDL care by the end of the two-year study. In non-minority men (N=1,656), median time until LDL care was 221 days versus 372 days for non-minority women (N=1,563), 293 days for minority women (N=2,164), and 339 days for minority men (N=1,114) (p<0.001). After adjustment, the hazard ratio (HR) for LDL care was decreased by at least 25% (95% CI 16%–31%, P<0.001) for each of the three gender-race groups versus non-minority men. The HR for LDL care was increased by: 12% (CI 9%-15%) for each additional HTN drug prescribed (P<0.001); 18% (10%–26%) for high CAD risk (P<0.001); and 15% (CI 4%–28%) for renal insufficiency (P=0.008). The gender-race disparity was still significant in separate models of moderate (N=3,284) and high CAD risk patients (N=3,213).
CONCLUSIONS: In this cohort of HTN patients at increased CAD risk, the time until an elevated LDL was addressed was significantly longer in women and minorities than in non-minority men. Although comorbidities that increase CAD risk were associated with more timely LDL care, the gender-race disparity in this care persisted in patients at moderate and at high CAD risk.

DELAYS IN FOLLOW UP TO ABNORMAL MAMMOGRAPHY AT AN INNER CITY COMMUNITY HEALTH CENTER. T.A. Battaglia[1]; M. Palnati[1]; E.R. Howe[1]; L.L. Delaney[2]; K.M. Freund[1]. [1]Boston University, Boston, MA; [2]Whittier Street Community Health Center, Roxbury, MA. *(Tracking ID # 153728)*

BACKGROUND: Racial/ethnic minority and low-income women suffer higher mortality and more advanced stage upon diagnosis of breast cancer. This same population has a longer delay in seeking a timely cancer diagnosis and treatment. We sought to define delays in follow up to abnormal mammography screening at an inner-city community health center that serves a racially-diverse low-income population in an effort to develop an intervention to improve cancer outcomes.
METHODS: A retrospective chart review was performed using the electronic medical record from 2000 through April 2005. Cases were identified by a query for all mammograms designated a Breast Imaging Reporting And Data (BI-RAD) category 0,3,4 or 5. Chart review provided information to determine outcomes of interest: 1) Resolution (yes/no) occurred if further imaging ruled out an abnormality or tissue was obtained, 2) Timely Resolution (yes/no) occurred if a BI-RAD 3 reached resolution within 210 days or if a BI-RAD 0, 4 or 5 reached resolution within 30 days.
RESULTS: We identified 137 cases of abnormal mammography; 97 BI-RAD 0, 30 BI-RAD 3, and 11 BIRAD 4 and 5. The majority of women were of racial/ethnic minority 40% Black, 56% Hispanic, 2% White. Mean age was 51 years (SD 11). 40% had no health insurance, 34% had some type of public health insurance only and 26% were privately insured. Five cancers were ultimately diagnosed, two from a BI-RAD 0 and three from a BI-RAD 4. Overall, 86% reached resolution. Though not statistically significant, BI-RAD 4 and 5 (73%) were less likely to reach resolution than BI-RAD 3 (80%) or 0 (87%) (p=0.16). Of those with resolution only 40% had timely resolution. The median time to resolution was 50 days for BI-RAD 0, 214 days for BI-RAD 3, 118 days for BI-RAD 4 and 5. In bi-variate analyses, we found no association between timely resolution and age, race, insurance or BI-RAD designation.
CONCLUSIONS: In a population of low-income racial/ethnic minorities receiving their healthcare at an inner-city community health center there were low rates of timely resolution. Interventions to improve timely resolution are needed in these at risk populations.

DEVELOPING TEACHING SKILLS FOR MEDICAL EDUCATORS IN RUSSIA: A CROSS-CULTURAL FACULTY DEVELOPMENT PROJECT. J.G. Wong[1]; K. Agisheva[2]. [1]Medical University of South Carolina, Charleston, SC; [2]Kazan State Medical University, Kazan. *(Tracking ID # 155192)*

BACKGROUND: Faculty development programs, often taught by general internists, play an important role for providing physician teachers with the skills necessary for improving their teaching. In the interest of helping to improve global health, this study built upon a successful pilot project looking at whether or not a US based faculty development seminars series could be successfully transported across different cultures and medical systems in order to help to improve the clinical teaching skills of Russian medical faculty.
METHODS: In a prospective evaluation trial, we created and presented a program comprised of 5 small group seminars, based on the Stanford Faculty Development Program (SFDP) model, to 48 faculty teachers at Kazan State Medical University (KSMU) in Kazan, Tatarstan, RUSSIA. The seminars were sequentially presented in one week and covered the seven educational categories of the SFDP including topical mini-lectures, reviews of verbatim re-enactments of teaching scenarios, role-playing and personal goal-setting exercises. The oral presentations, and all of the teaching materials were translated into Russian. We measured the seminar attendees' self-reported teaching ability ratings using a previously studied retrospective pre-post questionnaire that was translated into Russian and asked about the teachers' newly incorporated teaching behaviors through "Commitment to Change" (CTC) statements. The participants were surveyed twice; at one month and at one year after the intervention. In each of the two main sections of the questionnaire (Global assessment and specific behaviors), the paired means of the retrospective pre test scores were compared to the means of both the first (1 month) retrospective post test scores and the second (12 month) post-test scores using the student's two-tailed T-test. Raw percentages of fulfilled CTC statements were also reported.
RESULTS: The 48 participants were comprised of medical teachers in both basic and clinical sciences. We had a 98% survey response rate (47/48) at 1-month and 81% (39/48) at 12-months. Summative self-reported ratings of global teaching performance improved between the retrospective pre- and post-test scores [pre=38.4, post=43.7; p<0.001]. Summative self-reported ratings of specific teaching behaviors also improved [pre=100.2, post=121.3; p<0.001]. Furthermore, the duration of this improvement persisted at 12 months where the self reported global teaching scores were 42.5 (p<0.011) and the specific teaching behavior scores were 116.8 (p<0.001); the modest decrement in specific behavior scores at 12 months was statistically significant. In aggregate, the participants list 121 CTC statements at 1 month; 90 (71%) of those teaching changes were fully instituted at 1 year.
CONCLUSIONS: In this larger, full-scale project, we were able to demonstrate a positive, lasting affect of a faculty development course on the teaching skills of a diverse group of Russian medical teachers. Teaching skills presented in faculty development seminars can be successfully transported across different cultures and medical systems and may benefit health education internationally.

DEVELOPMENT AND TESTING OF THE MULTIDIMENSIONAL TRUST IN MEDICAL CARE SYSTEM SCALE. L.E. Egede[1]; A. Bennett[1]; M. Harrison[1]. [1]Medical University of South Carolina, Charleston, SC. *(Tracking ID # 152804)*

BACKGROUND: Trust is fundamental to effective patient-physician communication. Trust has been correlated with patient satisfaction, adherence to treatment recommendations, and health outcomes. Studies have shown that there are different objects of trust (e.g. health care provider, health institution, and health payer). Several trust scales exist, but none has attempted to measure the different objects of trust in the medical care system. The objective of this study was to develop and test the Mutidimensional Trust in Medical Care System Scale (MTMCSS).
METHODS: All literature on trust in the health care system was identified via a Pub Med search. ~ 80 relevant articles were selected for review. The reviewed literature yielded 12 different scales to measure trust in the medical care system. Items from the 12 existing scales were reworded to capture the 3 objects of trust (i.e. health care provider, health institution, and health payer). Additional items were developed and included based on review of transcripts from previous patient focus groups (9 groups; n=48). After items were reviewed by two experts, 83-items were selected for inclusion in the draft instrument. The 83-item scale was administered to 257 students in a tertiary institution in the Southeast. The scale was analyzed for its factor structure, internal consistency, and other psychometric properties.
RESULTS: In the sample, 90% were <40 years, 75% were women, 81% were White, 60% had income <$35,000, 64% had a regular physician, 89% saw a physician in the prior 12 months, and 11% used the emergency department in the prior 12 months. Principal component analysis with orthogonal varimax rotation revealed 3 factors consistent with our conceptual model including trust in health care providers (10-items), trust in health care institutions (3-items), and trust in health care payers (7-items). The 3 subscales were internally consistent, Cronbach alphas of 0.91, 0.72, and 0.81 for the trust in health care providers, trust in health care institutions, and trust in health care payers subscales. The 20-item MTMCSS had good internal consistency (Cronbach alpha 0.88) and response variability (range 35–73; mean 61.6; SD 9.7).
CONCLUSIONS: Initial results suggest that the 20-item Mutidimensional Trust in Medical Care System Scale is a valid and reliable instrument to measure the different objects of trust in the medical care system. Future research is needed to establish the psychometric properties of the scale in diverse populations.

DIABETES NUMERACY SKILLS AND RELATIONSHIP TO GLYCEMIC CONTROL. R.L. Rothman[1]; D. Davis[1]; R. Gregory[1]; K.A. Wallston[1]; J. Sparks[1]; A.L. Cherrington[2]; D. Dewalt[2]; R.M. Malone[2]; M. Pignone[2]; T.A. Elasy[1]. [1]Vanderbilt University, Nashville, TN; [2]University of North Carolina at Chapel Hill, Chapel Hill, NC. *(Tracking ID # 151800)*

BACKGROUND: Numeracy, the ability to understand and use numbers and math in daily life, is an important component of diabetes self-care that has not been well studied.
METHODS: We designed a cross-sectional study to evaluate the role of numeracy in diabetes self-management. We developed a 43-item Diabetes Numeracy Test (DNT) to evaluate the ability of patients to count carbohydrates, interpret glucose meter results, apply sliding scale insulin regimens, calculate insulin dose based on insulin to carbohydrate ratios and perform other numeracy related diabetes tasks. We administered the DNT and examined its relationship to patients' glycated hemoglobin (A1C), diabetes knowledge (DKT), literacy (REALM) and math skills (WRAT) using previously validated instruments.
RESULTS: 398 patients were recruited from primary care and diabetes clinics at two academic medical centers. Mean age was 54 yrs, 51% were male, and 34% were African American; 14% had Type 1 DM and 86% had Type 2, 60% used insulin and mean A1C was 7.6%. 43% reported a high school education or less, and 23% had $<$9th grade literacy on the REALM, but 69% had $<$9th grade math skills on the WRAT. Patients correctly answered a mean of 61% of DNT questions. Patients had particular difficulties calculating carbohydrates from nutrition labels, determining insulin doses based on insulin to carbohydrate ratios, and titrating insulin. Higher DNT scores were significantly correlated ($p<0.001$) with higher educational status ($r=0.51$), literacy ($r=0.50$), math skills ($r=0.64$), diabetes knowledge ($r=0.72$), and frequency of blood glucose monitoring ($r=0.36$), and modestly associated with lower A1C ($r=-0.08$, $p=0.12$). In multivariate analysis, DNT score was statistically significantly ($p<0.05$) correlated with A1C after adjusting for age, gender, race, income, literacy, insulin status and type of diabetes; each 10 point increase in DNT score was correlated with a 0.1 point decrease in A1C.
CONCLUSIONS: Many patients with diabetes have difficulties with numeracy related self-management tasks. Numeracy appears to be an independent predictor of glycemic control. Future interventions should address the role of numeracy in self-management.

DIAGNOSTIC REPORTING CHALLENGES IN THE VETERANS HEALTH ADMINISTRATION. T.L. Wahls[1]; P. Cram[2]. [1]Iowa City Veterans Healthcare System, Iowa City, IA; [2]University of Iowa, Iowa City, IA. *(Tracking ID # 156719)*

BACKGROUND: There is widespread concern about problems with the management of test results but there are limited data about the systems that are employed in clinical practice to prevent them. We hypothesized that many clinics would lack any standardized procedure for managing test results and that patient events related to medical error due issues with results reporting would be reported by providers.
METHODS: An anonymous internet based survey was developed and administered to a regional Veterans Administration healthcare network. The survey asked respondents about the strategies and procedures used in their clinics for results management. Furthermore providers were asked to specify the numbers of patients they had encountered during the two weeks prior to the survey which had not received the anticipated clinical response to an abnormal test result and the number patients with delays in either diagnosis or treatment as a result.
RESULTS: A minority of clinics utilized standard operating procedures for the management or reporting of results (39%) and many staff clinics (25%) and the majority of trainee clinics (55%) had no procedure to monitor results during the absence of the ordering provider. Only 44% of the clinics reported all test results to patients with others reporting only abnormals (22%), only if therapy changed (17%) or only critical results (3%). Furthermore, for the two week period prior to completing the survey, a majority of providers (54%) reported encountering at least one patient with abnormal test which had not received the expected clinical response and many providers (33%) reported encountering 1 or more cases of delay in diagnosis or treatment as a result.
CONCLUSIONS: Missed test results and treatment delay were often reported by clinicians in a healthsystem with a well developed EMR. Increased use of standard operating procedures in the management and reporting of test results to patients and the development of systems capabale of tracking ordered tests, provider review, and patient notification would probably have major impacts on reducing the risk of medical error related to result reporting.

DIFFERENCES IN CANCER RISK PERCEPTION AMONG DIVERSE WOMEN. E.J. Perez-Stable[1]; S.E. Kim[1]; S.T. Wong[2]; C.P. Kaplan[1]; J. Walsh[1]; G.F. Sawaya[1]. [1]University of California, San Francisco, San Francisco, CA; [2]University of British Columbia, Vancouver, British Columbia. *(Tracking ID # 154687)*

BACKGROUND: Inaccurate perceptions of risk may affect informed decision-making and have behavioral consequences. We compared the perception of breast, cervical, and colon cancer risk in diverse women to their screening behavior.
METHODS: Women, aged 50 to 80, stratified by ethnicity (White, African American, Latina, Asian) who had at least one visit to a primary care physician in the previous two years were recruited from ambulatory practices. Interviewers administered a screening telephone survey and a follow-up in-person interview in English, Spanish or Chinese. Participants were asked to report their personal risk for cancer on a scale of 0 to 100%. We compared risk perception for each cancer and self reported screening behavior by ethnicity and in multivariate models adjusted for education, age, income, and personal and family history of cancer (White women = reference).
RESULTS: 923 women completed the survey; 322 were White (34.9%), 129 African American (14.0%), 127 Latina (13.8%), 320 Asians (34.6%), and 25 other (2.7%). The average participant was 62 y, had some college education, and annual income of $35,000. About 20% reported having a personal history of cancer and close to half of the participants reported a family history of cancer. Perceived lifetime risk of cancer varied by site and ethnic group (table). Latina and African American women had higher perceived risk compared to White women after multivariate adjustment (table). However, Asian women had lower breast and colorectal cancer risk perception, compared to White women. There was no significant association between cancer risk perception and breast or cervical cancer screening. Higher colorectal cancer risk perception was associated with higher odds of having had a colonoscopy (OR = 1.5, 95% CI = 1.3–1.8). Having had colonoscopy was also associated with a personal (OR = 2.0; 95% CI = 1.3–3.1) or family history of cancer (OR = 1.5; 95% CI = 1.1–2.1).
CONCLUSIONS: Many women did not have an accurate understanding of their cancer risk. Yet, ethnic differences persisted in cancer risk perception even after controlling for confounders. In order to help clinicians communicate with patients about risk information, we will examine whether using traditional percentage and numeracy information is effective in all diverse populations.

Table: Lifetime cancer risk perception on a scale of 0-100% by ethnic groups

	Breast Cancer Risk		Cervical Cancer Risk		Colon Cancer Risk	
	Avg. risk perception	Adjusted difference	Avg. risk perception	Adjusted difference	Avg. risk perception	Adjusted difference
White	26.7%	REF	16.5%	REF	21.4%	REF
African American	32.2%	6.7%*	25.1%	8.5%**	30.1%	9.3%**
Latina	41.2%	13.9%***	36.2%	18.3%***	38.0%	15.5%***
Asian	12.8%	–10%***	12.0 %	–3.1%	13.1%	–6.0%**

* P<.05; ** P<.01; *** P<.001.

DISCHARGE PLANNING AND INAPROPRIATE HOSPITAL USE: IMPACT OF AN INTERVENTION. M. Louis-Simonet[1]; M.P. Kossovsky[1]; P. Sigaud[1]; P. Chopard[1]; T.V. Perneger[2]; J.M. Gaspoz[1]. [1]Service of General Internal Medicine, Geneva University Hospitals, Geneva; [2]Quality of Care Service, Geneva University Hospitals, Geneva, . *(Tracking ID # 151353)*

BACKGROUND: We previously derived and validated a score predicting, on the 3rd hospital day, patients' risk of transfer to a post-acute care facility (PACF) at the end of their hospital stay. The score was built with 5 variables significantly associated with transfer to a PACF in a multivariable model: number of active medical problems upon admission (1 point per problem); lack of informal help from spouse (4 points); dependency for bathing, for transfers from bed or chair and for preparation of medications at home (4 points each). We evaluated whether targeted actions based on the score could avoid inappropriate hospital use.
METHODS: The score was measured by research nurses on a patient sample of general internal medicine during a 4-week observation period. Then, a 10-week intervention was implemented. The score with suggestions were posted on patients' charts so that residents could identify early patients at risk of not being able to return home directly and take appropriate actions. Suggested actions differed according to patients' scores and score's items: scores <8 points: routine hospital and discharge care; scores ≥ 8 points: intensive physical therapy if needed; level of home care assessed and reinforced if necessary; early transfer planning to a PACF for patients identified as unable to directly return home after multidisciplinary assessment or if failure of planned actions. Outcomes of interest for the intervention were: proportion of patients transferred to a PACF; hospital length of stay (LOS); number of inappropriate hospital days; and number of inappropriate hospital days due to discharge delay. Statistical analyses were performed using parsimonious logistic or linear regression models.
RESULTS: 491 patients were recruited of which 248 (50.5%) were submitted to the intervention. Both groups were comparable in terms of mean age (67 years) and gender (47% women). After adjustments for clinical characteristics, type of home help and hospital occupancy rates, the intervention did not significantly modify the odds of transfer to a PACF (OR: 0.77; 95%CI: 0.47 to 1.26); however it significantly decreased LOS (-2.7 days; 95%CI: -4.1 to -1.2) and the number of inappropriate hospital days (-1.2 days; 95% CI: -2.1 to -0.2). Decrease in the number of inappropriate hospital days due to discharge delay just missed statistical significance (-0.7days; 95%CI: -1.4 to 0.1).
CONCLUSIONS: A discharge planning intervention based on a score that early identifies patients at risk to be discharged to a PACF at the end of their acute hospital stay can reduce inappropriate hospital use without unduly increasing transfer to a PACF.

DISCHARGE PLANNING WITH HELP OF A SCORE: WHEN RESIDENTS AND NURSES TAKE IT ON. C. Berna[1]; M.P. Kossovsky[1]; T.V. Perneger[2]; J.M. Gaspoz[1]; M. Louis-Simonet[1]. [1]Service of General Internal Medicine, Geneva University Hospitals, Geneva; [2]Quality of Care Service, Geneva University Hospitals, Geneva, . *(Tracking ID # 153193)*

BACKGROUND: We previously validated a simple 5-item score predicting, on the 3rd hospital day, patients' risk of transfer to a post-acute care facility (PACF) at the end of their hospital stay. We also demonstrated that targeted actions based on patients' scores calculated by research nurses, and on scores' items, reduced hospital length of stay (LOS) and decreased inappropriate hospital

days, without unduly increasing the proportion of patients transferred to a PACF. We sought to evaluate the feasibility of this discharge planning (DP) strategy when relied on residents and ward nurses, as well as its impact on resource utilization.
METHODS: Prospective controlled study with 2 consecutive 5-week periods (one baseline period and one experimental period) in two distinct services of general internal medicine (one intervention service and one control) of a teaching hospital. During baseline, scores with suggested actions were posted on patients' charts by study nurses in both services. During the experimental period, residents were taught how to calculate scores and given responsibility to prompt DP strategies together with ward nurses; they were blinded to scores calculated by study nurses. In the intervention service, use of the score was actively promoted at rounds and reports by attending physicians, whereas no such support took place in the control service. Outcomes of interest were: adherence of residents to score calculation; residents' score capacity to predict transfer to a PACF; impact of the experimental period on LOS. Analyses were performed using multivariable logistic and linear regression analyses and ROC curves.
RESULTS: 388 patients were assessed. During the experimental period 79% (82/104) of the patients of the intervention service had a score calculated vs. none in the control service. Correlation between scores calculated by residents and by research nurses reached 0.88 ($p<0.001$) and residents' scores capacity to predict discharge to a PACF (AUC = 0.72) did not significantly differ from study nurses (AUC = 0.74; $p=0.68$). Compared with baseline when suggested actions were posted on patients' charts, LOS significantly increased in the control service during the experimental period, while it did not in the intervention service; by comparison, once adjusted for patients' characteristics, LOS was kept significantly shorter (-4.4 days; 95% CI -7.7 to -1.1) in the intervention service, without significantly increasing the proportion of patients transferred to a PACF (adjusted OR 2.8; 95% CI 0.9 to 9.2).
CONCLUSIONS: Adoption and routine use of a score for DP by residents and ward nurses is feasible and efficient in everyday practice of a general internal medicine service. However, such a DP strategy needs to be actively promoted and supported.

DISCLOSING MEDICAL ERRORS TO PATIENTS: A SURVEY OF FACULTY, RESIDENTS, AND STUDENTS. L.C. Kaldjian[1]; E.W. Jones[2]; B.J. Wu[3]; V. Forman-Hoffman[1]; B.H. Levi[4]; G.E. Rosenthal[5]. [1]University of Iowa, Iowa City, IA; [2]Iowa City VA Medical Center, Iowa City, IA; [3]Hospital of Saint Raphael, New Haven, CT; [4]Penn State University/Hershey Medical Center, Hershey, PA; [5]Iowa City VA Medical Center & University of Iowa, Iowa City, IA. *(Tracking ID # 153220)*

BACKGROUND: Disclosure of medical errors to patients by physicians is an important part of patient care, but the factors that motivate or impede disclosure are complex. We surveyed faculty physicians, residents, and students to determine attitudes toward error disclosure and investigate motivating and impeding factors.
METHODS: Based on a previously developed taxonomy of factors that influence error disclosure, we conducted a survey of faculty physicians (n = 138), residents (n = 200), and students (n = 200) at 3 geographic sites incorporating 2 medical schools, 2 university hospitals, and 1 community hospital. The survey instrument was pilot tested for validity and reliability and included questions about actual experience with error disclosure, hypothetical error vignettes, attitudes toward disclosure (measured on a 5-point Likert scale), and demographic variables.
RESULTS: 538 respondents completed the survey (77% response rate); 51% were women. 41% of physicians had disclosed an actual error that had resulted in minor harm to a patient, and 5% had disclosed an actual error that had resulted in major harm. 19% of physicians had not disclosed an actual error that had resulted in minor harm to a patient, and 4% had not disclosed an actual error that had resulted in major harm. In response to a hypothetical vignette, 62% of respondents would disclose a near miss, 95% would disclose an error associated with minor harm, and 93% would disclose an error associated with major harm. The following five attitudes were statistically associated with a hypothetical willingness to disclose errors (associated with major or minor harms) as well as near misses ($P<0.05$): agreeing that "disclosure is the right thing to do even if it comes at a significant personal cost"; agreeing that "when a mistake occurs, I feel an obligation to make it clear that what happened was a mistake"; agreeing that "disclosure is important because that is how I would want to be treated"; agreeing that "disclosure increases my patient's trust in me"; and not agreeing that "the decision to disclose depends on whether I think the information will help or harm the patient." Regarding possible negative consequences of disclosure, respondents were concerned about negative patient reaction (88%), malpractice litigation (86%), professional discipline (68%), loss of reputation (67%), blame from colleagues (63%), and negative publicity (46%). Women were more concerned about the possible negative consequences of disclosure to patients than men ($P<0.05$) but were no less likely to disclose a hypothetical error. Students and residents were more concerned about the possible negative consequences of disclosure than faculty ($P<0.001$) and they were less likely to disclose a hypothetical error.
CONCLUSIONS: Less than half of the physicians surveyed had ever disclosed an error to a patient. Greater professional experience is associated with less concern about possible negative consequences of disclosure and more willingness to disclose. Health care administrators and educational leaders who are endeavoring to increase physicians' willingness to disclose errors to affected patients should attempt to enhance the factors that facilitate and reduce the factors that impede disclosure.

DISPARITIES IN DIABETES PREVALENCE, COMORBIDITIES, AND TOBACCO USE IN CALIFORNIA ADULTS. A.L. Diamant[1]; S.H. Babey[1]; E. Brown[1]; T. Hastert[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 156812)*

BACKGROUND: Diabetes is the 6th leading cause of death in the US and a significant cause of morbidity including blindness, end-stage-kidney disease and amputation. Until recently Type 2 diabetes has increased considerably among adults under the age of 50, especially among communities of color. We used a population-based sample of California adults to estimate disparities in diabetes prevalence, comorbidities and tobacco use
METHODS: We used data from the 2001 and 2003 California Health Interview Surveys (CHIS). CHIS 2003, a random-digit dial (RDD) telephone survey of households drawn from every county in California, completed interviews with over 42,000 households in 2003. Bivariate analyses were used to examine diabetes prevalence, comorbidities and tobacco use among California adults.
RESULTS: In 2003 6.6% of California adults had been diagnosed with diabetes, up from 6.2% in 2001 ($p<0.10$). American Indians/Alaska Natives (9.9%) and African Americans (9.3%) had the highest prevalence. Prevalence among African Americans was significantly higher than among Latinos (7.5%), Asians (6.4%) or Whites (5.6%). Although Asians have a comparatively low rate of diabetes, they were the only racial/ethnic group to show a significant increase in diabetes prevalence from 5.0% in 2001 to 6.4% in 2003. In addition, Latinos have the highest prevalence in each of the following age groups: 18–49, 50–64 and 65 and over. Diabetes prevalence decreases with additional education from 12.0% for those who did not complete eighth grade to 4.5% among college graduates. Prevalence also decreases with increasing income from 8.8% for those with household incomes below 200% of the federal poverty level (FPL) to 5.1% for those with household incomes of at least 300% FPL. High blood pressure and smoking have been linked to increased risk of serious complications such as cardiovascular disease, kidney disease, stroke, and amputation, and among those diagnosed with diabetes, these risk factors vary by race/ethnicity. Overall, 60.9% of those with diabetes have high blood pressure. More African Americans with diabetes have high blood pressure (74.0%) than any other group, followed by Asians (67.2%). Overall, 15.0% of those with diabetes are current smokers, but 39.8% of AI/ANs with diabetes are current smokers, followed by African Americans (20.7%). Disparities also exist in risk factors for developing diabetes. Overweight and obesity are major diabetes risk factors. Among all adults not diagnosed with diabetes, 54.0% are either overweight or obese; however, significantly more Latinos (64.8%), African Americans (63.7%) and AI/ANs (62.7%) are overweight or obese compared to whites (52.5%) or Asians (31.4%), placing these groups at increased risk for developing diabetes.
CONCLUSIONS: African Americans, American Indian/Alaska Natives and Latinos have the highest diabetes prevalence, and are at greatest risk for developing diabetes and complications from diabetes. African Americans with diabetes have the greatest prevalence of hypertension putting them at increased risk for end-stage-renal-disease, hemodialysis and kidney transplantation, as well as high rates of smoking putting them at increased risk for amputation. African Americans, American Indian/Alaska Natives and Latinos stand to benefit the most from interventions targeted at diabetes prevention and management.

DISPARITY IN CORONARY INTERVENTIONS FOR PATIENTS WITH ACUTE MYOCARDIAL INFARCTION ADMITTED TO HOSPITALS WITHOUT REVASCULARIZATION. J. Popescu[1]; M.S. Vaughan Sarrazin[2]; G.E. Rosenthal[3]. [1]VA Medical Center and University of Iowa College of Medicine,, Iowa City, IA; [2]VA Medical Center and University of Iowa Carver College of Medicine, Iowa City, IA; [3]VA Medical Center and University of Iowa College of Medicine, Iowa City, IA. *(Tracking ID # 155248)*

BACKGROUND: Prior studies have documented lower use of coronary revascularization after acute myocardial infarction (AMI) in black patients. However, little information exists on racial variations in patterns of care for patients admitted to hospitals that do not perform revascularization.
METHODS: The Medicare Part A data were used to identify all black (n = 33,041) and white (n = 515,888) patients aged 65 years or older with a primary diagnosis of AMI, who were admitted during 1998–2002 to 3,795 facilities not performing coronary revascularization. A longitudinal record was created for each patient, including subsequent transfers to hospitals performing revascularization, and revascularization within 30 days with either coronary bypass surgery or percutaneous coronary intervention. Outcomes including transfer and 30-day revascularization were adjusted for demographic, clinical and socio-economic (zip code level) risk factors, and distance from the admitting to the nearest hospital performing revascularization using mixed affects models that accounted for clustering of patients within hospitals and hospital-level variation.
RESULTS: Black patients were younger (mean age 79 vs 80, $p<.001$) and more likely ($p<.001$) to be female (60% vs. 53%) and reside in urban areas (56% vs 43%). Black patients resided in areas with lower median income (mean, $33,964 vs. $41,118, $p<.001$), and were admitted to hospitals that were closer, on average, to hospitals with revascularization services (mean, 16 vs. 23 miles, $p<.001$). Black patients were less likely (25% vs. 32%, $p<.001$) to be transferred to another hospital after AMI and to undergo revascularization within 30 days (16% vs. 25%, $p<.001$). Among patients who were transferred to other hospitals, black patients were still less likely to undergo revascularization (60% vs. 70%, $p<.001$). After adjusting for demographics, socioeconomic status, comorbid conditions, severity and distance, black patients remained less likely to be transferred (OR 0.68, 95% CI 0.65–0.71, $p<.001$) and undergo revascularization within 30 days (OR 0.58, 95% CI 0.54–0.62, $p<.001$). Among patients who were transferred, blacks were also less likely to undergo revascularization during the transfer episode or within 30 days (OR 0.68, 95% CI 0.63–0.73, $p<.001$).

CONCLUSIONS: Among Medicare beneficiaries with AMI who were admitted to hospitals without revascularization services, black patients were less likely to be transferred to another hospital with revascularization services, and to receive coronary revascularization. This study identifies differential transfer patterns as an important source of disparity in AMI treatment. Further research is needed to determine if these differences are due to unmeasured severity, patient preferences or physician practice.

DO DOCTORS VOTE?. D. Grande[1]; K. Armstrong[2]. [1]University of Pennsylvania, Philadelphia, PA; [2]University of Pennsylvania School of Medicine, Philadelphia, PA. *(Tracking ID # 154585)*

BACKGROUND: In a democratic society, voting is the most basic expression of citizen participation and engagement in community and public affairs. Many scholars have argued that doctors, as members of a profession, have a unique role in society that elevates expectations for civic participation. Recent trends including declining trust in medicine and increasing investor-ownership in the health care industry have renewed discussions about medical professionalism and its basic tenets including a duty to engage in advocacy and community affairs. Despite these proclamations and scholarly analyses, few studies have been conducted to assess physician civic engagement and its most basic form, voting.
METHODS: This is a cross-sectional study of voting participation of physicians in Congressional and Presidential elections in the even-numbered years 1996–2002 and a historical comparison of 1976–1982. The data source is adult citizens in the Current Population Survey, a monthly, nationally representative, telephone survey of approximately 48,000 households. There are 1,274 physicians in the total 1996 to 2002 sample. The November voting supplement is administered in even-numbered years following election day and ascertains whether individuals voted in the most recent election in addition to collecting extensive demographic data. The odds of physicians voting in the 1996–2002 elections relative to lawyers and the general population were estimated with multivariate logistic regression models controlling for a variety of demographic characteristics known to be associated with voter participation (race, ethnicity, income, education, geography, marital status, employment, duration of residence, home ownership, age, gender, and children in household). Similar models were estimated for a larger category of health practitioners (e.g. dentists, podiatrists) to permit comparison to a historical reference point of 1976–1982 (oldest available data of adequate quality and detail) when occupations were categorized with less specificity.
RESULTS: After multivariate adjustment, physicians were less likely to vote than the general population in 1998 (OR=0.76, CI=0.59–0.99), 2000 (OR=0.64, CI=0.44–0.93), and 2002 (OR=0.62, CI=0.48–0.80) but not 1996 (OR=0.83, CI=0.59–1.17). Over all years of analysis, lawyers voted at much higher rates than the general population (1996: OR=1.51, CI=1.08–2.11; 1998: OR=2.17 CI=1.63–2.90; 2000: OR=1.55 CI=1.10–2.18; 2002: OR=1.61, CI=1.23–2.12). In a model with aggregated data from 1996 to 2002 and fixed year effects, the odds of physician voting was 0.70 (CI=0.61–0.81) and lawyer voting 1.73 (CI=1.49–2.02) relative to the general population. The historical comparison of the broader category of health practitioners (66% were physicians in 1996–2002 sample) voting did not reveal changes over time. The odds of voting for health practitioners in 1996–2002 was 0.75 (CI=0.67–0.85) relative to the general population compared to 0.77 (CI=0.68–0.86) in the period 1976 to 1982.
CONCLUSIONS: This study demonstrates lower voting rates for physicians in the U.S. relative to the legal profession and the general public when controlling for a variety of socioeconomic characteristics. Further, the data suggests that this pattern is long-standing dating back to at least the period 1976–1982. Low voter participation of physicians may indicate low levels of overall civic engagement in community and public affairs and a lack of physician community leadership in health and social policy.

DO INDIAN-AMERICANS AND CHINESE-AMERICANS HAVE BETTER CARDIOVASCULAR RISK PROFILES COMPARED TO WHITES?. J. Wang[1]; S.R. Lipsitz[2]; S. Natarajan[3]. [1]New York University, New York, NY; [2]Harvard University, Boston, MA; [3]VA New York Harbor Healthcare System and New York University, New York, NY. *(Tracking ID # 157107)*

BACKGROUND: Little is known about the access to care, cardiovascular risk factor prevalence and behaviors in Indian Americans (IA) of Asian descent and Chinese Americans (CA), two rapidly growing US subgroups. Most information regarding these groups are derived from studies outside the US. This provided the impetus to examine these issues in IA and CA compared to non-Hispanic whites (NHW) in the US.
METHODS: We evaluated data from the 2003–2004 National Health Interview Surveys, population-based probability samples of US non-institutionalized adults. Our self-reported variables of interest were health and prescription coverage, hypertension, diabetes, hypercholesterolemia, smoking, obesity, and physical activity. After initial descriptive analysis [with 95% confidence intervals (CI)], logistic regression evaluated the relationship between ethnic categories and dichotomous outcomes (access, risk factors or behaviors) while controlling for age and gender. NHW was the reference category and results are reported as odds ratios (OR). Analyses were conducted using SAS or SUDAAN and incorporated stratification and weighting variables to provide population estimates. P-values <0.05 are significant.
RESULTS: The 2003–2004 NHIS data surveyed 83,916 NHW, 883 IA and 1,007 CA. The unadjusted proportions that lacked health coverage during the year prior were similar among the three groups. More NHW lacked prescription coverage in the year prior (7.3%, CI: 7.0, 7.6) than IA (3.8%, CI: 2.0, 5.7) or CA (1.7%, CI: 0.4, 3.0). Hypertension prevalence was higher in NHW (22.8%, CI: 22.3, 23.4) than in IA (6.6%, CI: 4.1, 8.7) or CA (14.5%, CI: 10.7, 18.3). No differences were noted in the prevalence of diabetes or hypercholesterolemia. More NHW were obese (22.6%, CI: 22.0, 23.2) compared to IA (6.4%, CI: 3.7, 9.1) and CA (4.6%, CI: 2.0, 7.2). Similarly, more NHW were smokers (25.0% CI: 24.4, 25.8) compared to IA (4.6%, CI: 2.5, 6.6) and CA (6.8%, CI: 3.6, 10.1). Moderate or vigorous physical activity did not differ among the three groups. Lack of prescription coverage was less likely in IA (OR 0.47, CI: 0.28, 0.77) and CA (OR 0.22, CI: 0.10, 0.47). Both Asian groups were less likely to have hypertension [IA (OR 0.44, CI: 0.30) and CA (OR 0.65, CI: 0.52, 0.93)], be obese [IA (OR 0.25, CI 0.16, 0.39) and CA (OR 0.17, CI: 0.09, 0.31)] and smoke [IA (OR 0.13, CI: 0.08, 0.21) and CA (OR 0.21, CI: 0.13, 0.35)]. After age and gender-adjustment, IA were more likely have diabetes (OR 2.41, CI: 1.63, 3.57) and less likely to engage in moderate (OR 0.63, CI: 0.44, 0.88) or vigorous (OR 0.49, CI: 0.34, 0.70) physical activity. There were no differences in health coverage or hypercholesterolemia among the three groups.
CONCLUSIONS: Our analysis provides interesting new information about health care access, risk factors and behaviors in IA and CA. However, this is a cross-sectional analysis; prospective studies that evaluate the relationships among these variables and their effect on cardiovascular disease incidence are needed. Finally, IA and CA-specific data should be planned for and the groups oversampled in ongoing national surveys for more reliable estimates and to better monitor their health.

DO MEDICAL INPATIENTS WHO REPORT POOR SERVICE QUALITY EXPERIENCE MORE ERRORS AND ADVERSE EVENTS?. B.B. Taylor[1]; E.R. Marcantonio[2]; R.S. Phillips[2]; R. Davis[1]; D.W. Bates[3]; S.N. Weingart[4]. [1]Beth Israel Deaconess Medical Center, Boston, MA; [2]Harvard University, Boston, MA; [3]Brigham and Women's Hospital, Boston, MA; [4]Dana-Farber Cancer Institute, Boston, MA. *(Tracking ID # 152992)*

BACKGROUND: Previous studies have shown that patients can reliably identify adverse events (an indicator of the 'technical quality' of their care) and 'service' quality problems such as poor communication or waits and delays. However, little is known about the relationship between adverse events and service quality. Are service quality events merely inconvenience, or do they also suggest systemic problems with the care environment?
METHODS: To understand whether patient-reported service quality events were associated with technical quality events during hospitalization, we conducted a prospective cohort study of 228 adult inpatients on a medicine unit of a Boston teaching hospital. Patients were interviewed daily and after discharge about problems, mistakes, and injuries that occurred during hospitalization. Investigators, blinded to patient reports, also reviewed patients' charts for adverse events and errors. All events elicited by either patient report or chart review were adjudicated by a panel of physicians and classified. Examples of service quality events were waits and delays, poor communication, and poor sanitary conditions. Technical quality events included: adverse events, defined as injuries because of medical care rather than the natural history of illness; close calls, defined as errors with potential for injury, and medical errors, defined as lapses in care with minimal risk of harm. We built a multivariable logistic regression model to examine the relationship between the presence of any technical quality event on chart review (dependant variable) and any patient-reported service quality event, adjusting for length of stay.
RESULTS: Eighty-eight (39%) patients reported 157 service quality incidents; problems with waits and delays, poor communication, and environmental amenities were cited most often. Investigators identified 32 adverse events, 11 close calls, and 7 harmless medical errors on chart review, yielding a total of 50 technical quality events. On univariate analysis, presence of a service quality event increased the odds that the patient had any technical quality event by 2.4 (95%CI 1.2–4.6). On multivariate analysis, this trend persisted (OR 2.1 95% CI 1.0 - 4.3, see Table).
CONCLUSIONS: In this prospective cohort of adult inpatients, patient-reported service quality incidents were associated with the presence of technical quality events. Understanding service quality may provide insight into attributes of the care environment that jeopardize patient safety.

Table. Univariate and multivariate analysis of factors associated with at least one technical quality event.

Factors	N, Mean	Unadjusted OR (95% CI)	Adjusted OR (95% CI)
Service quality incident	**N=157**	**2.4 (1.2 - 4.6)**	**2.1 (1.0 – 4.3)**
Length of stay	Mean 4.4	1.2 (1.1 - 1.3)	1.2 (1.1 – 1.3)
Age	Mean 63	1.0 (.98 - 1.0)	
Male gender	N=85	1.5 (.77 – 2.8)	
Comorbid illnesses	Mean 2.4	1.1 (.93 – 1.3)	
Non-English speaking	N=11	.38 (.05 – 3.0)	
Number of medications	Mean 7.1	1.0 (.95 – 1.1)	
Number of drug allergies	Mean 1.2	1.1 (.92 – 1.3)	

DO PATIENT REQUESTS FOR MEDICATION ENHANCE OR HINDER PHYSICIANS' EVALUATION OF DEPRESSION: A RANDOMIZED CONTROLLED TRIAL. M.D. Feldman[1]; P. Franks[2]; R. Epstein[3]; C. Franz[4]; R.L. Kravitz[5]. [1]University of California, San Francisco, San Francisco, CA; [2]University of California, Davis, Davis, CA; [3]University of Rochester, Rochester, NY; [4]University of California, San Diego, San Diego, CA; [5]University of California, Davis, Sacramento, CA. *(Tracking ID # 151539)*

BACKGROUND: Patients request medication in about 15% of visits. The effect of these requests on the process and outcomes of care is uncertain. We

conducted a randomized trial examining actual clinical behavior of physicians in the context of patient requests for treatment. Our objective was to ascertain whether patients' requests for antidepressants affect a) history-taking by primary care physicians (PCPs) for patients with depressive symptoms, b) depression diagnosis, c) the provision of minimally acceptable initial care for depression, and d) visit duration.
METHODS: Standardized Patients (SPs) were trained to portray 6 roles, involving one of two clinical presentations (major depression with carpal tunnel syndrome or adjustment disorder with low back pain) with one of three antidepressant request types (brand-specific, general or none). 152 PCPs in California and Rochester, NY were randomly assigned to two visits involving one of each presentation, and two of the three request types. Visits were covertly audiotaped and immediately following the visit SPs listened to the audiorecording and completed an SP Reporting Form. Chart review of each encounter was also conducted.
RESULTS: Eighteen SPs made 298 visits to 152 PCPs in N. California (n=197) and Rochester, NY (n=101). Portrayal of major depression (as opposed to adjustment disorder) was significantly associated with higher rates of question asking for most of the depression history questions. Of note, inquiries about suicidality were at least 10% higher for both request conditions. After adjusting for covariates, PCPs asked more depression questions in visits where a general request was made, the SP portrayed major depression, visit duration was longer, and the treating physician was younger ($P<0.001$). A chart diagnosis of depression was more likely when more depression history taking occurred ($P=0.04$), when any kind of request was made ($P<0.001$), and if the SP presentation was depression (vs. adjustment disorder) ($P<0.001$). More extensive history taking for depression was not associated with reduced history taking for a co-morbid musculo-skeletal condition, or with longer medical visits. We found that the provision of minimally acceptable initial care (defined as any combination of an antidepressant prescription, mental health referral, or follow-up visit within two weeks of the initial visit) was more likely when more depression history questions were asked.
CONCLUSIONS: To our knowledge, this is the first study to examine how patients' medication requests influence physician's clinical assessments. We found that requests for antidepressant medication were associated with both increased depression history taking and the provision of minimally acceptable care for depression. Thus, we found no evidence that patients' requests for medication short-circuited history taking for depression, distracted the physician's attention away from coexisting musculoskeletal conditions, or generated longer visits. It appears that patients' requests for medication increase the thoroughness of depression history taking, including inquiries about suicidality. Our findings provide further evidence that patients should be encouraged to advocate for their own quality health care. Future research should address the question of what forms of patient education and activation are most likely to improve detection and treatment of depression in the primary care setting.

DO PATIENT SAFETY INDICATORS IDENTIFY HIGH QUALITY HOSPITALS?. T. Isaac[1]; A. Jha[2]. [1]MAVERIC, VA Boston Healthcare System, Boston, MA; [2]MAVERIC, VA Boston Healthcare System; Harvard School of Public Health, Boston, MA. *(Tracking ID # 152956)*

BACKGROUND: Patient Safety Indicators (PSIs) were designed by the Agency for Healthcare Research and Quality to improve hospital safety by identifying and tracking trends of hospital complications. However, PSIs are increasingly used to grade and potentially pay hospitals based on their performance. Whether PSIs are related to other, better validated markers of hospital quality is not known.
METHODS: We used the complete 2003 Medicare Part A discharge dataset to calculate six PSIs among all enrollees between the ages of 65 and 90 who were admitted to 3,281 hospitals. The six PSIs were chosen because they either represent medical (as opposed to surgical) complications or are being used by Medicare as part of a pay for performance program. We initially calculated Spearman correlation coefficients and Cronbach's alpha among the six PSIs. We subsequently used Spearman correlations to compare the rates of these six complications to hospital performance on standard quality measures for acute myocardial infarction (AMI), congestive heart failure (CHF), and pneumonia from the Hospital Quality Alliance. We used multivariable linear regression to determine if high performance on PSIs was associated with better hospital quality independent of other hospital characteristics.
RESULTS: We found minimal correlation among the six PSIs (range of coefficients from -0.03 to 0.19; Cronbach's alpha was 0.16). We also found poor correlation between each of the six PSIs and performance on the summary scores for AMI, CHF, and pneumonia (range of coefficients from–0.21 to 0.16). Only 3 of 18 correlations demonstrated a statistically significant ($p<0.05$), positive relationship between a PSI and quality score. In multivariable regression models that adjusted for hospital characteristics, we found only one statistically significant relationship: hospitals with the lowest rates of decubitus ulcer rates scored 2.7% higher on compliance with pneumonia indicators than hospitals with the highest rates of decubitus ulcers ($p<0.01$).
CONCLUSIONS: Patient safety indicators seem to have little relationship with better established indicators of hospital quality. This may be either because hospitals that have focused on patient safety are different from the hospitals that have focused on quality of care, or because PSIs are inadequate in indentifying safer hospitals. Whether PSIs help identify better hospitals using other metrics of quality and safety needs investigation before they are widely used to grade hospitals.

DO PHYSICIANS TAILOR COLORECTAL CANCER SCREENING DISCUSSIONS TO INDIVIDUAL PATIENTS?. J.M. Walsh[1]; L. Karliner[1]; N.J. Burke[1]; R. Pasick[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 152227)*

BACKGROUND: Little is known about strategies that physicians use in encouraging patients to undergo colorectal cancer (CRC) screening, and whether or not they report tailoring these strategies based on gender, socioeconomic status, language or ethnicity.
METHODS: As part of a larger study of physician-patient communication and CRC screening, we conducted physician focus groups and individual physician interviews. The interviews focused on discussion of video-taped direct observations of CRC recommendations. Physicians viewed the video and were asked to stop the tape at any point they wished to discuss. In addition, interviewers stopped the tapes periodically and after any discussion about CRC if the physician had not already done so. Audio-tapes from focus groups and individual interviews were transcribed, and all qualitative data were coded and reconciled for trustworthiness.
RESULTS: 30 physicians participated in focus groups and/or interviews; 27 participated in 4 focus groups and 9 were interviewed after encounters with 24 patients. The majority of physicians were Asian (n=13) or Caucasian (n=12); 3 were African American and 2 were Latino. The majority (n=24) practiced in an HMO setting. Physicians reported having standard approaches to CRC screening discussions which they used with most patients. These approaches included three broad categories of strategies: 1) Why CRC screening is important (examples include using the "authority" of expert recommendations, and using statistics to tell patients why screening is important 2) Providing test information (examples include feeling the need to discuss all available tests, being honest about the discomfort, telling the patient the tube is smaller than it used to be) and 3) Convincing the patient (examples included using repetition at future visits, sharing the physician's personal experience, making the patient feel "guilty" or using any gastrointestinal symptom as a trigger to recommend screening). Physicians did report tailoring their approach when both time and opportunity allowed. Some of this tailoring was based on the physicians' relationships with individual patients. However, physicians also reported some tailoring based on gender (e.g. comparing it to Pap smears and mammograms for women), to socioeconomic status (needing to spend more time discussing the pros and cons of various tests with more educated individuals and not using sophisticated medical terms with those less educated) and to language (telling patients that someone who speaks their language could do the test). Some physicians did report various perceptions of patients based on ethnicity, however despite probing by facilitators and interviewers, tailoring based on culture was not a prominent theme in either the focus groups or the interviews.
CONCLUSIONS: Most physicians report a standard approach to CRC screening, although they do report some tailoring based on gender, SES and language. The potential for more tailored approaches to improve rates of screening should be investigated in future studies.

DO WOMEN'S HEALTH RESIDENCY TRACKS MAKE A DIFFERENCE?. A.L. Spencer[1]; J.E. Bost[2]; M.A. McNeil[2]. [1]University of Pittsburgh, VA Pittsburgh Healthcare System, Pittsburgh, PA; [2]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 153819)*

BACKGROUND: Studies suggest that many internal medicine residents lack the knowledge and skills to adequately provide gender-specific care to women. In response to this, several women's health residency tracks (WHT) have been developed. The effectiveness of women's health tracks in adequately training residents in both gender-specific & gender-neutral medicine is unknown. Our objectives in this study were to determine whether: 1) residents in a WHT are more knowledgeable and comfortable than categorical residents in providing care to women; and 2) training in a women's health track compromises knowledge and comfort in gender-neutral topics important to internal medicine training.
METHODS: Using current ABIM guidelines for internal medicine training, we designed a 65-item survey to measure knowledge, comfort levels, and referral patterns in four areas of general medicine including two areas specific to women's health: menopause, polycystic ovarian syndrome (PCOS), thyroid disease, and diabetes. The first section asked residents to indicate on a Likert Scale their comfort diagnosing or treating each medical issue. The second section asked residents to indicate at what point they would refer the patient, and the third section assessed knowledge in the four content areas. We pilot-tested the survey on 5 faculty members and 4 general medicine fellows. We administered the survey to PGY2 and PGY3 internal medicine residents at a large academic medical center in Fall, 2005. We used Chi-square and t-tests to compare WHT vs non-WHT responses.
RESULTS: Forty-three (72%) of 60 PGY2/PGY3 internal medicine residents responded to the survey. Fifty percent were female, 62% PGY3, 67% plan to subspecialize, and 37% were WHT. Overall, residents achieved mean correct knowledge scores of 78% for diabetes questions, 49% for PCOS, 63% for thyroid, and 64% for menopause. WHT residents performed better than non-WHT on questions pertaining to PCOS (63% vs. 42%, $p<.01$) and menopause (73% vs. 60%, $p<.01$). These differences were driven by WHT residents' higher mean scores on questions about the diagnostic work-up of PCOS, peri-menopausal contraception, and post-menopausal osteoporosis ($p<.01$). WHT residents were more likely than non-WHT residents to report feeling very comfortable with PCOS and menopause issues (43% vs. 15%, $P<.01$). More WHT residents were very comfortable with the diagnosis of PCOS (20% vs. 0%, $p<.02$), the interpretation of a DEXA scan (73% vs. 38%, $p<.03$), and the management of vaginal atrophy (47% vs. 7%, $p<.01$) and hot flashes (47% vs. 11%, $P<.001$). Also, non-WHT residents were more likely to refer patients with suspected PCOS after their first visit (17.4% vs. 0%, $p<.03$). There were no differences between WHT and

non-WHT residents in knowledge, comfort, or referral patterns on questions related to diabetes or thyroid disease.
CONCLUSIONS: Internal medicine residents in a women's health track are more comfortable and knowledgeable than non-women's health track residents about the diagnosis, treatment, and management of ambulatory topics specific to women. WHT residents scored equally as well on knowledge and comfort as non-WHT residents on questions about thyroid disease and diabetes. The results suggest that focused didactic and clinical experiences on gender-specific topics, as utilized in our women's health track, can serve as a model for improving women's health competencies in internal medicine training without compromising knowledge or comfort on two core topics in general internal medicine.

DOES A COMPLEMENTARY AND ALTERNATIVE MEDICINE WORKSHOP USING STANDARDIZED PATIENTS INCREASE KNOWLEDGE AND IMPROVE SKILLS?. A.R. Hoellein[1]; J.F. Wilson[1]; M. Lineberry[1]; S.A. Haist[1]. [1]University of Kentucky, Lexington, KY. *(Tracking ID # 154583)*

BACKGROUND: As the use of Complementary and Alternative Medicine (CAM) has increased in the general population, medical students and medical educators have responded with proliferating CAM interest groups and novel or expanded CAM curriculum. However, formal CAM instruction is quite heterogenous and especially less structured in the southeastern US. The purpose of this study is to determine the impact of a CAM workshop (WS) using standardized patients (SP) on knowledge and clinical skills of third-year medical students.
METHODS: A four-hour CAM WS was developed as part of a new curriculum for a required third-year four-week primary care internal medicine clerkship. The CAM WS and three other novel WS were randomized for delivery to one-half of the rotational groups. The CAM WS incorporates four SP cases representing different clinical challenges (chiropractic, acupuncture, herbal/dietary supplement counseling). A faculty preceptor facilitates group discussion of sensitive approaches to the problems. Participating students are provided a 44-page CAM reference and all students are assigned CAM readings. At the end of the four weeks, all students take a 100-item written exam (seven CAM questions, e.g., " a contraindication to the use of Echinacea is:") and nine-station SP exam (one CAM station, 47 year-old woman complaining of fatigue and forgetfulness interested in ginseng and ginkgo) including a post-SP encounter open-ended written exercise (matching CAM modalities with specific diseases). Scores on the written exam CAM items, CAM SP checklist, and CAM open-ended written exercise of workshop participants and non-participants were analyzed with simple means, standard deviations, and multiple regression approaches controlling for USMLE Step 1 scores and Preventative Medicine SP station checklist scores.
RESULTS: The CAM WS was delivered to six of the twelve rotational groups during the 2004–2005 academic year. Forty-eight students participated in the workshop and 49 did not. Workshop participants performed significantly better than non-participants on the seven CAM written exam items ($5.8 \pm .7$ vs. 5.2 ± 1.2, $F=7.7$, $p=.007$) and the post-SP encounter written exercise ($92.4 \pm 7.4\%$ vs. $88.3 \pm 8.5\%$, $F=6.3$, $p=.014$). When controlled for the Preventative Medicine SP station, scores on the 27 CAM-specific SP checklist items between participants and nonparticipants approached significance (14.5 ± 5.2 vs. 12.1 ± 6.0, $F=3.8$, $p=.054$).
CONCLUSIONS: Students participating in a four-hour SP workshop exhibit superior CAM knowledge as assessed by open-ended and multiple choice exercises. However, it appears that CAM attitudinal and deferential counseling skills are already integrated into basic interviewing at our institution, or, perhaps, reflective of personal experience with CAM. Nevertheless, direct practice with SPs does seem to be an ideal medium to assist in acqusition and application of CAM knowledge. This finding may be related to enhanced student motivation to research CAM literature as a result of a simulated experience emphasizing patient interest or ignorance of CAM modalities.

DOES A GERIATRIC MEDICINE WORKSHOP USING STANDARDIZED PATIENTS INCREASE KNOWLEDGE AND IMPROVE SKILLS?. D.W. Rudy[1]; A.R. Hoellein[1]; M. Lineberry[1]; J.F. Wilson[1]; S.A. Haist[1]. [1]University of Kentucky, Lexington, KY. *(Tracking ID # 154601)*

BACKGROUND: Since 1950, Americans over age 65 have grown in number double that of the overall population. Currently, geriatric patients account for about 40% of internists' office visits and there is an expected 115% increase for geriatric services by 2030. The care of older patients is different in that they tend to have multiple conditions, polypharmacy, altered physiology, and slower rate of recovery after illness. Therefore, Geriatric Medicine (GM) should be emphasized in medical student curriculum. The purpose of this study is to determine the impact of a GM workshop (WS) using standardized patients (SP) on knowledge and clinical skills of third-year medical students.
METHODS: A four-hour GM WS was developed as part of a new curriculum for a required third-year four-week primary care internal medicine clerkship. The GM WS and three other novel WS were randomized for delivery to one-half of the rotational groups. The GM WS incorporates four SP cases representing different clinical challenges (dementia, depression, incontinence, and syncope). A faculty preceptor facilitates group discussion of sensitive approaches to the problems. Participating students are also provided a 11-page GM reference. All students in every rotational group are assigned GM readings. At the end of the four weeks, all students take a 100-item written exam (seven GM questions, e.g., "pharmacokinetic changes associated with aging include:") and nine-station SP exam (one GM station, 70 year-old forgetful woman presenting for check-up on diabetes) including a post-SP encounter open-ended written exercise ("Please write an assessment and plan for this patient."). Scores on the written exam GM items, GM-specific SP checklist items, and GM open-ended written exercise of WS participants and non-participants were analyzed with simple means, standard deviations, and multiple regression approaches controlling for USMLE Step 1 scores and Preventive Medicine SP station checklist scores.
RESULTS: The GM WS was delivered to six of the twelve rotational groups during the 2004–2005 academic year. Forty-eight students participated in the WS and 49 did not. WS participants performed significantly better than non-participants on the GM-specific SP checklist items ($n=41$) (18.4 ± 12.8 vs. 12.2 ± 10.7, $F=7.67$, $p=.007$). There were no significant differences in the performance of WS participants and non-particpants on the 26 checklist items non-specific to GM ($p=.45$). There were also no statistically significant differences between WS participants and non-participants in either the post-encounter written exercise or the seven written exam GM items, although WS participants showed positive trends ($78.9 \pm 6.9\%$ vs. $75.5 \pm 12.9\%$, $F=2.6$, $p=.11$; $5.31 \pm .74$ vs. $4.98 \pm .98$, $F=3.54$, $p=.06$, respectively).
CONCLUSIONS: Students participating in a four-hour SP WS display superior GM clinical skills as assessed by a SP clinical exam and there is a trend toward knowledge gain on written evaluations. These findings lend additional support to the theory that the unique aspects to caring for older patients might be better taught using an interactive pedagogy. Practice with SPs seems to be an ideal medium for teaching the clinical skills necessary for identification of atypical disease presentations, geriatric syndromes, and "hidden illnesses" critical to the care of older adults.

DOES A NUTRITION AND PHYSICAL WELL-BEING WORKSHOP USING STANDARDIZED PATIENTS INCREASE KNOWLEDGE AND IMPROVE SKILLS?. T.S. Caudill[1]; A.R. Hoellein[1]; M. Lineberry[1]; J.F. Wilson[1]; S.A. Haist[1]. [1]University of Kentucky, Lexington, KY. *(Tracking ID # 154639)*

BACKGROUND: Despite the well-recognized health effects of proper diet and exercise, only about 20% of Americans consume the recommended proportions of fruits and vegetables and achieve the recommended level of physical activity. Perhaps these practices have contributed to over 60 million obese adults in America. Nevertheless, only about 40% of patients report receiving dietary or exercise advice from their doctor. Therefore, Nutrition and Physical Well-Being (NPWB) knowledge and counseling skills should be part of medical student curriculum. The purpose of this study is to determine the impact of a NPWB workshop (WS) using standardized patients (SP) on knowledge and clinical skills of third-year medical students.
METHODS: A four-hour NPWB WS was developed as part of a new curriculum for a required third-year four-week primary care internal medicine clerkship. The NPWB WS and three other novel WS were randomized for delivery to one-half of the rotational groups. The NPWB WS incorporates four SP cases representing different clinical challenges (exercise prescription, diabetic dietary counseling, stress reduction strategies, and low-carbohydrate diet counseling). A faculty preceptor facilitates group discussion of sensitive approaches to the problems. Participating students are also provided a 17-page NPWB reference and complete an evaluation of the WS. All students in every rotational group are assigned NPWB readings. At the end of the four weeks, all students take a 100-item written exam (seven NPWB questions, e.g. preparticipation evaluations) and nine-station SP exam (one NPWB station, 46 year-old man presenting to follow-up on results of blood sugar test) including a post-SP encounter open-ended written exercise (e.g. List 4 interventions recommended for the treatment of obesity and the potential side effects of each). Scores on the written exam NPWB items, NPWB-specific SP checklist items, and NPWB open-ended written exercise of WS participants and non-participants were analyzed with simple means, standard deviations, and multiple regression approaches controlling for USMLE Step 1 scores and Preventive Medicine SP station checklist scores.
RESULTS: Forty-nine students participated in the WS and 48 did not during the 2004–2005 academic year. WS participants performed significantly better than non-participants on the NPWB written exam items (5.7 ± 1.0 vs. 4.9 ± 1.2, $F=13.9$, $p<.001$) and the post-SP encounter written exercise ($86.9 \pm 6.7\%$ vs. $78.9 \pm 5.8\%$, $F=36$, $p<.001$). There was no significant difference ($p=.50$) between the groups on the NPWB-specific SP checklist items.
CONCLUSIONS: Students participating in a 4-hour SP WS exhibit superior NPWB knowledge as assessed by open-ended and multiple choice questions. Since no differences between WS participants and non-participants were observed in NPWB-specific checklist item scores, it appears that NPWB attitudinal and supportive counseling skills may already be incorporated into basic interviewing - at least with non-obese patients presenting with concerns related to diet (e.g. diabetes). This may even reflect the larger social conscience about persons with overweight or obesity. However, we believe that initiating discussions of nutrition and exercise with obese patients is accompanied by a degree of discomfort that would be reduced by practicing with SPs. Therefore, future studies will evaluate the effect of the WS in treating obese patients presenting to the clinic with issues not related to obesity.

DOES ADDITION OF A CARDIOLOGIST IMPACT INTENSIFICATION OF ANTIHYPERTENSIVE MEDICATIONS BY PRIMARY CARE PROVIDERS?. S. Bolen[1]; A. Samuels[2]; J. Yeh[1]; S.S. Marinopoulos[3]; M.J. McGuire[1]; M. Abuid[4]; F.L. Brancati[1]. [1]Johns Hopkins University, Baltimore, MD; [2]xlhealth, Baltimore, MD; [3]Johns Hopkins University, Lutherville, MD; [4]Massachusetts General Hospital, Boston, MA. *(Tracking ID # 151896)*

BACKGROUND: Although tight blood pressure control is crucial to reduce vascular complications of diabetes, physicians often fail to intensify anti-hy-

pertensive treatment. Having a specialist involved in patient care may hinder intensification if each provider believes that the other provider is intensifying treatment.
METHODS: To identify barriers and promoters of intensification, we conducted a non-concurrent cohort study of 254 patients with type 2 diabetes and hypertension enrolled in an academically-affiliated managed care program. Between 1999–2001, 1,374 visits with sub-optimally controlled blood pressure (systolic BP> =140 mmHg or diastolic BP> =90 mmHg) were identified through medical record review. We specifically evaluated information on referrals given at the visit, whether a cardiologist is involved in care, and whether patients were matched with their regular primary care provider at the visit. In the longitudinal analysis of predictors of intensification, we constructed visit-based multivariable logistic regression models using generalized estimating equations to account for clustering by patients.
RESULTS: Primary care physicians intensified antihypertensive treatment in only 176 (12%) of 1374 visits where BP was sub-optimally controlled. The patients had a mean age of 65, were 59% male, 55% Caucasian, 35% African American, and 10% Asian or Other. 89% were on< =3 blood pressure medications indicating room for intensification, 26% had a cardiologist involved in their care, and 77% of their appointments were with their regular physician. As expected, higher mean systolic and mean diastolic blood pressures (BP) were strong predictors of intensification. Treatment was also more likely to be intensified at visits that matched patients with their usual primary care provider with odds ratio and 95% confidence interval [OR, 95% CI] of [1.76, 1.06–2.95], at routine visits [2.08, 1.35–3.20], and at visits where the provider gave diabetes-related referrals [1.70, 1.09–2.65]. In contrast, fingerstick glucose >150 mg/dL [0.53, 0.30–0.93], and a history of coronary heart disease (CHD) [0.58, 0.37–0.92] were associated with a lower likelihood of intensification. 46% of those patients with CHD were also seeing a cardiologist. The cardiologist intensified antihypertensive treatment at 24% of their visits with these same patients. Specifically, having a cardiologist who did not intensify antihypertensive medications was associated with a lower likelihood of intensification by the primary physician [0.5; 0.3–0.9].
CONCLUSIONS: Failure to appropriately intensify antihypertensive treatment is a common problem in diabetes care. Improving care coordination between specialists and primary care providers as well as improving continuity of care may be important targets for interventions.

DOES ALCOHOL DEPENDENCY LEAD TO AN INCREASE IN DEPRESSIVE SYMPTOMS IN ABUSED, INNER-CITY AFRICAN AMERICAN WOMEN?. A. Paranjape[1]; S.L. Heron[1]; M. Thompson[2]; K. Bethea[1]; T. Wallace[1]; N.J. Kaslow[1]. [1]Emory University, Atlanta, GA; [2]Clemson University, Clemson, SC. *(Tracking ID # 153028)*

BACKGROUND: Intimate partner violence (IPV), a common problem in women seeking medical care is associated with poorer mental health outcomes, notably, an increase in depression and post-traumatic stress disorder (PTSD). Alcohol dependency, a common correlate of IPV, is also associated with increased rates of depression and PTSD. Little is known about the role of alcohol in a survivor's experiences of IPV, and the impact, if any, of alcohol use in mental health outcomes of abused women. Few if any studies have examined the association between IPV, alcohol use, and mental health in inner-city African American women. The objective of this investigation is to evaluate whether abused, inner-city African American women, who are alcohol dependent, are more likely to report symptoms of depression and PTSD compared to African American women who are abused but not alcohol dependent or those who are only alcohol dependent but not abused.
METHODS: Design: Case-control study. Participants: Three hundred and sixty one African American women, ages 18–64, seeking medical care at a large public hospital. Measures: Demographic variables included age, educational attainment, current relationship status, and employment status. Predictor variables measured: (i) Intimate partner violence (IPV), assessed by the Index of Spouse Abuse, and (ii) Alcohol dependency (AD) measured by the Michigan Alcoholism Screening Test (MAST). We created an ordinal predictor variable with the reference group 0 comprised of participants reporting no IPV and no AD. Those with IPV alone, AD alone and both IPV and AD were assigned to groups 1, 2 and 3 respectively. Outcome variables measured: (i) Depressive symptoms, assessed by the Brief Symptom Index–Depression Subscale (ii) Post Traumatic Stress Disorder (PTSD), assessed by the National Women's Study PTSD module). Individual logistic regression models constructed to estimate the cumulative effect of IPV and AD on each outcome.
RESULTS: Participants had a mean age of 32 years; 40% were employed, and 18% were married. Of the 361 participants, 30% reported IPV, two-fifths reported depressive symptoms and 31% met PTSD criteria. Participants reporting either IPV alone or AD alone were 4 times more likely to report depressive symptoms than those reporting neither. (Adjusted odds ratio (AOR) 4.33 and 4.3 respectively; p value <0.0001) Participants reporting both IPV and AD were 8 times more likely to report depressive symptoms than those reporting neither (AOR 8.5; p<0.0001). IPV and AD were each associated with PTSD, however, those reporting both IPV and AD were no more likely to have PTSD than those reporting either alone
CONCLUSIONS: In inner-city African American women, the likelihood of reporting depressive symptoms is highest among those who have a history of IPV and report alcohol dependency. Primary care physicians practicing in urban areas should consider targeting screening for IPV and AD in patients reporting symptoms of depression.

DOES AN ADOLESCENT MEDICINE WORKSHOP USING STANDARDIZED PATIENTS INCREASE KNOWLEDGE AND IMPROVE SKILLS?. C.A. Feddock[1]; A.R. Hoellein[1]; J.F. Wilson[1]; M. Lineberry[1]; S.A. Haist[1]. [1]University of Kentucky, Lexington, KY. *(Tracking ID # 154568)*

BACKGROUND: Adolescent patients are a unique population that has special medical needs and medical problems distinct from adults. Unfortunately, only a minority of physicians routinely broach the education and counseling fundamental to and desired by their adolescent patients. Further, medical students rarely have the opportunity to learn and practice such tactful history-taking and delicate counseling skills. The purpose of this study is to determine the impact of an adolescent medicine (AM) workshop (WS) using standardized patients (SP) on knowledge and skills of third-year medical students.
METHODS: A four-hour AM WS was developed as part of a new curriculum for a required third-year medical school four-week primary care internal medicine clerkship and randomized for delivery to one-half of the rotational groups. The WS incorporates four SP cases representing different clinical challenges (sexual history, depression/suicide, risky behavior, and smoking cessation). A faculty preceptor facilitates group discussion of sensitive approaches to the problems. Participating students are provided a 26-page AM reference and asked to evaluate the WS. All students in every rotational group are assigned AM readings. At the end of the four weeks, all students take a 100-item written exam (six AM questions, e.g., "What is the leading cause of death in the adolescent age group?") and nine-station SP exam (one AM station, 16 year-old girl in need of a sports physical) including a post-SP encounter open-ended written exercise ("List at least 8 counseling points or screening issues which should be discussed with every adolescent during a routine heath evaluation."). Scores on the written exam AM questions, AM SP checklist items, and AM open-ended written exercise of workshop participants and non-participants were analyzed with simple means, standard deviations, and multiple regression approaches controlling for a Preventative Medicine SP station and USMLE Step 1.
RESULTS: Forty-nine students participated in the AM WS and 48 did not during the 2004–2005 academic year. Adjusted for the Preventative Medicine station, workshop participants performed significantly better than non-participants on the AM-specific checklist items (n=56) (37.7 ± 6.0 vs. 29.3 ± 6.6, F=43.6, p<.001). There were no significant differences on the 16 AM-nonspecific checklist items (p=.66). Participants also perfomed significantly better on post-encounter written exercise (86.2% ± 4.1 vs. 83.9% ± 4.1, F=6.6, p=.011). Unadjusted for USMLE, participants performed significantly better on the six written exam AM items (4.8 ± .9 vs. 4.3 ± 1.2, F=5.1, p=.027) and displayed a trend after adjustment (4.7 ± .9 vs. 4.3 ± 1.2, F=3.6, p=.06). Student evaluation was very favorable with an overall rating of 8.9/10.
CONCLUSIONS: Students participating in a four-hour SP workshop display superior AM clinical skills as assessed by a SP clinical exam, open-ended written exercise, and AM-specific items on a written examination. Simulation with SPs appears to be an ideal medium for teaching the special clinical skills so important but rarely afforded for the care of adolescent patients. Further, the learners expressed appreciation for this format. These findings support the theory that the unique aspects of adolescent patient care would be better taught using an interactive pedagogy.

DOES AWARENESS OF HPV STATUS IMPROVE WILLINGNESS TO HAVE PAP SMEARS AMONG LATINAS?. I. De Alba[1]; F.A. Hubbell[1]; A. Manetta[2]. [1]University of California, Irvine, Irvine, CA; [2]University of California, Irvine, Orange, CA. *(Tracking ID # 154748)*

BACKGROUND: Latinas continue to have the highest age-adjusted incidence rate of cervical cancer. Multiple barriers to cervical cancer screening persist in this minority population. Although the human papilloma virus (HPV) has been etiologically linked to cervical cancer, few Latinas are aware of this connection. Learning about the personal HPV status may help overcome common cultural barriers to Pap smear use and provide further motivation for screening. However, this important question has not been previously addressed. The aim of the study is to assess the impact of HPV positive status on willingness to undergo screening and on receipt of Pap smears among Latinas.
METHODS: Health promoters provided a brief description of HPV and its link to cervical cancer and provided kits for self-collection of vaginal samples among Latinas in an Orange County, CA community. Latina women age ¡Ý18 years, with no Pap smear in the past year and no history of hysterectomy or cervical cancer were eligible for inclusion. Main sites of recruitment included community centers, schools, health fairs and door to door. Participants collected the vaginal sample in the place and time of their preference and returned the kits to the health promoters for processing. Samples were tested for high-risk HPV types with hybrid capture II assay. Women testing positive and two age-matched HPV negative controls per case were invited for a Pap smear. We used chi square to test for statistically significant differences in Pap smear refusal rate and Pap smear completion rate by HPV status.
RESULTS: The study included 815 Latinas. Most women were 30–44 years old (51%). Mexicans constituted the largest group (88.7%), followed by Central Americans (6.8%) and South Americans (3.8%). The HPV positive rate in our population was 13.3%. As expected, 14% of HPV positive women had an abnormal Pap smear as compared to only 3% of the HPV negative. The Pap smear refusal rate was only 12.6% among the HPV positive women as compared to 43.7% of the HPV negative (p>0.001). Most HPV positive women that accepted the invitation for screening actually received a Pap smear (83%) as compared to only 50% of the HPV negative (p>0.001).
CONCLUSIONS: Awareness of positive HPV status favorably impacts willingness to undergo screening and receipt of Pap smears among Latinas. HPV

testing may be important tool to improve screening among women with persistent barriers to Pap smears use. Further study is underway to assess sociodemographic and cultural covariates that may have an additional impact on willingness to have a Pap smear.

DOES CURRENT DRUG DEVELOPMENT SERVE SOCIETY'S HEALTH NEEDS?. S. Keyhani[1]; S. Wang[1]; F. Safavi[2]; P. Arno[3]. [1]Mount Sinai School of Medicine, New York, NY; [2]Saint Joseph's College of Maine, Standish, ME; [3]Albert Einstein College of Medicine, New York, NY. *(Tracking ID # 153710)*

BACKGROUND: Most drug development is undertaken by the pharmaceutical industry. The objective of this study was to examine where the focus of current drug development resides and to determine if it was tied to any measure of population health after accounting for NIH funding. Previous research has shown that NIH funding is related to the burden of disease.
METHODS: We conducted a retrospective study of all new molecular entities (NMEs) developed between 1992 and 2004. We collected different measures of disease burden including incidence, prevalence, mortality, years of life lost and disability adjusted life years (DALYs) from the CDC and World Health Organization publications in 1990 and 1996. We collected data on NIH funding per disease category from the NIH (1992, 1994, 1996). First, we characterized drugs based on disease indication and innovation (first-in-class for a given indication). Second, we examined the relationship between the number of drugs developed and disease burden for 27 health conditions for which population data were available using negative binomial regression. Third, we examined the relationship between the number of drugs developed for a specific condition and disease burden after accounting for NIH funding.
RESULTS: Between 1992 and 2004, 339 therapeutic New Molecular Entities were developed for 117 different indications. Twenty (17%) of these indications accounted for half (50%) of all therapeutic NMEs developed in this time period. A quarter of all therapeutic NMEs developed were used to treat five indications (hypertension, bacterial infection, diabetes, allergies and HIV). Thirteen percent of anti-bacterial drugs and none of the anti-hypertensive drugs in the preceding category represented a significant therapeutic advance over existing drugs. A third of drugs were first-in-class for a given indication and 11% of drugs had a novel mechanism of action. Twenty-three percent of new drugs were developed for conditions that exacted a large health burden in terms of DALYs. Using data on 27 conditions and 122 drugs developed for those conditions, we found that neither mortality ($P=0.43$), DALYs ($P=0.76$), years of life lost ($P=0.13$), incidence (0.7) nor prevalence (0.38) predicted the number of drugs developed. Adjusting for NIH funding did not change these findings. However, NIH funding had a positive and significant association with drug development for a given disease ($P<0.05$).
CONCLUSIONS: Drug development encompasses a wide variety of indications; however the bulk of drug development is focused on fewer indications. Only 23% percent of drugs developed in the past 13 years were focused in areas of high disease burden in terms of DALYs. Even though public funding through the NIH is related to disease burden, private sector drug development is not related to any measure of population health.

DOES INSURANCE STATUS OR CHRONICITY OF ILLNESS INFLUENCE SAMPLE USE AMONG PRIVATE PHYSICIANS?. M.S. Monaghan[1]; E.C. Rich[1]; R. Warrier[1]; L. Morrow[1]; H. Mary[1]. [1]Creighton University, Omaha, NE. *(Tracking ID # 156092)*

BACKGROUND: Published reports suggest that availability of drug samples led academic physicians to dispense and prescribe drugs that differ from their preferred choice based on perceived benefits to patients. Several questions remain: Is this true for private physicians? Does insurance status or chronicity of illness influence sample use? Our primary purpose was to assess the effect of insurance status and disease chronicity on private physician use of samples. A secondary purpose was to examine sample use among private primary care physicians (PCPs) and specialists.
METHODS: A cross-sectional survey design used to assess four groups of private physicians regarding their use of samples in self-reported prescribing for clinical scenarios. Physicians were general internists, family practitioners, cardiologists, and orthopedists. The survey used scenarios (UTI, HTN, tendonitis, diabetes) that differed in acuity/chronicity of illness. Each was divided into two parts in which the patient either had insurance and then did not or vice versa. Physicians were asked to choose an initial drug or dispense a sample; if they dispensed a sample, they were asked the factors that influenced sample use and to rate their importance in deciding to use a sample. Multivariate model analyses using Wilcoxon Signed Rank Test for related samples assessed the use of drug samples.
RESULTS: Three hundred seven participants were identified. One hundred fifty-six of the 307 surveys were returned (50.6%). Factors leading to the use of samples included no insurance ($p<0.001$), MD specialty ($p<0.001$), and practice type ($p=0.007$). Factors leading to a change in therapy when using samples included no insurance ($p<0.001$), MD specialty ($p<0.001$), MD age ($p=0.03$), and acute medical illness ($p<0.001$). The main reason for sample use among PCPs was to avoid cost.
CONCLUSIONS: Samples influence self-reported private physician behavior based on cost avoidance. Insurance and disease acuity are important factors. Tables 1 and 2

Table 1. Factors leading to use of samples

Parameter	p-Value	Odds Ratio	95% CI
No Insurance	<0.001	1.25	1.17–1.32
MD Specialty	<0.001		
Family Medicine		1.00	
Internal Medicine		0.85	0.80–0.91
Cardiology		0.76	0.68–0.85
Orthopedics		0.88	0.46–0.99
Practice Type	0.007		
Solo		1.00	
Academic Group Practice		0.90	0.81–1.00
Large Multi-Specialty Group		1.09	0.95–1.26
Small Multi-Specialty Group		1.00	0.89–1.13
Large Single-Specialty Group		0.87	0.78–0.98
Small Single-Specialty Group		0.92	0.84–1.00

Table 2. Factors leading to a change in therapy when using samples

Parameter	p-Value	Odds Ratio	9% CI
No Insurance	<0.001	1.36	1.30–1.43
MD Specialty	<0.001		
Family Medicine		1.00	
Internal Medicine		0.95	0.90–1.02
Cardiology		0.80	0.73–0.88
Orthopedics		0.93	0.83–1.05
MD Age (in years)	0.03		
61 or more		1.00	
51–60		0.98	0.89–1.08
41–50		0.99	0.91–1.08
40 or less		0.92	0.84–0.99
Acute Medical Illness	<0.001	1.21	1.15–1.26

DOES INTERNAL MEDICINE RESIDENT BURNOUT IMPROVE WITH SENIORITY?: A PROSPECTIVE COHORT STUDY. R.K. Gopal[1]; J.J. Glasheen[2]; T.J. Miyoshi[3]; G.E. Fryer[3]; A.V. Prochazka[1]. [1]University of Colorado Health Sciences Center, Denver, CO; [2]University of Colorado at Denver, denver, CO; [3]University of Rochester, Rochester, NY. *(Tracking ID # 155399)*

BACKGROUND: Medicine resident burnout continues to be a major problem even with restriction of work hours. Resident burnout is linked to self-reported suboptimal patient care and deferred clinical decision making. It is unclear if resident burnout continues as the resident gains seniority.
METHODS: We administered a postal survey of internal medicine residents at the University of Colorado Health Science Center, in May 2003, 2004, and 2005. The survey contained the Maslach Burnout Inventory, a 22-item questionnaire organized into three subscales: emotional exhaustion (EE), depersonalization (DP), and personal accomplishment (PA). We defined burnout as high EE or DP since PA tends to be high in physicians.
RESULTS: Twenty-two residents responded to each year's survey which represents 50% of the 2005 graduating class. Just over half (12/22) of the residents were female and one-third (7/22) were in the primary care track. As the residents gained seniority they worked fewer hours per week (82 vs. 63 vs. 59, $p<0.001$). Sixteen (73%) residents were burned out at least once during their residency. Fifteen residents (68%) were burned out during their internship, 11 (50%) during their second year, and 8 (36%) during their third year ($p=0.016$). Of the15 burned out interns, 7 (47%) continued to have burnout throughout their three years of training and in 8 (53%) the burnout resolved, 5 in the second year and 3 in the third year. One resident (5%) developed burnout during second year and was also burned out during the third year. Six residents (27%) never developed high EE or DP during their three years of training.
CONCLUSIONS: Internship appears to be a critical time for development of burnout with almost all burnout beginning during this work intense time. Once present, burnout tended to continue beyond internship but rarely developed after internship. A significant number of the residents continued to be burned out during their entire residency career. Interventions to prevent burnout during internship may significantly decrease burnout throughout all of residency.

DOES MENOPAUSE MATTER? THE EFFECT OF MENOPAUSE ON HEALTH RELATED QUALITY OF LIFE. R. Hess[1]; J. Chang[1]; R.B. Ness[1]; R. Hays[2]; C.L. Bryce[1]; W.N. Kapoor[1]; K.A. Matthews[1]. [1]University of Pittsburgh, Pittsburgh, PA; [2]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 153863)*

BACKGROUND: The impact of menopause on HRQOL is not well defined. Most study populations consist of relatively healthy women with little variation in generic HRQOL or women seeking care in menopause specific settings. The purpose of Do Stage Transitions Result in Detectable Effects (STRIDE), a 5-year, longitudinal, primary care based study, is to elucidate the effect of menopausal transition on HRQOL. We report here on baseline data from this cohort.

METHODS: Women ages 40–65 years at varying menopausal stages from a single general internal medicine practice were invited between January and November 2005 to participate in a longitudinal study of menopause and HRQOL. Self-administered questionnaires included demographics (age, education, marital status, race, and ethnicity), menopausal status (based on standard bleeding pattern definitions), menopause specific symptoms (hot flashes and vaginal dryness), hormone therapy (HT) use, medical comorbidities, attitudes towards menopause and aging, social support, and HRQOL (RAND-36). Baseline characteristics are described using frequencies and measures of central tendency. Impact of menopausal status and symptoms on HRQOL are analyzed first in linear regression models adjusting for age and race and then in models fully adjusting for all measured baseline characteristics.
RESULTS: 725 women, mean age 51 (SD=6.4), completed baseline questions. Most (74%) were white, 53% were married or in a committed relationship, 35% held graduate degrees. Twenty percent were pre-, 22% early peri-, 7% late peri-, 15% early post-, 19% late post-menopausal, and 18% with a hysterectomy. Fifty-one percent reported menopausal symptoms and 13% reported using HT for symptoms. Means on all the RAND-36 scales mirror general population norms. After adjusting for age and race, menopausal status and symptoms were independently associated with lower scores on all of the RAND-36 scales ($p<.01$ for all comparisons). The table shows mean RAND-36 scale scores by menopause and symptoms status. Asterisks illustrate significance in a model combining menopausal status and symptoms, adjusted for age and race. With further adjustment for all baseline characteristics, we observed a u-shaped trend of menopausal status and HRQOL; HRQOL improved during later menopausal stages.
CONCLUSIONS: Menopausal status and symptoms both impact HRQOL. While symptoms are uniformly negative, menopausal status exhibits a curvilinear relationship, with HRQOL improving in late post-menopause, that needs further exploration. This study provides unique insight into HRQOL during the menopausal transition in women.

	Menopausal Status						Symptoms	
RAND-36 Scale	Pre- (ref)	Early Peri-	Late Peri-	Early Post-	Late Post-	Hyster-ectomy	No (ref)	Yes
Physical Health Composite	50.1	43.4*	43.8*	44.4*	43.4*	39.8*	43.8	37.5*
Physical Function	51.9	48.2	45.9*	46.0*	45.4*	42.8*	44.9	41.6
Role Limitations-Physical	50.7	46.0	45.5	46.4	46.0	42.0*	46.4	39.6*
Pain	49.0	43.1*	44.4	45.9*	42.8*	39.5*	42.9	37.5*
Global Health Perceptions	50.8	45.4*	45.3*	45.4*	45.4*	43.1*	46.4	41.3*
Mental Health Composite	49.0	43.0*	42.6*	44.8*	45.0*	40.3*	44.8	37.8*
Energy & Fatigue	49.2	43.9*	44.4*	46.0*	45.4*	42.3*	46.5	40.0*
Social Function	50.3	44.8	44.0*	46.4	46.5*	40.3*	45.5	37.4*
Role Limitations-Emotional	50.3	44.3	42.6*	44.8*	45.1*	40.9*	44.4	38.9*
Emotional Well Being	47.9	44.2	44.0	45.6	46.2	43.5*	45.9	42.2*
*: p≤.05								

DOES PERCEIVED DISTANCE AND DRIVING TIME TO A CLINIC EFFECT PATIENT LOYALTY TO THEIR RELOCATED PHYSICIAN?: A NATURAL EXPERIMENT. Gozu[1]; M.J. Nidiry[1]; S.M. Wright[1]. [1]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 151404)*

BACKGROUND: Primary care practices usually serve the surrounding community. Because of loyalty to physicians, some patients will follow their physicians if they relocate. This study used the preordained closure of a primary care practice to examine factors related to driving that influenced the choices made by elderly patients.
METHODS: We conducted a cross-sectional survey of patients older than sixty years that had previously received their primary care at the original practice. Prior to the closure, all patients were informed about the impending closure and they were invited to follow their primary care physicians (PCP) to the new practice 11 miles away. Eight months after the closure, electronic databases were used to generate two lists of patients older than 60 years from the original office: (i) those that had followed their PCP to the new practice, and (ii) those that had chosen new PCPs at an affiliated clinic located near the primary site (2 miles away in the same community). From each of the two lists, 140 patients were randomly selected for inclusion in the study. These patients were mailed a 32-item questionnaire. Select elements addressed in the survey were demographic information including whether they drive and how they get to the doctor's office. Participants completed a self-assessed driving ability measure, and were asked to estimate the distance and driving time from their homes to each of the practices. The actual distance and driving time were assessed using 'Mapquest'. Comparisons between the two groups were made using Chi-square and *t*-tests.
RESULTS: The response rate was 64%, and 63% of the respondents were female. Patients who elected to switch to the nearby clinic were older (mean age: 75 versus 70 years, $p<0.01$) than those who followed their PCP's to the further site. More patients who followed their PCP to the new further site were still driving compared to those who transferred to the closer site (78% versus 66%, $p=0.09$). In both groups, almost all patients who did not drive reported that they are driven to the doctor's office by relatives or friends (drive or are driven >97%). Self-assessed driving proficiency scores were very high and not significantly different between the groups ($p=$ns). The actual distance from the patients' homes to the 'further' clinic was the same for both groups (14.1 versus 12.7 miles, $p=0.3$), however patients who chose the 'nearer' practice lived closer to that site (3.1 versus 6.5 miles, $p=0.02$). Patients were extremely accurate in estimating the distance from their home to each of the 2 practice sites (mean differences between actual and estimates were 0.02, 0.04, 0.47, and 1.27 miles, all $p>0.1$). Patients from both groups only mildly overestimated the amount of time that it would take them to drive or be driven to the 'near' practice (mean minutes: 14.3 {estimate} versus 12.3 {actual} [$p=0.02$] and 10.9 versus 7.5 [$p<0.001$]). Conversely, patients who selected the 'further' clinic slightly overestimated the time to get there (mean minutes: 23.8 versus 18.1 [$p<0.001$]), whereas the patients who chose the nearer clinic believed that it would have taken significantly longer to get there (mean minutes: 29.2 versus 18.4 [$p<0.001$]).
CONCLUSIONS: For elderly patients, convenience appears to be an important factor in deciding where they elect to receive their healthcare. Perceived travel time to a facility may be even more important in patients' decision making than the actual distance to that site.

DOES PHYSICIAN AUDIT AND FEEDBACK WITH OR WITHOUT ENHANCED PHYSICIAN EDUCATION IMPROVE HYPERTENSION CONTROL?. J. Whittle[1]; G.P. Barnas[1]; L. Voigt[2]; J. Kulp[2]; N. Lu[3]; G. Schectman[1]. [1]Medical College of Wisconsin/Clement J. Zablocki VA Medical Center, Milwaukee, WI; [2]Clement J. Zablocki VA Medical Center, Milwaukee, WI; [3]Medical College of Wisconsin, Milwaukee, WI. *(Tracking ID # 153303)*

BACKGROUND: Many patients with hypertension (HTN) are not controlled to consensus blood pressure (BP) goals. In Department of Veterans Affairs (VA) clinics, providers can be electronically prompted when patients present with inadequate BP control, but nearly a third of such patients are still not controlled. We performed a randomized clinical trial to determine whether BP control could be improved in VA settings by giving primary care (PC) providers monthly guideline updates (GL), monthly audit and feedback reports (AF) or both.
METHODS: We randomized all staff PC providers (PCP) (staff physicians, nurse practitioners or physicians assistants) within 6 centers to receive GL, AF, both (BO) or neither intervention (NI). The PCP and their nurse partner (the PC teams) in the GL and BO groups received monthly emails with VA HTN guidelines. The PC teams in the AF and BO groups received monthly emails listing the number of their HTN patients who were seen in PC clinic that month, and the percent that had inadequate control (based on a stringent (140/90 mmHg) or lenient (159/99 mmHg) goal. We also provided a list of patients who were seen but not controlled. Similar emails regarding congestive heart failure (CHF) were used as attention controls; each PC team member received 2 emails - one with GL regarding HTN or CHF and one with AF regarding HTN or CHF. We compared the proportion of patients with HTN whose BP was controlled at baseline (BL) to the same proportion at follow up (FU) one year later, using repeated measure logistic models to adjust for the correlations between measures for each provider. We excluded PC teams if the provider left that site.
RESULTS: After exclusions, we randomized 53, 48, 53 and 45 providers to groups AF, GL, BO and NI, respectively. At baseline, they cared for a total of 33253, 29307, 34282 and 29454 patients, respectively, of whom 62.8% had HTN. The percent with HTN was similar among groups. Overall, BP was <=140/90 mmHg in 65% at BL, and 70.5% at FU, ($p<0.001$); BP was <=159/99 in 86.6% at BL and 88.4% at FU ($p<0.001$). Results within groups are presented in the table. There were no significant differences in the improvement across interventions for either goal BP ($P=0.3662$ and $P=0.8244$ for the effect of AF, $p=0.5875$ and $P=0.8375$for the effect of GL, $p=0.6511$ and $P=0.9023$ for BO compared to NI, based on the goals of 140/90 mmHg and 159/99 mmHg, respectively). There were significant differences in improvement across sites ($P=0.0001$)
CONCLUSIONS: In a setting where providers receive real time reminders that patients with HTN are not controlled, adding monthly feedback regarding specific patients who were not controlled, with or without GL focused educational mailings, did not improve overall BP control. However, the proportion of patients with HTN who had good control increased in all groups, despite comparatively high baseline rates of control. This improvement varied among sites. Further research should examine factors associated with superior BP control in settings with reminder systems, guideline based education and ready access to care.

Intervention	% ≤ 140/90	mmHg	I	% ≤ 159/99	mmHg
Group	BL	FU	Change	BL	FU	Change
BO	64.6	71.9	7.3	86.7	89.3	2.6
AF	64.3	69.4	5.1	86.3	88.0	1.6
GL	65.8	70.6	4.7	86.8	88.7	1.9
NI	65.5	70.1	4.6	86.4	87.4	1.0

DOES THE PERIODIC HEALTH EVALUATION IMPROVE DELIVERY OF CLINICAL PREVENTIVE SERVICES AND PATIENT OUTCOMES?. L.E. Boulware[1]; G. Barnes[1]; R.F. Wilson[1]; S.S. Marinopoulos[1]; C. Hwang[1]; K. Maynor[1]; D. Merenstein[2]; K. Phillips[1]; N.R. Powe[1]; E.B. Bass[1]; G.L. Daumit[1]. [1]Johns Hopkins University, Baltimore, MD; [2]Georgetown University, Washington, DC. *(Tracking ID # 154018)*

BACKGROUND: Despite its widespread practice, it is unclear whether the periodic health evaluation (PHE) improves clinical care or patient outcomes when compared to the opportunistic delivery of preventive care.

METHODS: As part of an AHRQ-sponsored evidence report requested by the American College of Physicians, we performed a systematic literature review (1940–2005) to assess the effect of the PHE (vs. usual care) on receipt of clinical preventive services, hospitalization and mortality in experimental and observational studies. We searched 9 electronic databases and hand-searched 24 journals for candidate studies. Two reviewers independently abstracted data on study characteristics, quality and relevant outcomes. We calculated Cohen's d effect sizes for randomized controlled trials (RCTs).
RESULTS: Of 2017 abstracts identified, 9 RCTs reported on relevant outcomes (Table). All studies on cholesterol testing (n=2) and mammography (n=2) reported a benefit of the PHE compared to usual care. Results were more variable in studies of the PHE's effect on receipt of: pap smears (3 showing benefit, 1 no benefit), immunizations (2 showing benefit, 2 no benefit), colon cancer screening (3 showing benefit, 2 no benefit), and counseling (2 showing benefit, 1 no benefit, 3 neutral). The PHE's effect on hospitalizations was neutral in 1 study and the PHE's effect on mortality varied in 2 studies (1 showing benefit, 1 no benefit); however, these studies were performed before currently recommended clinical preventive services were implemented.
CONCLUSIONS: Available evidence indicates the PHE improves delivery of cholesterol testing and mammography compared to usual care, but it is inconsistent regarding other preventive services. Limited, but dated, evidence does not indicate a clear benefit of the PHE on hospitalizations or mortality. More research is needed to assess the effects of the PHE, as practiced today, on intermediate or long-term clinical outcomes.

Outcome	Effect sizes for study outcomes		
	Positive effect of PHE	Negative effect of PHE	Neutral effect of PHE
Receipt of preventive Services			
Cholesterol testing	0.30 (0.26, 0.34) 0.02 (0.00, 0.04)	---*	---
Pap smear	1.71 (1.69, 1.73) 0.20 (0.16, 0.23) 0.07 (0.07, 0.07)	−0.02 (−0.01, −0.02)	---
Immunizations	0.35 (0.33, 0.36) 0.10 (0.10, 0.10)	−0.12 (−0.08, −0.16) −0.22 (−0.20, −0.24	---
Sigmoidoscopy	0.05 (0.03, 0.05)	No evidence	---
Fecal occult blood testing	1.19 (1.17, 1.21) 1.07 (1.05, 1.08)	−0.11 (−0.11, −0.12) −0.10 (−0.06, −0.14)	---
Mammography	0.15 (0.15, 0.16) 0.14 (0.12, 0.16)	---	---
Preventive counseling			
Injury counseling	0.26 (0.22, 0.30)	---	---
Physical activity counseling		−0.06 (−0.02, −0.09)	---
High fiber diet counseling	0.39 (0.34, 0.42)	---	---
Low fat diet counseling	---	---	0.30 (−6.50, 7.02)
Smoking cessation counseling	---	---	0.12 (−5.90, 5.78)
Alcohol abuse counseling	---	---	1.12 (−6.74, 7.52)
Reduction in hospitalizations	---	---	−0.04 (−0.05, 0.13)
Reduction in mortality	0.06 (0.05, 0.06)	−0.03 (−0.03, −0.04)	---

*--- = No evidence

DOES WRITING HELP? THE BENEFITS OF REFLECTIVE WRITING FOR FAMILY CAREGIVERS. J. Hauser[1]; M. Jarzebowski[1]; L. Emanuel[1]. [1]Northwestern University, Chicago, IL. *(Tracking ID # 156606)*

BACKGROUND: Interventions directed toward the psychological and physical burdens on family caregivers will be increasingly important as the population continues to age. In a number of studies, reflective writing has been shown to improve patients' physical and psychological symptoms. We were interested in whether this intervention was feasible for family caregivers of seriously ill patients. Our secondary aim was to gather initial data concerning psychological outcomes of caregivers participating in the intervention.
METHODS: We designed an intervention for family caregivers to write in a journal concerning their experiences caregiving and coping 3–4 times a week for 1–2 months. The intervention was introduced with an instructional booklet and a workshop for caregivers. We assessed feasibility through determining how many caregivers completed the intervention and an open-ended interview of their experience of the intervention. We assessed psychological outcomes by measuring caregiver burden, depression, caregiver strain and caregiver bereavement.
RESULTS: In five months of recruitment, 45 participants from a palliative care program and an Alzheimer's Disease Center expressed initial interest and were sent enrollment materials, journals and invited to participate in a workshop. Of these, 35 formally enrolled in the study: Ten attended workshops and 25 began the intervention by mail and phone contact without a workshop. Of these 35 participants, 2 did not complete the intervention because of the death of a patient and 3 withdrew because it was "too hard to do" or "didn't like it." Of the 15 participants who have been enrolled for 2 months 13 completed pre and post surveys and open-ended interviews. The scaled outcomes (CES-Depression, Caregiver Strain Index, Zarit Caregiver Burden Interview and Caregiver Bereavement Index–for the subset who were bereaved) showed no significant changes pre and post intervention. In open-ended interviews, 9/13 respondents found the intervention helpful. The reasons that they volunteered were that it helped "process", helped give "perspective" and allowed them to express feelings they "couldn't talk about to anyone."
CONCLUSIONS: In this pilot study of family caregivers from a palliative care program and an Alzheimer's Disease program, journal writing is feasible: 35/45 participants with initial interest enrolled and 13 of 15 who have been in the study for two months completed the intervention and all pre and post interviews and surveys. Although initial pre and post data using standardized outcomes of caregiver depression, strain, burden and bereavement showed no consistent changes, open-ended interviews revealed a subjective sense of improvement among 9 of 13 caregivers who completed the intervention. Thus, for a subset of family caregivers, reflective writing resulted in subjective benefits which were not captured by traditional scales of depression and burden.

DURABILITY OF CAREER DECISIONS AMONG INTERNAL MEDICINE RESIDENTS. C.P. West[1]; C. Popkave[2]; H.J. Schultz[1]; S.E. Weinberger[2]; J.C. Kolars[1]. [1]Mayo Clinic College of Medicine, Rochester, MN; [2]American College of Physicians, Philadelphia, PA. *(Tracking ID # 156035)*

BACKGROUND: The career decisions of internal medicine residents impact the medical profession and society. Little is known about the timing and stability of these career decisions during the course of residency training. The purpose of this study was to examine the durability of expressed career preferences in a national cohort of categorical internal medicine residents as they progressed through their three years of residency training.
METHODS: We analyzed self-reported career plan data collected from over 400 internal medicine residency programs in North America as part of the annual Internal Medicine In-Training Examination (IM-ITE) survey. The study cohort consisted of 2638 internal medicine residents who responded to career plan questions on the IM-ITE survey for each of three successive years of training (2002, 2003, and 2004). We report primarily descriptive analyses, but where appropriate Fisher's exact tests were used to compare proportions.
RESULTS: Of 2638 eligible residents, 2281 (86%) identified a specific career plan within internal medicine during their PGY-3 year. Of these 2281 residents, 1417 (62%) changed career plans at least once over the study period. Career plans reported by PGY-1 and PGY-2 residents, respectively, matched their subsequent PGY-3 plans for 55% and 68% of residents. 686 (26%), 287 (11%), and 205 (8%) PGY-1, PGY-2, and PGY-3 residents, respectively, remained undecided about their career plan at the time of the IM-ITE. Residents ultimately selecting generalist careers were less likely than those selecting subspecialty careers to report the same career plan throughout residency (27% vs. 45%, $p<0.001$).
CONCLUSIONS: Career decisions among internal medicine trainees lack durability well into residency training. Generalist career plans are particularly unstable. This finding has important implications for graduate medical education, particularly discussions regarding the timing of fellowship selection and restructuring of training.

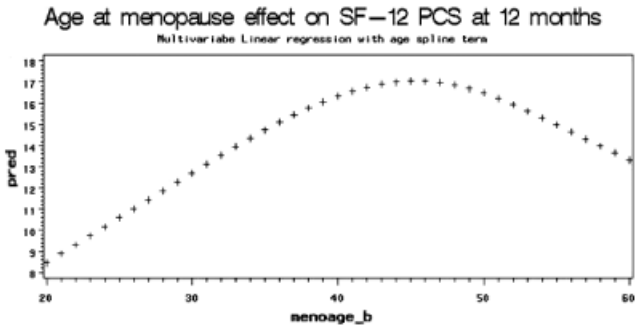
Proportion of PGY-3 residents reporting the same defined career plan during all 3 years of training, by discipline

Career Plan	Proportion
Cardiology	200/315 (63%)
Gastroenterology	101/181 (56%)
Heme/Onc	101/211 (48%)
Infectious Disease	45/117 (38%)
Endocrinology	40/107 (37%)
GIM	222/659 (34%)
Nephrology	52/156 (33%)
Pulm/Crit Care	58/190 (31%)
Rheumatology	23/84 (27%)
Geriatrics	7/34 (21%)
Hospitalist	15/227 (7%)
TOTAL	864/2281 (38%)

EARLY MENOPAUSE PREDICTS ADVERSE OUTCOMES AFTER MYOCARDIAL INFARCTION. S. Mallik[1]; J. Spertus[2]; K. Reid[3]; J.H. Lichtman[4]; N. Dawood[1]; N.K. Wenger[1]; V. Vaccarino[4]. [1]Emory University, Atlanta, GA; [2]University of Missouri-Kansas City, Kansas City, MO; [3]Mid America Heart Institute, Kansas City, MO; [4]Yale University, New Haven, CT. *(Tracking ID # 154290)*

BACKGROUND: Young age at menopause (AAM) is a risk factor for premature CHD. It is unknown whether it is a prognostic factor after myocardial infarction (MI)
METHODS: We examined whether younger AAM confers increased risk of adverse outcomes in 572 post-menopausal women enrolled in prospective multicenter MI registry-PREMIER. Outcome measures at 1 yr post-MI included rehospitalization, rehospitalization or mortality, and health status (angina frequency and quality of life (QOL) using the Seattle Angina Questionnaire and physical function (PF) using the Physical Component Scale (PCS) Short-Form 12). Linear regression models were used with AAM as continuous variable controlling for baseline health status, demographics, comorbidities and quality of care indicators.
RESULTS: Women with early AAM (¡Ü 40 yr; N=128; 28 natural, 97 surgical) were younger and more often smokers but were as likely to have hypertension, prior MI, diabetes and lower ejection fraction compared with women with late AAM (¡Ý50 yr). At 1 yr, for each 10- yr younger AAM the probability of having angina (OR 1.45; 95%CI 1.79–1.15), rehospitalization (HR 1.22; 95% CI 1.47,

1.01) and rehospitalization or mortality (HR 1.22; 95% CI 1.47, 1.00) increased. The association of AAM with 1-yr PF was non-linear: women with AAM around 45 yr had highest 1-yr PF, which decreased as age decreased or increased (Fig. 10). There was no association between AAM and 1-yr QOL.
CONCLUSIONS: Younger menopause age is a risk factor for adverse outcomes after MI.



EFFECT OF A HIGH DEDUCTIBLE HEALTH PLAN ON EMERGENCY DEPARTMENT UTILIZATION. J.F. Wharam[1]; A. Galbraith[2]; B.E. Landon[3]; I. Miroshnik[4]; K.P. Kleinman[4]; S. Soumerai[2]; D. Ross-Degnan[3]. [1]Harvard Medical School Department of Ambulatory Care and Prevention, Boston, MA; [2]Harvard Medical School, Boston, MA; [3]Harvard University, Boston, MA; 4Department of Ambulatory Care and Prevention, Harvard Medical School, Boston, MA. *(Tracking ID # 153802)*

BACKGROUND: Use of the emergency department for non-emergency care is common and expensive. High deductible health plans (HDHP) have been promoted as a means of reducing inappropriate health care utilization. We studied the effect of a HDHP on emergency department use in a health maintenance organization (HMO).
METHODS: We examined use of the emergency department (ED) by 8761 subjects insured by Harvard Pilgrim Health Care in Massachusetts between March 2001 and June 2005 whose employers switched from offering a traditional HMO plan to offering only a plan containing $500 to $2000 deductibles in a follow-up period (HDHP group). We matched each of these subjects with eight controls who were insured by a traditional HMO plan during the same period as their intervention group counterpart and who also did not have a choice of plans in the follow-up period. We assessed utilization by the HDHP group members before and after their switch to the HDHP, comparing it to the contemporaneous controls who did not face a deductible. We analyzed one year of baseline utilization for each subject and 6 to 12 months of follow-up utilization. We assembled covariates from claims data, enrollment data, and employer account-level data. To estimate numbers of ED visits that were emergent and non-emergent, we used an algorithm developed by the New York University Center for Health and Public Service Research.
RESULTS: Subjects ranged in age from 1 to 65 years. Just over 50% were female and most (80.2% of HDHP enrollees and 70.9% of HMO enrollees) obtained their insurance from small employers with between 2–50 employees. Unadjusted results showed that total ED visits declined by 10.5% in the HDHP group compared to the control group ($p=0.002$). The number of emergency visits classified as "non-emergent" declined by 18% in the HDHP group relative to controls, while those classified as "emergent, not preventable or avoidable" declined by 20.7%.
CONCLUSIONS: Among members of an HMO, the switch to high deductible coverage was associated with a significant decline in both emergent and non-emergent ED visits. Our results suggest that HDHPs may lead to greater efficiency in ED utilization but may also erect financial barriers to appropriate care. Further research is needed to determine the effect of this reduced utilization on health outcomes.

EFFECT OF EZETIMIBE PLUS SIMVASTATIN THERAPY ON ATTAINMENT OF LDL-C LEVELS OF <130 MG/DL, <100 MG/DL, AND <70 MG/DL IN PATIENTS WITH PRIMARY HYPERCHOLESTEROLEMIA. M. Davies[1]; A. Brown[2]; J. Crousee Iii[3]; N. Fraser[4]; A. Shah[1]; D. Tribble[1]; Y. Mitchel[1]; E. Veltri[5]. [1]Merck & Co., Inc., Rahway, NJ; [2]Midwest Heart Institute, Naperville, IL; [3]Wake Forest University Baptist Medical Center, Forsyth, NC; [4]Troy Internal Medicine, Troy, MI; [5]Schering-Plough Research Institute, Kennilworth, NJ. *(Tracking ID # 152962)*

BACKGROUND: In patients at high risk of CHD, lowering LDL-C substantially below accepted LDL-C treatment goals produces significant reductions in cardiovascular morbidity and mortality. These data suggest that more aggressive, lower LDL-C treatment goals may be appropriate for some patient populations. When coadministered with a statin, ezetimibe (EZE), a cholesterol absorption inhibitor, provides significant incremental lowering in LDL-C beyond statin monotherapy. Thus, attainment of pre-specified LDL-C targets was examined with EZE plus simvastatin (EZE/SIMVA) treatment versus SIMVA monotherapy in patients with primary hypercholesterolemia in a post-hoc analysis using pooled data from three nearly identical, placebo-controlled, prospective trials.
METHODS: After dietary stabilization, washout period, and placebo lead-in period, patients with baseline LDL-C $\geq$145 to 250 mg/dL and triglycerides (TG) $\leq$350 mg/dL were randomized to one of the following daily treatments for 12 weeks: placebo; EZE 10 mg; SIMVA monotherapy (10, 20, 40, or 80 mg); EZE/SIMVA 10/10, 10/20, 10/40, or 10/80 mg/mg as coadministration (studies 1 & 2) or combination tablet (study 2). The primary efficacy endpoint was percent LDL-C reduction in patients on EZE/SIMVA (pooled) versus those on SIMVA monotherapy (pooled). The proportion of patients achieving LDL-C targets of <130 mg/dL, <100 mg/dL and an aggressive <70 mg/dL, regardless of NCEP-defined CHD risk category, was also a pre-specified endpoint in each study.
RESULTS: Baseline LDL-C was 176 and 178 mg/dL in the pooled EZE/SIMVA and SIMVA groups, respectively. EZE/SIMVA treatment produced significantly greater reductions in LDL-C compared with SIMVA monotherapy (−53% versus −38% for pooled data). Significantly more patients on EZE/SIMVA than on SIMVA alone attained each of the 3 LDL-C targets (Table). EZE/SIMVA was well-tolerated with a safety profile comparable to that of SIMVA monotherapy.
CONCLUSIONS: By inhibiting both the absorption and biosynthesis of cholesterol, EZE/SIMVA is an effective treatment strategy to help hypercholesterolemic patients achieve standard and aggressive LDL-C targets.

Proportion of Patients Attaining LDL-C Target	SIMVA Pooled	EZE/SIMVA Pooled
<130 mg/dL (N)	79.4% (1211)	91.8% (1223)*
<100 mg/dL(N)	42.4% (1218)	78.8% (1226)*
<70 mg/dL (N)	6.0% (1218)	37.3% (1226)*

(N) = number of patients who were above specific LDL-C target at baseline.
*$p<0.001$ for EZE/SIMVA vs. SIMVA using a generalized linear regression model with factors for treatment and baseline percent difference from specific LDL-C target as a covariate.

EFFECT OF GENDER AND RACE ON RECEIPT OF PNEUMOCOCCAL AND INFLUENZA IMMUNIZATIONS IN VA. B. Bean-Mayberry[1]; N.J. Brucker[1]; N. Bayliss[2]; X. Xu[2]; E. Crick[2]; M. Mor[1]; E. Yano[3]; M.J. Fine[1]. [1]University of Pittsburgh, Pittsburgh, PA; [2]VA Pittsburgh Healthcare System, Pittsburgh, PA; [3]VA Greater Los Angeles HSR&D Center of Excellence, Sepulveda, CA. *(Tracking ID # 150412)*

BACKGROUND: The VA uniformly promotes and reviews clinical preventive care for all veterans. However, little data are available to inform us about the equity of preventive care delivery by gender and race. The objective of this study was to assess the performance of key immunization measures by gender and race in a national sample of veterans.
METHODS: We examined the rates of pneumococcal and influenza immunization by gender and race in a cross-sectional sample of veterans selected by VA External Peer Review Program from 2001–2003 and linked with National Patient Care Database (N=91,570). We performed univariate comparisons by gender for each demographic and clinical factor. We used multiple logistic regression to measure the association between gender and race (white, black, other, and unknown) with each immunization, adjusting for patient confounders such as age, marital status, VA eligibility status, clinical conditions recommended for immunization, geographic region (e.g., VISN), and clustering for repeated sampling of unique veterans across fiscal years.
RESULTS: Women were younger, unmarried, less frequently identified with clinical conditions for immunization, yet often repeatedly sampled across fiscal years. Among older persons (>65 years), gender (OR 0.8, 95%CI 0.7, 0.8), black race (OR 0.7, CI 0.6, 0.8), and unknown race (OR 0.7, CI 0.7, 0.8) were significantly associated with a lower odds of pneumococcal immunization while adjusting for all other factors. Among younger veterans (<65 years), black (OR 0.8, CI 0.7, 0.9) and unknown race (OR 0.7, CI 0.6, 0.7) remained significantly associated with lower pneumococcal immunization, and gender had no effect. Black (OR 0.7, CI 0.6, 0.8) and unknown race (OR 0.9, CI 0.9, 1.0) were also associated with a lower odds of influenza immunization while gender had no effect on influenza immunization. For younger veterans receiving influenza vaccine, gender displayed a significantly positive association (OR 1.6, CI 1.4, 1.8) with receipt of immunization, and race had no effect.
CONCLUSIONS: Our findings indicate that racial and gender disparities exist in preventive care in this veteran population. The effect of race appears consistently associated with a decreased likelihood of either immunization, and the effect of gender appears to differ by age. Our data warrant intensive study to understand the relationships and develop appropriate interventions to ensure equity across the veteran population.

EFFECT OF PERI-OPERATIVE GLUCOSE-INSULIN AND POTASSIUM INFUSION ON ATRIAL FIBRILLATION AND MORTALITY AFTER CORONARY ARTERY BYPASS GRAFTING: A SYSTEMATIC REVIEW AND META-ANALYSIS. D. Rabi[1]; F. Shrive[1]; F.A. McAlister[2]; S.R. Majumdar[2]; R. Sauve[1]; J. Johnson[2]; W.A. Ghali[1]. [1]University of Calgary, Calgary, Alberta; [2]University of Alberta, Edmonton, Alberta. *(Tracking ID # 154330)*

BACKGROUND: It has been proposed that ischemic injury to the myocardium could be minimized by providing the heart substrate for glucose metabolism around the time of the ischemic event. Metabolic therapies, specifically glucose-insulin infusions that may contain potassium, have been administered in the setting of coronary artery bypass graft (CABG) surgery, but the evidence in support of this intervention is not clear.
METHODS: We completed a systematic review and meta-analysis to assess whether the use of glucose-insulin (+/− potassium) peri-operatively, reduces 1) in-hospital mortality or 2) the incidence of atrial fibrillation post-CABG

surgery. Medline, EMBASE, and CENTRAL were searched for randomized controlled trials that examined the use of either glucose-insulin-potassium (GIK) or glucose-insulin (GI) infusions before or during CABG surgery. Experts in the field were also contacted regarding unpublished or ongoing trials. A highly sensitive search strategy was used with the following MESH headings, combined with the Boolean term "or": GI, GIK, glucose-insulin, glucose-insulin-potassium infusion. This search was combined, using the Boolean term "and", with a search using the following MESH headings: coronary artery bypass, aortocoronary bypass, heart surgery, coronary artery bypass graft and CABG. Trials that used GIK/GI as an intravenous or cardioplegic infusion were included. Trials had to report in-hospital mortality and/or post-operative atrial fibrillation (AF). There were no language restrictions. Data were extracted independently by 2 reviewers. Pooled odds ratios (OR) and 95% confidence intervals were calculated for each outcome using random effects models.
RESULTS: Nineteen unique articles were identified that reported in-hospital mortality and/or post-operative AF. The pooled OR for in-hospital mortality was 0.84 (95% CI: 0.51–1.38), and this pooled effect estimate did not change when the analysis was stratified on type of infusion (GIK vs. GI) or route of administration (intravenous vs. cardioplegia). The pooled OR for post-operative AF was 0.59 (0.37–0.96), but this effect estimate should be interpreted with caution given the presence of statistical heterogeneity across studies and the generally low methodological quality of the included trials. The OR for AF dropped to 0.51 (0.25–0.91) when the one study that used GI was eliminated from the analysis, and to 0.43 (0.23–0.80) when GIK/GI was administered via an intravenous infusion. Sensitivity analyses were performed to determine the impact of study quality, measured by the Jadad score, or surgical technique (on-pump vs. off-pump) on the pooled estimate of effect and statistical heterogeneity. These analyses revealed that these factors did not affect the pooled OR.
CONCLUSIONS: Peri-operative use of GIK/GI in CABG surgery has been assessed in 19 trials, and collectively, these studies do not reveal a significant reduction in mortality from these treatments. There is, however, some suggestion that the therapies may lower the odds of post-operative AF by 41%, though this finding needs to be interpreted cautiously given heterogeneity across studies and the low methodological quality of constituent trails.

EFFECT OF WORK HOUR REGULATION ON QUALITY OF CARE FOR INTERNAL MEDICINE PATIENTS. L. Horwitz[1]; M. Kosiborod[2]; Z. Lin[3]; H.M. Krumholz[2]. [1]VA Connecticut Healthcare System, West Haven, CT; [2]Yale University, New Haven, CT; [3]Yale-New Haven Hospital, New Haven, CT. *(Tracking ID # 151546)*

BACKGROUND: Work hour limits were instituted for all U. S. house staff in July, 2003. However, the effect on clinical outcomes of this sweeping change has not been studied in a broad spectrum of internal medicine patients. Benefits to patient safety from reduced resident fatigue may have been counterbalanced by risks of increased discontinuity of care.
METHODS: We retrospectively evaluated two cohorts of patients in a single academic medical center: 14,260 internal medicine patients cared for by residents ("teaching service") from July 1, 2002¬June 30, 2004 (one year before and one year after work hour limits), and 6,664 internal medicine patients cared for only by hospitalists ("non-teaching service") in the same period. To control for secular trends, we compared the differences in outcomes after institution of work hour limits on the teaching service with the differences on the control non-teaching service. Outcomes were in-hospital mortality, 30-day readmission, intensive care unit utilization, length of stay, discharge disposition, drug-drug interactions, pharmacy interventions to prevent error, and patient satisfaction.
RESULTS: After adjusting for demographics, case mix and comorbidity, we found that teaching and non-teaching services had similar changes over time in mortality, intensive care unit utilization, 30-day readmission, length of stay, drug-drug interactions and patient satisfaction (see table). For example, the odds of in-hospital mortality declined for both teaching (OR 0.74, 95%CI 0.56 to 0.96) and non-teaching services (OR 0.74, 95% CI 0.56 to 0.96), and the trends on each service were statistically identical ($p = 0.62$). Compared with the period before work hour regulation, however, teaching patients were more likely to be discharged home than non-teaching patients (OR 1.08 vs. 0.85, $p = 0.008$) and less likely to require intervention by a pharmacist to prevent medical error than non-teaching patients (OR 0.78 vs. 1.06, $p < 0.001$).
CONCLUSIONS: Work hour limits had little effect on most major quality outcomes and small positive effects on discharge disposition and pharmacy interventions in a large sample of general medicine patients. Due to their significant implementation expense, work hour regulations may not be the most effective means of improving patient safety.

Selected outcomes after work hour regulation, by service

	Adjusted teaching OR, after vs. before (95% CI)	Adjusted non-teaching OR, after vs. before (95% CI)	P value (for difference between services)
Death	0.74 (0.56 to 0.96)	0.63 (0.37 to 1.09)	.62
ICU stay	0.78 (0.70 to 0.87)	0.93 (0.69 to 1.24)	.42
Readmission within 30 days	1.12 (1.02 to 1.21)	1.25 (1.11 to 1.42)	.17
Discharge to home	1.08 (0.98 to 1.19)	0.85 (0.74 to 0.98)	.008
Any pharmacy intervention	0.78 (0.71 to 0.85)	1.06 (0.91 to 1.23)	<.001
Any drug-drug interaction	1.07 (0.96 to 1.19)	1.03 (0.88 to 1.22)	.70

EFFECTIVENESS OF AN INSURER-SPONSORED WEIGHT LOSS PROGRAM IN A RURAL COUNTY. B.C. Bordeaux[1]; F. Brancati[1]; E. Moukamal[2]; G. Callahan[2]; D.M. Levine[3]. [1]Johns Hopkins University, Baltimore, MD; [2]Endless Mountains Health Systems, Montrose, PA; [3]Johns Hopkins Medical Institutions, Baltimore, MD. *(Tracking ID # 153272)*

BACKGROUND: Despite the obesity epidemic, few community-wide obesity reduction interventions have targeted rural populations. We evaluated the feasibility and effectiveness of a culturally relevant, free weight loss program for obese adults in an underserved rural county.
METHODS: We tested a community-based weight loss intervention using a quasi-experimental design. In September 2004, we began recruiting participants from Susquehanna County, Pennsylvania through newspaper ads, radio interviews, and mass mailings. Interested individuals completed detailed screening questionnaires. All county residents were eligible if they: were obese, were between 18 and 65, showed motivation to lose weight, and had no history of bariatric surgery or cancer. The intervention began with six weekly interactive lectures and dietitian-critiqued weekly logs of food, exercise, and television viewing. After completing the six week program, all participants were encouraged to attend ongoing support groups at least twice monthly, meet individually with a registered dietitian, and attend a group cognitive behavioral session focused on weight loss. Primary outcomes included reductions in weight and waist circumference which were measured before the intervention, each week of the course, and monthly thereafter. Secondary outcomes included fasting glucose, lipids, and hemoglobin A1c which were measured before the intervention and repeated every six months. This program was funded through a grant from Blue Cross of Northeastern Pennsylvania.
RESULTS: To date, with enrollment ongoing, 220 people completed initial screening questionnaires, 197 (90%) met inclusion criteria, 95 people completed the six week course and 33 remained in the intervention for at least six months. Of the 95 people who completed the six week course, 100% were white, 85% were female, and had a mean age of 49 years. Among all participants, there was a 1.41 kg reduction between initial and last recorded weights (95% CI–2.98 to 0.16, $p < 0.08$). Other pre- and post-reductions are listed in Table 1. All p values are two-sided.
CONCLUSIONS: Although the intervention is still ongoing, early evidence suggests that participation in a free weight loss program is both feasible and effective for motivated individuals in this rural, medically-underserved community. Health insurers in other rural communities might consider sponsoring similar programs to help control obesity and related medical conditions.

Table 1

	After 6 Weeks	95% CI	p Value	After 6 Months	95% CI	p Value
Weight	−1.4 kg	−2.8 to 0.1	0.07	−5.2 kg	−8.5 to −1.9	0.004
Waist Circumference	−3.5 cm	−4.8 to −2.2	0.0001	−8.4 cm	−12.9 to −4.0	0.0008
BMI	−0.6 kg/m2	−1.1 to −0.2	0.006	−2.0 kg/m2	−3.3 to −0.7	0.004
Glucose	n/a	n/a	n/a	−10.5 mg/dl	−21.4 to 0.4	0.06
Total Cholesterol	n/a	n/a	n/a	−12.2 mg/dl	−22.5 to–2.0	0.02
Hemoglobin A1c	n/a	n/a	n/a	−0.2%	−0.5 to 0.0	0.10

EFFECTIVENESS OF AUDIT-C AS A SCREENING TEST FOR ALCOHOL MISUSE IN THREE RACIAL/ETHNIC GROUPS. D. Frank[1]; A. Debenedetti[2]; R.J. Volk[3]; E. Williams[4]; D.R. Kivlahan[1]; K. Bradley[1]. [1]VA Puget Sound Health Care System University of Washington, Seattle, WA; [2]VA Puget Sound Health Care System, Seattle, WA; [3]Baylor College of Medicine, Houston, TX; [4]University of Washington, Seattle, WA. *(Tracking ID # 152828)*

BACKGROUND: Brief alcohol screening questionnaires for risky drinking and/or alcohol abuse and dependence have been previously validated in Non-Hispanic White populations, but their performance in different racial/ethnic groups is unclear. A study of a similar, "derived" AUDIT-C suggested that optimal screening cut-points may be higher in Hispanic Patients. We evaluated the performance of the AUDIT-C, a screening test that consists of the first three questions of the Alcohol Use Disorders Identification Test, compared to an interview reference standard in Non-Hispanic White, Non-Hispanic Black, and Hispanic outpatients.
METHODS: This study used secondary data from a cross-sectional study set in a University-based family practice. The original study used a sampling strategy that ensured adequate representation of minority participants. Recruited patients participated in an interview that included the AUDIT-C and a diagnostic schedule to determine the reference standard (alcohol misuse). Alcohol misuse was defined as current DSM-IV alcohol abuse or dependence and/or risky drinking in the past year (men: > 14 drinks/week or > 5 drinks on any occasion; women: > 7 drinks/week or > 4 drinks on any occasion). Analyses compared the AUDIT-C to interview criteria for alcohol misuse, and included Areas under Receiver Operating Characteristic Curves (AuROCs) and 95% confidence intervals (95% CI), sensitivity, and specificity, stratified by race/ethnicity and gender. Cut-points are presented based on the threshold that maximized both sensitivity and specificity (nearest left upper corner of ROC curve). We used gender-stratified chi-square analyses to test the differences in the performance of the AUDIT-C across racial/ethnic groups.

RESULTS: Of 1,445 eligible outpatients 1,333 (92%) participated. Areas under the ROC curves were over 0.85 in all groups (Table), with no significant differences across racial/ethnic groups in men (p=0.43) or women (0.12). However, the cut-points that maximized sensitivity and specificity varied across the groups, with optimal cut-points being lower in Non-Hispanic Black men and higher in Hispanic women.
CONCLUSIONS: The AUDIT-C is an effective brief screening test for the spectrum of alcohol misuse in the three racial/ethnic groups tested in this study. However, the optimal screening threshold appeared to vary across groups.

	Non-Hisp White		Non-Hisp Black		Hispanic	
	Men (N=163)	Women (N=339)	Men (N=125)	Women (N=332)	Men (N=98)	Women (N=235)
N (%) Cases	56 (34%)	66 (19%)	29 (23%)	52 (16%)	40 (41%)	55 (23%)
AuROCs	0.95 (0.92,0.98)	0.86 (0.81,0.92)	0.95 (0.85,0.97)	0.9 (0.85, 0.95)	0.91 (0.85, 0.97)	0.93 (0.89, 0.97)
Cut-point	≥ 4	≥ 2	≥ 3	≥ 2	≥ 4	≥ 3
Sensitivity	0.95	0.82	0.93	0.87	0.85	0.85
Specificity	0.89	0.78	0.83	0.8	0.84	0.88

EFFECTIVENESS OF COLLABORATIVE CARE FOR OLDER ADULTS WITH ALZHEIMER DISEASE IN PRIMARY CARE. C.M. Callahan[1]; M. Boustani[1]; F.W. Unverzagt[2]; M.G. Austrom[2]; T. Damush[1]; A.J. Perkins[1]; B. Fultz[1]; S.L. Hui[1]; S.R. Counsell[1]; H.C. Hendrie[1]. [1]Indiana University Center for Aging Research, Regenstrief Institute, Indianapolis, IN; [2]Indiana Alzheimer Disease Center, Indianapolis, IN. *(Tracking ID # 154403)*

BACKGROUND: Most older adults with dementia will be cared for by primary care physicians but the primary care practice environment presents important challenges to providing quality care. The objective of this study is to test the effectiveness of a collaborative care model to improve the quality of care for Alzheimer disease in primary care.
METHODS: We conducted a randomized controlled clinical trial of 153 older adults with Alzheimer disease and their caregivers who received collaborative care management versus augmented usual care. The setting included primary care practices at two university-affiliated health care systems. Potential subjects were referred by their physician either because of a positive cognitive impairment screening exam or because of a medical record diagnosis of dementia. Eligible patients met diagnostic criteria for Alzheimer disease and had a self-identified caregiver. Both study groups completed a counseling visit with an advanced practice nurse which included education about Alzheimer disease and referral for community resources. Over the following year, intervention patients received care management by an interdisciplinary team led by a nurse practitioner working with the patient's family caregiver and integrated within primary care. In addition to consideration for treatment with cholinesterase inhibitors, the team used standard protocols to identify, monitor, and treat behavioral and psychological symptoms of dementia (BPSD). These guidelines stressed non-pharmacologic management. The primary outcome measure was the neuropsychiatric Inventory (NPI) administered at baseline, 6, and 12 months. Secondary outcomes included the Cornell Depression in Dementia Scale (CDDS), cognition, activities of daily living, and resource use. Patients were followed for 12 months or until nursing home placement or death.
RESULTS: At baseline, mean total NPI scores (10.5 v. 13.4) and CDDS scores (4.4 v. 5.4) did not differ significantly between intervention and augment usual care. Initiated by caregivers' reports, 89% of intervention patients triggered at least one protocol for BPSD with a mean of four per patient from a total of eight possible protocols. Intervention patients were more likely to receive cholinesterase inhibitors (79.8% v. 55.1%, $p<0.01$) and antidepressants (45.2% v. 27.5%). There were no group differences in prescriptions for antipsychotics (13.1% v. 7.3%, p=.29) or sedative-hypnotics (10.1 v. 9.5%, p=1.0). By 12 months, intervention patients had significantly fewer BPSD as measured by the total NPI score (mean difference -8.0, $p<0.05$) and fewer depressive symptoms as measured by the CDDS (mean difference -2.0, $p<0.05$). Intervention caregivers also reported significant improvements in distress (mean difference -4.3, $p<0.05$). There were no group differences in mean scores on cognition, activities of daily living, or rates of hospitalization or nursing home placement. Intervention subjects were more likely to rate their primary care as very good or excellent (82.8% v. 55.9%, $p<0.05$).
CONCLUSIONS: Collaborative care for the treatment of Alzheimer disease results in significant improvements in the quality of care and in the behavioral and psychological symptoms of dementia among primary care patients and their caregivers. These improvements were achieved without significantly increasing the use of antipsychotics or sedative-hypnotics.

EFFECTIVENESS OF COMMUNITY HEALTH WORKERS IN FACILITATING INSURANCE ENROLLMENT AMONG PATIENTS IN A PUBLIC SECTOR EMERGENCY DEPARTMENT. S.A. Mohanty[1]; A.L. Diamant[2]; L. Gelberg[2]; D. Anglin[1]; L.R. Perez[1]; S.M. Asch[3]. [1]University of Southern California, Keck School of Medicine, Los Angeles, CA; [2]University of California, Los Angeles, Los Angeles, CA; [3]Veterans Administration Greater West Los Angeles Healthcare System, Los Angeles, CA. *(Tracking ID # 152890)*

BACKGROUND: Latinos are the racial/ethnic group most likely to be uninsured. Due to these high rates of uninsurance, they disproportionately tend to rely on emergency departments (EDs) for care due to reduced access to necessary health care services. Many may be eligible for public insurance but fail to apply, often due to cultural or linguistic barriers, or the complexity of the application process. We pilot tested a streamlined culturally-sensitive pilot program using community health workers (Promotoras) to link a predominantly Latino ED patient population to public insurance programs.
METHODS: Bilingual and bicultural Promotoras randomly approached 221 adults in the ED waiting areas of a large Los Angeles public hospital. Promotoras collected data on insurance status, as well as sociodemographic characteristics and patterns of ED and outpatient utilization among the 204 (92%) who agreed to participate. Patients who reported being uninsured were asked a series of questions to determine their possible eligibility for California's Medicaid program (Medi-Cal). Those found to be likely eligible for Medi-Cal were asked to enroll in our pilot study and were randomized to either 1) having a Promotora help complete the Medi-Cal application or 2) usual referral to a financial worker elsewhere in the hospital. Patients were contacted in 3 months to determine if they had obtained Medi-Cal insurance.
RESULTS: Seventy percent (70%) of the patients sampled identified themselves as Latino, and 50% of surveys were conducted in Spanish. Of the subjects surveyed, 59% (N=119) reported being uninsured. Of the uninsured, 21% (N=25) were found to be possibly eligible for Medi-Cal. Among the eligible uninsured population for Medi-Cal, 28% (N=7) reported they did not have insurance because it was 'too expensive' and over 2/3 (77%, N=15) indicated that they had never applied for Medi-Cal. The main reason cited for not applying for Medi-Cal was a lack of awareness or apprehension about the process, (35%, N=9). Preliminary 3-month data revealed that all patients (100%) in the intervention group 'strongly agreed' that the Promotora was helpful to them when filling out the Medi-Cal application because of the Promotora's ability to 1) be respectful and 2) take the time to explain the public insurance process.
CONCLUSIONS: A significant proportion of uninsured patients in County EDs may be eligible for Medicaid programs but have not applied for it. Barriers include a lack of patient education and guidance regarding the enrollment process. ED waiting rooms may be the best place for local-level interventions to increase enrollment in Medi-Cal and other public insurance programs and may help reduce the complications associated with applying for public insurance. Although our pilot data are promising, future work will be conducted to verify in a larger sample whether employing Promotoras in EDs can facilitate insurance enrollment and be cost-effective for public hospitals.

EFFECTS OF A LOW CARBOHYDRATE COMPARED TO A LOW FAT DIET ON GLYCEMIC CONTROL IN TYPE 2 DIABETES. N.J. Davis[1]; N. Tomuta[2]; C. Isasi[2]; J. Wylie-Rosett[2]. [1]Albert Einstein College of Medicine, Montefiore Medical Center, Bronx, NY; [2]Albert Einstein College of Medicine, Bronx, NY. *(Tracking ID # 155312)*

BACKGROUND: Weight loss is integral in the management of type 2 diabetes. The optimal weight loss dietary strategy for patients with type 2 diabetes is uncertain. Low carbohydrate diets have been shown to improve short-term weight loss but few studies have investigated this dietary strategy in patients with type 2 diabetes.
METHODS: The Diabetes Dietary Study is an ongoing randomized clinical trial which was designed to compare a low carbohydrate to a low fat diet in overweight patients with type 2 diabetes. Inclusion criteria included BMI>25, HbA1c ranges 6.0–11.0 mg/dl. and absence of significant cardiac, renal, or hepatic impairment. The low carbohydrate diet was initiated with a ketogenic 2 week induction phase of <20 grams carbohydrate per day and the low fat diet was initiated with a fat gram content determined by participant's baseline weight. Each diet was designed to allow a 1–2 lb weight loss each week. Participants received menus and recipes for their respective dietary intervention and had weekly to biweekly visits with the study team of physicians and nutritionists. Paired *t*-tests compared baseline to 3-month changes in weight and Hba1c within each dietary group. Independent *t*-tests compared mean changes in weight, BMI, and medication use between dietary groups.
RESULTS: Forty-seven participants have completed 3 months of dietary intervention. (31 low carbohydrate and 16 low fat) Participants were mostly female (83%), and Black or Hispanic, (72%), with a mean age of 53.8+7.2. The majority of participants (80%) were prescribed metformin, and 40% were on insulin at baseline. Baseline mean weight was 208.6 lbs in the low carbohydrate arm and 218.8.lbs. in the low fat arm (p=.23); Mean HbA1c was 7.9% in the low carbohydrate and 7.4% in the low fat. (p=.37) After 3 months of intervention, a significant weight loss was observed in each group. The low carbohydrate intervention achieved a mean weight loss of 11.6 lbs (p<.001) compared to a mean weight loss of 8.2 lbs in the low fat intervention (p=.002). The HbA1c declined significantly from 7.9% to 7.0% in the low carbohydrate arm (p=.005), but the reduction in the low fat arm from 7.4% to 7.2% was not significant. (p=.644). Six participants in the low carbohydrate arm and two participants in the low fat arm reduced their insulin dosage. Sulfonlyurea was decreased or discontinued by eleven participants and two participants in the low carbohydrate and low fat arms respectively. Metformin dosage was not significantly changed in either arm.
CONCLUSIONS: Following a three-month dietary intervention with a low carbohydrate or low fat diet, participants had significant reductions in weight, and HbA1c. Participants in the low carbohydrate arm had greater reductions in HbA1c, compared to the low fat arm. Medications were reduced in both interventions. Our findings suggest that in the short-term, a low carbohydrate diet results in slightly greater weight loss, and more significant reductions in HbA1c, when compared to a low fat diet. Whether these reductions are sustainable over time continues to be investigated.

EFFECTS OF HOSPITAL PRICE COMPETITION ON QUALITY OF CARE FOR 4 HIGH-MORTALITY CONDITIONS. K.G. Volpp[1]; R.T. Konetzka[2]; J. Sochalski[3]; J. Zhu[3]. [1]Philadelphia VA Medical Center, Philadelphia, PA; [2]University of Chicago, Chicago, IL; [3]University of Pennsylvania, Philadelphia, PA. *(Tracking ID # 154377)*

BACKGROUND: A significant body of health economics research indicates that hospital competition shifted from a quality/amenity basis to a price basis with the growth of managed care in the 1980s and 1990s, lowering the rate of increase in hospital costs. The passage of selective contracting legislation in California in 1983 gave third party payers new freedom to negotiate discounts with hospitals and to channel patients away from high-cost providers, stimulating the growth of managed care and making price a significant factor in hospital competition. However, in recent years costs have begun to rise at rapid rates and it is less clear that managed care is still effectively controlling costs. In this analysis, we examine effects of price competition and managed care on changes in quality over two time periods: 1991–1997, a period in which price competition and managed care reduced the rate of increase in hospital costs and 1997–2001, a period in which our previous work shows that price competition still reduced the rate of increase in hospital costs but managed care no longer had these effects.
METHODS: Our analysis uses California OSHPD data from 1991 through 2001 linked with state death certificates and hospital financial data. We assess the effects of price competition and managed care penetration on 30-day mortality for patients with AMI, stroke, hip fracture, or GI bleed while controlling for patient severity and changes in hospital volume and case-mix. We use hospital-level fixed effects in a long-differences framework to assess whether the effects on quality of being in a market with high managed care penetration and/or high market competition have changed over time.
RESULTS: Neither the unadjusted nor the adjusted results suggest a shift in the effect of managed care on mortality corresponding to the shift in the effect on hospital cost growth. In both the earlier and later periods, the greatest decline in mortality is found in markets with high competition but low managed care. The smallest decline in mortality (or largest increase) is found in markets with low competition and high managed care. This would suggest that high competition is associated with improvements in quality but that high managed care penetration interferes with rather than enhances that effect. Higher managed care penetration alone is associated with relatively worse mortality rates regardless of competition, but the size of the difference does not differ substantially between the two periods.
CONCLUSIONS: If the fact that higher MCP ceased to have an effect on costs after the managed care backlash circa 1997 were due to a shift away from competition on price toward competition on quality, we might expect to see relative declines in mortality in high-MCP markets in the post-backlash period. For four common conditions treated in inpatient settings, we find no evidence of this. These results are consistent with qualitative evidence that hospitals have simply gained negotiating power relative to managed care organizations, and that any shift toward quality competition consists of competition on amenities and services that have little influence on clinical outcomes.

EFFECTS OF INSURANCE, RACE, DISTANCE FROM CLINIC, AND AGE ON A1C IN AN ACADEMIC GENERAL INTERNAL MEDICINE PRACTICE. A.S. Wallace[1]; M. Pignone[1]; D.A. Dewalt[1]; V.A. Santos[1]; R. Malone[1]. [1]University of North Carolina at Chapel Hill, Chapel Hill, NC. *(Tracking ID # 153621)*

BACKGROUND: We examined the influence of demographic and insurance-related factors on glycemic control in an academic general internal medicine practice.
METHODS: We used data from our diabetes registry to examine the effect of age, race, distance from clinic, and insurance status on A1C values, using bivariate and multivariate analyses. We then used separate logistic regression analyses to better understand determinants of poor glycemic control for those under age 65, or those unable to qualify for Medicare coverage through age alone, and for those 65 and older. For those younger than 65 years, we categorized payor source into the following groups: Privately insured, Medicaid only, dual Medicare-Medicaid, Medicare with Supplemental insurance, Medicare only, and Uninsured; for those 65 years and older, payor source was categorized into Medicare only, Medicare with supplemental insurance, dual Medicare-Medicaid, and private insurance.
RESULTS: We examined data for 1699 patients with a clinical diagnosis of diabetes who had been seen within the previous 2 years. From bivariate analyses we found differences in mean A1C according to race/ethnicity (Hispanic=7.69, African-American=7.47, Caucasian=7.12; $p<0.001$) and insurance status (Uninsured=7.71, Medicaid only=7.57, Private insurance=7.34, Private+Medicare=7.18, Medicaid+Medicare=7.01). There was a negative relationship between age and A1C ($r=-.182$, $p<.001$). We found no association between miles from clinic and A1C. An exploratory stepwise multiple linear regression analysis revealed that age ($p<.01$), uninsurance ($p=.006$), dual Medicare-Medicaid insurance ($p=.03$), and African-American race ($p=.003$) to be statistically significantly associated with A1C values. For the 1118 individuals under age 65, the mean age was 52 years (21–64) and the mean A1c was 7.5 (4.6–17.7). 41% in this cohort had no insurance while 21% had private insurance. The remainder of the cohort had Medicare only (13%), dual Medicare-Medicaid (11%), Medicaid-only (11%), and Medicare with some form of supplemental insurance (4%). 272 patients (24.3%) had an A1c of 8.5 or greater. In this cohort, African American (OR=1.65, $p<.01$) and race other than Caucasian (OR=1.966, $p=.03$), along with lack of insurance (OR=1.535, $p=.03$), were predictive of having an A1C of 8.5 or greater. For the 581 individuals age 65 and over, the mean age was 72 years (65–96) and the mean A1C was 7.0 (4.4–14.0). 42% of this cohort had Medicare only, 31% had Medicare with some form of supplemental insurance, 24% had dual Medicare-Medicaid coverage, and 2% had private insurance. 66 patients (11%) had an A1C of 8.5 or greater. In this cohort, African-American race (OR=1.90, $p=.02$) was the only significant predictor of having an A1C of 8.5 or greater.
CONCLUSIONS: Younger, non-Caucasian and uninsured patients are at greatest risk for poor glycemic control, even in the context of comprehensive, clinically-based, chronic illness services.

EFFECTS OF MARIJUANA ON PULMONARY FUNCTION: A SYSTEMATIC REVIEW. J.M. Tetrault[1]; K. Crothers[2]; B.A. Moore[2]; R. Mehra[3]; J. Concato[1]; D.A. Fiellin[2]. [1]Yale University, West Haven, CT; [2]Yale University, New Haven, CT; [3]Case Western Reserve University, Cleveland, OH. *(Tracking ID # 152874)*

BACKGROUND: Marijuana (MJ) is the most commonly used illicit substance in the U.S. The purpose of this review was to synthesize published information regarding the effect of acute and chronic MJ inhalation on pulmonary function.
METHODS: English-language studies involving inhaled MJ in adults (>=18 years) were identified by searching MEDLINE, PsychINFO, and EMBASE from 1966 through 3rd week of November 2004. Studies were excluded if there were no primary data reported, no human subjects, no pulmonary function tests (PFTs), or if they consisted of a case series with fewer than 10 subjects. Two reviewers independently assessed studies for inclusion. For chronic MJ smokers, data from PFTs included measures of airflow obstruction [forced expiratory volume in one second (FEV1), and FEV1 divided by forced vital capacity (FVC)], and one measure of gas exchange [diffusing capacity for carbon monoxide (DLco)]. In addition, we extracted measures of airway response (peak flow, airway conductance, airway resistance, FEV1, flow rate or FVC) after acute exposure to MJ inhalation. Studies were assigned a quality score based on an established scoring system.
RESULTS: Most articles (933/965, 97%) were not relevant: 436 studies were not primary data collection, 252 studied non-human subjects, 179 lacked PFTs, and 66 were case series of fewer than 10 subjects. Among the 32 remaining articles, 17 provided information on the chronic effects of MJ on FEV1; of these, 88% (15/17) reported normal FEV1 and/or no significant difference; 6% (1/17) reported a decrease; and 6% (1/17) reported an increase compared with non-MJ smoking controls. Sixteen of the articles reported data on FEV1/FVC. Of these, 56% (9/16) reported no difference in FEV1/FVC compared with normal values or non-MJ smoking controls; 25% (4/16) of studies reported significantly lower FEV1/FVC ratio in MJ smokers or a greater proportion of MJ smokers with FEV1/FVC<80% compared to non-smokers; and 19% (3/16) of studies reported mildly increased FEV1/FVC. Of the 3 studies that tracked FEV1/FVC ratios longitudinally, one found a significant decrease in FEV1 and FEV1/FVC with MJ inhalation over time. Of the 4 articles reporting DLco, one reported a significantly decreased DLco in MJ smokers compared with non-smokers. Of the 12 articles reporting airway effects immediately following MJ inhalation, 92% (11/12) concluded that MJ inhalation caused bronchodilation. Conversely, three articles reported that specific airway conductance decreased over time with sub-acute or chronic MJ smoking. Quality scores did not influence the results (data not shown); and the comparison of studies was limited by heterogeneous measures of MJ, tobacco and other exposures.
CONCLUSIONS: Studies of chronic MJ inhalation did not find consistent abnormalities in airflow or impairments in pulmonary gas exchange; whereas acute inhalation of MJ was associated with bronchodilation. Our review supports the need for further research on this topic, including attention to dose and duration of MJ, other exposures (e.g. tobacco), as well as standardized measures of outcome. Such studies would contribute to a better understanding of the overall health effects of MJ inhalation.

EFFECTS OF MEDICATION COST-SHARING ON LDL CHOLESTEROL IN ELDERLY PATIENTS WITH DIABETES OR VASCULAR DISEASE ATTENDING AN URBAN CLINIC FROM 1999–2004. D. Dowell[1]; M.D. Schwartz[2]; J. Blustein[3]; A. Dubovsky[1]; M.N. Gourevitch[1]. [1]New York University, New York, NY; [2]United States Department of Veterans Affairs, New York, NY; [3]Wagner Graduate School, New York University, New York, NY. *(Tracking ID # 151687)*

BACKGROUND: Cost-sharing, or requiring patients to contribute toward health care expenses through co-pays or deductibles, is increasingly used to control costs. Such policies assume cost-sharing decreases inappropriate utilization but carry the danger that patients may decrease appropriate utilization and suffer adverse health outcomes. The burden of cost-sharing disproportionately affects low income, chronically ill, and older patients. The new national Medicare prescription benefit will reduce but not eliminate the burden of cost-sharing for many seniors and may increase the burden for others. Several states had pre-existing prescription plans for Medicare patients, many of which provide more generous benefits than the national plan does. One such plan is Elderly Pharmaceutical Insurance Coverage (EPIC) in New York State. We aimed to determine whether cost-sharing affected outcomes for low-income patients. Specifically, we studied the impact of two events on LDL cholesterol control in elderly patients with diabetes or vascular disease attending an urban clinic between 1999 and 2004: 1) Introduction of a $10/prescription/month co-pay (with a cap of $40/month) at the clinic pharmacy where drugs had previously been available free of charge. 2) Subsequent enrollment into EPIC with access to free medication.
METHODS: Using a retrospective, dual cohort design, we compared 50 patients who obtained EPIC with 150 who did not, matched by sex. Subjects were Medicare recipients 65 and older with diabetes or vascular disease who saw the same provider at least twice within an 18-month period. Patients with Medicaid were excluded. The primary outcome was change in LDL for each of three time periods: from 1999 through the introduction of the pharmacy co-pay in 2001, from 2001 through enrollment in EPIC, and after enrollment in EPIC.

RESULTS: LDL decreased in both groups over time. Among all patients, average LDL decreased after the co-pay was introduced, from 115.2 mg/dL to 107.3 mg/dL ($p=0.000$). In the group which subsequently enrolled in EPIC, the LDL decreased further from 110.4 mg/dL before enrollment to 100.5 mg/dL after enrollment ($p=0.005$). Average LDL in the patients who did not receive EPIC decreased from 106.0 to 100.4 in the same time period ($p=0.001$). LDL decreased more in the group that received EPIC (-9.9) than in the group that did not (-5.6) but the difference in change between groups did not reach statistical significance ($p=0.218$). There were no significant differences between groups in percent of patients achieving LDL < 100 in each time period. In the combined sample, 25% of patients achieved LDL < 100 prior to introduction of the co-pay in 2001, 42% after the co-pay and prior to EPIC enrollment, and 49% after EPIC enrollment.
CONCLUSIONS: In elderly patients with vascular disease or diabetes attending an urban clinic, LDL declined significantly between 1999 and 2004. Eliminating a co-pay of $10/prescription/month was associated with a trend toward increased magnitude of LDL reduction, but this did not achieve significance, possibly because our sample size was limited. The overall temporal trend we observed likely reflected growing awareness among internists during this time period of the benefits of lowering LDL in patients with diabetes and vascular disease. Internists in a safety net clinic have incorporated evidence-based LDL reduction guidelines into practice, yielding beneficial clinical outcomes even in the face of financial challenges to patients.

EFFECTS OF PERIOPERATIVE MEDICAL CONSULTATION ON RESOURCE UTILIZATION AND QUALITY OF CARE IN PATIENTS UNDERGOING MAJOR SURGERY. A.D. Auerbach[1]; B. Ide[1]; B. Stone[1]; J. Maselli[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 157256)*

BACKGROUND: Higher burden of comorbidity in surgical patients and shorter lengths of stay are contributing to growing interest in collaboration between surgeons and internists in managing patients in the perioperative period. However, there is little information regarding the effects consultative models on quality of care or resource use.
METHODS: We analyzed data from the UCSF Perioperative Quality and Safety Initiative (PSQI), an observational trial of patients admitted for major surgery at UCSF Medical Center between January 1 2003 and March 31 2004. Operative data, clinical history, presence or absence of a consultation before or after surgery, and the reasons for consultation were collected chart review of patients meeting JCAHO/CMS criteria for reporting of surgical infection prevention performance data; costs and length of stay were collected from administrative data. We then performed multivariable analyses clustered at the level of the surgical service to determine whether consultation was associated with differences in quality of care measures or resource use.
RESULTS: Of 498 patients in our cohort, 129 (26%) had medical consultation (MC). MC patients more frequently had ASA class 3 or higher (78% vs. 44%, $P<0.001$), diabetes (27% vs 14%, $P=0.004$), peripheral vascular disease (27% vs. 7%), or end-stage renal disease (16% vs, 3%, $p<0.0001$). Patients on the orthopaedic surgery service were less likely to receive MC, while those on the cardiothoracic or vascular services were more likely ($p<0.001$).The most common reason for consultation was for care of a specific medical problem (70%); the Cardiology service was consulted most often (23% of all consultations). After adjusting for the presence and type of complication, medical comorbidities, surgical service, timing of and reason for consultation, and a propensity score representing the likelihood of receiving a consultation, MC patients were just as likely to have a blood sugar > 200 mg/dL in the first or second 24 hours (adjusted odds for blood sugar > 200 = 1.1, 95% CI 0.3–4.7), or receive perioperative beta blockers appropriately (adjusted odds for receipt 1.1, 95% CI 0.3–3.4). MC patients were more likely to receive venous thromboembolism prophylaxis appropriately (Adjusted odds for receipt 2.7, 95% CI 1.2–5.6). After adjustment, MC patients continued to have substantially longer length of stay (59% longer, $p=0.001$) and higher costs of care (54% higher $p=0.001$). Subset analyses focusing on patients who received consultation within 2 days of surgery suggested similarly inconsistent effects of MC on quality of care.
CONCLUSIONS: Even after accounting for severity of illness and other clinical factors associated with need for consultation, medical consultants had minimal effect on resource use or length of stay. Furthermore, consultation had inconsistent effects on care quality even within patient groups stringently defined as being eligible for specific quality of care processes. Future research should determine how medical consultants can improve quality and efficiency of perioperative care.

EFFECTS OF SELF-MANAGEMENT INTERVENTIONS ON HEALTH OUTCOMES OF PATIENTS WITH HEART FAILURE: SYSTEMATIC REVIEW OF RANDOMIZED CONTROLLED TRIALS. A. Jovicic[1]; J. Holroyd-Leduc[2]; S. Straus[2]. [1]University of Toronto, Toronto, Ontario; [2]Toronto Western Hospital, Toronto, Ontario. *(Tracking ID # 152084)*

BACKGROUND: Heart failure is the most common cause of hospitalization among adults over 65, and over 60% of patients die within 10 years of symptom onset. The objective of this study was to determine the effectiveness of self-management interventions on mortality, hospital readmission rates and health-related quality of life in patients diagnosed with heart failure.
METHODS: This study is a systematic review of randomized controlled trials. Data sources included MEDLINE (1966-Nov 2005), EMBASE (1980-Nov 2005), CINAHL (1982-Nov 2005), ACP Journal Club database (to Nov 2005), Cochrane Library (to Nov 2005), reference lists of relevant articles and experts in the field. Randomized controlled trials of self-management interventions that enrolled patients 18 years of age or older diagnosed with heart failure were included in the review. Three reviewers independently assessed the quality of each study and extracted relevant data. For each included study, the pooled odds ratios (OR) for death, all-cause hospital readmission and heart failure readmission were computed. A fixed effects model was used to quantitatively synthesize results. Effects on other health-related outcomes and cost could not be effectively pooled, but the findings are summarized.
RESULTS: A total of 667 citations were identified, of which six randomized trials with 857 patients were included in the review. Self-management was effective at decreasing all-cause hospital readmissions (OR = 0.59; 95% confidence interval (CI), 0.44 to 0.80; $P=0.001$) and heart failure readmissions (OR = 0.44; 95% CI, 0.27 to 0.71; $P=0.001$). The effect on mortality was not significant (OR = 0.93; 95% CI, 0.57 to 1.51; $P=0.76$). Studies that reported results on health behavior consistently reported improvements in adherence to prescribed medical advice. One study reported increased beliefs in benefits of diet and self-monitoring. Other reported health-related outcome measures consistently showed no significant difference, including no difference in functional capabilities, symptom status and quality of life. The three studies that included cost analyses all reported savings due to reduced resource utilization. The savings ranged from US$1300 to US$7515 per patient per year.
CONCLUSIONS: Self-management programs targeted for patients with heart failure significantly decrease overall hospital readmissions and readmissions for heart failure. A decrease in mortality was not demonstrated.

EFFICACY AND TOLERABILITY OF INDIPLON IN ADULTS WITH CHRONIC INSOMNIA: RESULTS FROM TWO DOUBLE-BLIND, PLACEBO-CONTROLLED TRIALS. B. Klee[1]; D. Keohane[1]; J. Bell[2]; R. Farber[2]. [1]Pfizer, Inc, New York City, NY; [2]Neurocrine Biosciences, Inc, San Diego, CA. *(Tracking ID # 150356)*

BACKGROUND: We present results from two studies which provide the first large-scale evaluation of the long-term efficacy and safety of indiplon, a novel, alpha-1 subunit-selective, GABA-A receptor potentiator, in adults diagnosed with chronic DSM-IV primary insomnia.(Fig. 12)
METHODS: In study #1, patients ($N=702$) were randomized to 3 months of double-blind, nightly treatment with indiplon capsules 10 mg, 20 mg, or placebo. In study #2, patients ($N=248$) were randomized to 4 weeks of double-blind, nightly treatment with either indiplon tablets 15 mg or placebo. For both studies, patient-rated assessments included time to sleep onset and total sleep time. Responder status was defined as much-to-very-much improved on the Investigator Global Rating, Change scale (IGR-C).
RESULTS: In study #1, treatment with indiplon 10 mg and 20 mg was associated with significant improvement in time to sleep onset (primary outcome) and total sleep time (Table 1). In study #2, treatment with the indiplon 15 mg was also associated with significant improvement in both sleep onset and total sleep time (primary outcome) parameters (Table 2). In both studies, global responder ratings were significantly higher on all doses of indiplon at all time points. Indiplon was well-tolerated in both studies; most adverse events were transient, and mild-to-moderate in severity.
CONCLUSIONS: Taken together, the results of the two long-term studies provide data which indicate that indiplon is safe and effective in inducing and maintaining sleep in adult patients with primary insomnia. Improvement was observed on the first night of treatment and maintained throughout the treatment period.

Table 1. Efficacy of indiplon on patient-rated sleep measures: Study #1

LS-mean ± se	Placebo (N=214)	Indiplon 10mg (N=228)	Indiplon 20mg (N=221)	Placebo comparison P-value 10mg	Placebo comparison P-value 20mg
Time to sleep onset, mins					
Baseline	56.4 ± 2.4	56.9 ± 2.4	58.6 ± 2.5		
Month 1	48.7 ± 1.9	34.0 ± 1.3	33.0 ± 1.3	<0.0001	<0.0001
Month 2	42.3 ± 2.1	31.6 ± 1.5	31.0 ± 1.5	<0.0001	<0.0001
Month 3	41.9 ± 2.3	29.7 ± 1.6	31.6 ± 1.7	<0.0001	0.0003
Total sleep time, mins					
Baseline	315.4 ± 5.2	318.1 ± 5.0	304.9 ± 5.1		
Month 1	327.5 ± 4.0	362.8 ± 3.9	372.1 ± 4.0	<0.0001	<0.0001
Month 2	339.5 ± 4.5	366.6 ± 4.3	375.8 ± 4.4	<0.0001	<0.0001
Month 3	338.2 ± 4.9	364.8 ± 4.6	372.8 ± 4.8	<0.0001	<0.0001
IGR-C Responders					
Month 1	23%	45%	58%	<0.0001	<0.0001
Month 2	32%	54%	66%	<0.0001	<0.0001
Month 3	39%	66%	65%	<0.0001	<0.0001

Table 2. Efficacy of indiplon on patient-rated sleep measures: Study #2

LS-mean ± se	Placebo (N=120)	Indiplon 15mg (N=123)	P-value
Time to sleep onset, mins,			
Baseline	52.4 ± 3.3	51.0 ± 3.2	
4-Week average	40.1 ± 2.2	29.4 ± 1.6	<0.0001
Total sleep time, mins			
Baseline	307.2 ± 7.0	313.7 ± 6.9	
4-Week average	336.6 ± 5.3	364.7 ± 5.3	0.0002
IGR-C Responders			
Week 2	31%	57%	<0.001
Week 4	33%	65%	<0.001

Analyses in both tables were based on repeated measures ANCOVA on the intent-to-treat sample; IGR-C = investigator global rating, change score

EFFICACY AND TOLERABILITY OF SILDENAFIL IN MEN WITH BOTH ERECTILE DYSFUNCTION AND LOWER URINARY TRACT SYMPTOMS. J. Young[1]; K.T. McVary[2]; L. Tseng[3]; G. Van Den Ende[3]. [1]South Orange County Medical Research Center, Laguna Woods, CA; [2]Northwestern University, Chicago, IL; [3]Pfizer, Inc, New York, NY. *(Tracking ID # 153704)*

BACKGROUND: The efficacy of phosphodiesterase type 5 (PDE5) inhibitors in the treatment of erectile dysfunction (ED) has been demonstrated in multiple studies, but few have examined their effects on ED and comorbid lower urinary tract symptoms (LUTS). Recent studies have shown that the links between ED and LUTS are complex and the 2 conditions may share a common mechanism. Proposed mechanisms for the interrelationship between ED and LUTS include: 1) autonomic hyperactivity; 2) decreased or altered nitric oxide synthase/nitric oxide levels; 3) prostate and penile ischemia; and 4) increased Rho-kinase/endothelin activity. Studies suggest that PDE5 inhibition promotes relaxation of smooth muscle in the lower urinary tract and may improve LUTS. The current investigation assessed the efficacy and tolerability of the PDE5 inhibitor sildenafil citrate (Viagra®) in men with ED and LUTS.
METHODS: We performed a 12-week, double-blind, placebo-controlled study of sildenafil in men 45 years old who scored 25 on the Erectile Function (EF) domain of the International Index of Erectile Function (IIEF), had an International Prostate Symptom Score (IPSS) 12, and prostate-specific antigen 10 ng/mL. Patients were instructed to take sildenafil (50 mg) or placebo each night at bedtime or 30 minutes to 1 hour before anticipated sexual activity. After 2 weeks, the dose was titrated to 100 mg with the option of returning to 50 mg if 100 mg was not tolerated. The primary endpoint was the change from baseline to week 12 in EF domain score. Secondary endpoints included changes in total IPSS score, IPSS subscores for irritative and obstructive symptoms, a quality of life (QoL) question, the Benign Prostate Hypertrophy Impact Index (BPHII), and maximum urinary flow rate (Qmax). Treatment satisfaction was assessed at the end of the study using the Erectile Dysfunction Inventory of Treatment Satisfaction (EDITS).
RESULTS: All men who took at least 1 dose of study medication and completed at least 1 post-baseline efficacy assessment were included in the intent-to-treat population, which totaled 366 men. At week 12, men receiving sildenafil demonstrated greater least squares mean improvement in EF domain (+9.2 vs.+1.9, $P<0.0001$) and IPSS scores (–6.3 vs–1.9) compared with placebo. Subscores for irritative (–2.3 vs–0.6) and obstructive (–4.1 vs–1.5) LUTS, and the QoL question (–1.0 vs–0.3) were significantly improved in sildenafil- vs placebo-treated men ($P<0.0001$). Sildenafil (vs placebo) also significantly reduced the impact of BPH (–2.0 vs–0.9, $P<0.0001$). Qmax was not different for patients receiving sildenafil or placebo. At the end of treatment, satisfaction with treatment was significantly ($P<0.0001$) higher for patients who received sildenafil compared with those who received placebo (EDITS Index Score 71.2 vs 41.7). The most frequent ($\geq 5\%$) adverse events (all causality) in men receiving sildenafil (vs placebo) were headache (12% vs 6%), dyspepsia (9% vs 1%), and respiratory tract infection (7% vs 5%).
CONCLUSIONS: These results suggest that sildenafil taken daily is well tolerated and improves erectile function and urinary symptoms in men with ED and LUTS. The improvements in IPSS are comparable to those achieved using á1-blockers and were accompanied by a significant improvement in QoL. However, the improvements in LUTS were not associated with a significant change in Qmax, suggesting that a new pathophysiology paradigm may be needed to explain the etiology of LUTS.

ELECTRONIC HEALTH RECORD USE AND THE QUALITY OF AMBULATORY CARE IN THE UNITED STATES. J.A. Linder[1]; J. Ma[2]; D.W. Bates[1]; B. Middleton[1]; R.S. Stafford[2]. [1]Brigham and Women's Hospital and Harvard Medical School, Boston, MA; [2]Stanford University, Palo Alto, CA. *(Tracking ID # 152728)*

BACKGROUND: Electronic health records (EHRs) represent a potentially sustainable solution to improve quality in medical care. However, few broadly representative studies have measured whether EHR use is associated with improved quality of care.
METHODS: We performed a cross-sectional analysis of visits in the 2003 National Ambulatory Medical Care Survey (n=25,288), a nationally representative probability survey. We examined the use of EHRs in outpatient practices throughout the United States and its association with performance 14 outpatient quality indicators. The sample size ranged from 410 visits to 11,476 visits for the individual quality indicators. Performance on the quality indicators was defined as the percentage of applicable visits receiving appropriate care.
RESULTS: EHRs were used in 16% (95% confidence interval [CI], 13% to 21%) of the 906 million (95% CI, 814 million to 998 million) ambulatory visits in the United States in 2003. There were no differences between visits with and without EHR use in patient age, sex, race, ethnicity, or insurance status. There were no differences between practices with and without EHR use in geographic region, rural versus urban location, private versus other type of practice, or solo versus non-solo practice. Visits at practices owned by a physician or a physician group were less likely to be associated with EHR use (15%) than visits at practices owned by a health maintenance organization, academic medical center, other hospital, or a health care corporation (28%; $p=0.02$). Performance did not differ between visits at practices that did and did not use EHRs for 12 of 14 quality indicators: aspirin use for coronary artery disease (48% of visits with EHR use versus 40% without), beta-blocker use for coronary artery disease (38% versus 40%), diuretic and beta-blocker use for hypertension (64% versus 61%), statin use for hypercholesterolemia (37% versus 49%), adequate treatment of depression (91% versus 86%), selected antibiotic use for acute otitis media (68% versus 67%), smoking cessation counseling (37% versus 23%), diet counseling in high-risk adults (18% versus 19%), exercise counseling in high-risk adults (18% versus 14%), routine blood pressure measurement (66% versus 72%), avoiding routine hemoglobin measurement (83% versus 85%), and avoiding inappropriate medication prescribing in elderly patients (92% versus 94%). For 1 quality indicator, visits at practices using EHRs had significantly better performance: avoiding routine urinalysis during general medical examinations (95% versus 90%; $p=0.003$). EHR use was associated with marginally better quality for avoiding routine electrocardiograms during general medical examinations (98% versus 96%; $p=0.06$).
CONCLUSIONS: The quality of ambulatory care in the United States could be improved substantially. EHRs have been touted as a means of improving quality. Although we could not assess to what degree EHR functionality around quality measures was in place, we found that EHR use had little association with better quality.

ELECTRONIC HEALTH RECORDS: WHICH PRACTICES HAVE THEM, AND HOW ARE CLINICIANS USING THEM?. M.L. McCarthy[1]; S.R. Simon[2]; R. Kaushal[3]; C.A. Jenter[1]; L.A. Volk[4]; E.G. Poon[3]; K.C. Yee[3]; D.H. Williams[1]; D.W. Bates[3]. [1]Brigham and Women's Hospital, Wellesley, MA; [2]Harvard University, Boston, MA; [3]Brigham and Women's Hospital, Boston, MA; [4]Partners HealthCare Systems, Wellesley, MA. *(Tracking ID # 153834)*

BACKGROUND: Limited data are available to estimate the prevalence and use of electronic health records in ambulatory care practices in the United States. Practice managers represent one potentially valuable source for this information, as they are likely to be especially familiar with business practices.
METHODS: We conducted a mailed survey among a stratified random sample of 1826 of the approximately 6200 office practices in Massachusetts. The office manager of each practice was sent two mailings of the survey, one month apart, in the spring of 2005. After the second mailing, non-responding practices were called and asked to complete the survey over the phone. The one-page survey inquired about use of computerized scheduling, billing, prescribing, and electronic health records (EHRs). Practices with EHRs reported which of 11 functionalities their system had and whether or not greater than 50% of the clinicians in the practice actively used each feature. Practices without EHRs were asked to anticipate when they intend to adopt EHRs and to list barriers to adoption.
RESULTS: A total of 837 surveys were returned for a response rate of 46%. Overall, 29% of practice managers reported having an EHR in their practice. Primary-care-only and specialty-care-only practices reported similar adoption rates (26% and 28%, respectively, $P=.56$). The adoption rate in multi-specialty practices (40%) was higher than both primary-care-only ($P<0.01$) and specialty-care-only ($P<0.05$) practices. The number of clinicians in the practice strongly correlated with EHR adoption ($P<0.0001$), with fewer small practices adopting EHRs. Having computerized claims and/or billing systems ($P<0.05$), computerized scheduling systems ($P<0.0001$) or computerized prescribing systems ($P<0.0001$) was associated with EHR adoption. Among practices that have EHRs with laboratory and radiology result retrieval capabilities, at least 88% of practices report that a majority of their clinicians actively use these functionalities, while 72% of practices with electronic decision support report that majority of clinicians actively use it (see Table 1). Among the 590 practices without an EHR, 15% plan to implement one within the next 12 months, 28% within the next 1–2 years, 16% within the next 3–5 years and 37% reported having no plans to implement an EHR in the foreseeable future. The most frequently reported barrier to implementation was lack of adequate funding (50%).
CONCLUSIONS: About 3 in 10 medical practices in Massachusetts have an EHR. Even among adopters, though, physician usage of EHR functions varied considerably from practice to practice. Many clinicians are not actively using functionalities that are necessary to improve quality and safety. Furthermore, among practices that do not have EHRs, about a third have no plan for adoption. Inadequate funding remains an important barrier to EHR adoption in ambulatory care practices.

EHR features for practices that have EHRs	% who **have** this feature	% of practices reporting >50% of clinicians use this feature
Radiology test results	95	89
Lab test results	97	88
Visit notes	97	81
Medication lists	99	80
Radiology order entry	81	80
Electronic prescribing	91	78
Clinical messaging (secure e-mailing between providers)	96	77
Lab order entry	92	77
Problem lists	94	73
Alerts, warnings, reminders (i.e. decision support)	94	72
Patient registry (list of all patients with particular conditions)	93	65

ELEVATED TRIGLYCERDES INDICATES A GREATER BURDEN OF INFLAMMATION IN ASYMPTOMATIC MEN. R.H. Orakzai[1]; S.H. Orakzai[1]; K. Nasir[1]; J.M. Carvalho[2]; R. Meneghello[2]; R.D. Santos[2]; R.S. Blumenthal[3]. [1]University of Pittsburgh, Pittsburgh, PA; [2]University of Sao Paulo, Sao Paulo; [3]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 152746)*

BACKGROUND: Although elevated levels of low-density lipoprotein cholesterol (LDL-C) remains the main focus of cardiovascular disease (CVD) prevention, there is a growing body of evidence from epidemiological data indicating that elevated triglycerides (TG) levels are an independent risk factor for CVD events. Few studies have directly compared these different lipid variables in terms of the strength of their association with subclinical outcomes such as inflammation. In this study we aim to compare the association of high density lipoprotein cholesterol (HDL-C), LDL-C and TG with white blood cell (WBC) count, a simple, inexpensive and specific inflammatory marker associated with an adverse CVD prognosis.
METHODS: We studied 559 asymptomatic men (46 $\pm$ 7 years) who presented for CVD risk stratification in Sao Paulo, Brazil. The study population was divided into tertiles according to TG (1st: $<$110, 2nd: 110–181, 3rd: $\geq$182 mg/dl), HDL (1st: $<$40, 2nd: 40–47, 3rd: $\geq$48 mg/dl) and LDL (1st: $<$114, 2nd: 115–139, 3rd: $\geq$140 mg/dl). The relationship between WBC count and lipid profile was assessed using univariate and multivariate linear regression analysis.
RESULTS: The WBC ($\times$ 109 cells/L) count increased significantly across increasing tertiles of TG (1st: 6.04 $\pm$ 1.49, 2nd: 6.21 $\pm$ 1.44, 3rd: 6.78 $\pm$ 1.73, $p<0.0001$), whereas a trend of lower WBC was observed across increasing tertiles of HDL (1st: 6.52 $\pm$ 1.62, 2nd: 6.24 $\pm$ 1.50, 3rd: 6.21 $\pm$ 1.61, $p=0.08$). On the other hand no relation between increasing LDL tertiles and WBC count was observed (1st: 6.32 $\pm$ 1.63, 2nd: 6.28 $\pm$ 1.49, 3rd: 6.35 $\pm$ 1.56, $p=0.91$). Model 1 was adjusted for age, smoking status, systolic blood pressure, glucose, body mass index, and metabolic equivalents (METS). In model 1, the adjusted mean WBC count was significantly higher across increasing levels of TG ($p=0.02$, table). However no relationship was found between WBC count and LDL or HDL. In model 2 all lipid variables were introduced in model 1 in addition to traditional CVD risk factors. In model 2, the association between TG and WBC count still persisted.
CONCLUSIONS: In our study among conventional lipid variables, only TG was independently associated with higher WBC count. Elevated TG levels are an independent risk factor for CVD events. There is also a strong and independent association between WBC count and CVD risk. Inflammation is implicated in the pathogenesis of atherosclerosis and acute coronary syndromes. Our data suggest that higher TG levels may be a marker for greater burden of inflammation and thus increased CVD risk among asymptomatic individuals.

Adjusted Mean WBC ($\times$ 10^9 cells/L) count according to increasing lipid levels (data presented as means $\pm$ standard error of mean, SEM)

	Tertile 1	Tertile 2	Tertile 3	p for trend
TG				
Model 1	6.17 $\pm$ 0.12	6.19 $\pm$ 0.12	6.61 $\pm$ 0.13	0.02
Model 2	6.15 $\pm$ 0.12	6.18 $\pm$ 0.12	6.60 $\pm$ 0.14	0.04
HDL				
Model 1	6.43 $\pm$ 0.12	6.23 $\pm$ 0.13	6.29 $\pm$ 0.13	0.49
Model 2	6.29 $\pm$ 0.13	6.24 $\pm$ 0.13	6.35 $\pm$ 0.13	0.83
LDL				
Model 1	6.38 $\pm$ 0.12	6.40 $\pm$ 0.12	6.13 $\pm$ 0.12	0.23
Model 2	6.39 $\pm$ 0.12	6.40 $\pm$ 0.12	6.14 $\pm$ 0.13	0.26

EMPLOYMENT OF YOUTH TO ENHANCE THE SOCIO-CULTURAL RELAVENCE OF A COMMUNITY-CENTERED DEPRESSION PREVENTION INTERVENTION FOR ADOLESCENTS. K. Dmochowska[1]; J. Ellis[1]; M.T. Prochaska[1]; J. Landback[1]; B.W. Van Voorhees[1]. [1]University of Chicago, Chicago, IL. *(Tracking ID # 154483)*

BACKGROUND: More than 25% of adolescent will experience a depressive episode by age 24. Several preventive interventions have demonstrated efficacy in study settings. However, all involve group or individual counseling, approaches that many youth, particularly those from underserved ethnic minorities, find unacceptable. Based interventions of demonstrated efficacy, we developed a combined primary care/Internet (CATCH-IT) intervention for youth at risk for major depression. To enhance the socio-cultural fidelity while ensuring delivery of the core interventions of demonstrated efficacy, we employed a research team consisting primarily of late adolescent and young adults guide the translation of the intervention.
METHODS: The Project CATCH-IT team consists of two phsycians and six youth contributors (age 19–24). Study leadership consists of a PI (a physician) and a study coordinator (a college graduate). Youth researchers applied Gagne and Wager's idea of vicarious learning, a strategy for learning based on identification with and imitation of a similar leader. Youth created semi-autobiographical sets of "character examples" that mirrored the behavior change lessons in each module of the CATCH-IT Internet program. We used a 7th grade reading level and avoided technical terminology in order to minimize cultural barriers to completing the program. The study coordinator ran weekly meetings in which student team members reported their progress. Each week, the student contributors received personal feedback from study coordinator and PI. Student team members also brainstormed ideas which were emailed throughout the week via the listhost. Youth researchers designed an Internet style with photographs and art to reflect the intended lesson.
RESULTS: The resulting character examples (Shaniece, Ryan, and Jamal) correspond to high school Senior, Junior, and Sophomore status and represent a cross-section of gender, racial, socio-economic, religious, and family statuses. We invoke these semi-autobiographical examples drawn from the student researchers' personal experiences in a wide spectrum of settings including athletics, music, school, work, as well as spiritual, romantic and family life. These examples provide the participants with an opportunity to understand and apply the theoretically oriented psychotherapy concepts in their daily lives. Prior to beginning the modules, the participant may read an introduction of each character and choose a particular character to follow through the intervention. The participant is also able to move between characters and compare how different teenagers may experience the concepts discussed in theoretical modules. Accompanying images and colors are intended to enhance identification with characters.
CONCLUSIONS: Youth contribution to medical research teams may enhance the socio-cultural fidelity of community-based approaches to depression prevention for a multi-ethnic adolescent population through the use of techniques such as vicarious learning examples. We suggest the following broad factors for the succesful employment of youth in translational research: flexible selection of research goals, weekly progress meetings, a Internet-based communication network, and a credible feedback system from study leadership. Vicarious learning may enhance the accessibility and cultural authority of behavior change programs for adolescents.

END OF LIFE COMMUNICATION: SKILL, COMFORT AND SATISFACTION LEVELS OF CURRENT RESIDENTS. S. Green[1]; K.S. Deep[2]; W. John[2]; C. Griffith[2]. [1]University of Kentucky Medical Center, Lexington, KY; [2]University of Kentucky, Lexington, KY. *(Tracking ID # 153281)*

BACKGROUND: Residents are frequently confronted with end-of-life (EOL) communication issues in multiple practice settings. Medical education in the area of EOL communication, like many skills, tends to be that of "see one, do one, teach one." This study was designed to assess residents' self-perceived skill, comfort and satisfaction with outcomes related to these discussions within the current training paradigm. We also sought to determine the aspects of EOL discussions that cause residents the most difficulty in order to plan for future educational interventions.
METHODS: We administered an anonymous survey in September 2005 to current internal medicine and medicine-pediatrics residents and physicians who had completed our residency in June 2005. Residents were asked to rate their skill, comfort level, and satisfaction with outcome of discussions concerning the three EOL issues of code status, futile care and withdrawal of care on a five point Likert scale (Low=1; High=5). Responses rated 4 or 5 were coded as "skilled" or "comfortable." Residents were also asked in an open-ended question to identify the most challenging aspect of EOL situations.
RESULTS: Our response rate was 64%. Residents felt skilled (64%) and comfortable (69%) with code status and less so for futile care (44% skilled, 48% comfortable) and withdrawal of care (46% skilled, 51% comfortable). Regarding code status, nearly 70% of residents felt they achieved a satisfactory result often or always. This percentage was much lower regarding futile care ($<$45%) and withdrawal of care (51% often, zero always). Greater than fifty percent of residents identified communicating with family as the most challenging aspect of EOL situations.
CONCLUSIONS: Residents do not perceive themselves to be highly skilled in EOL discussions concerning futile care or withdrawal of care. Their relatively low levels of satisfaction with outcomes may reflect their low comfort level with discussing these issues. A more structured educational component which focuses on improving communication skills and addressing family fears, concerns, and conflicts may improve residents' comfort and satisfaction with EOL discussions.

END OF LIFE DECISION MAKING IN ADVANCED GENETIC LUNG DISEASE. M.A. Earnest[1]; S. McInnes1; L. Wittevrongel[1]. [1]University of Colorado Health Sciences Center, Denver, CO. *(Tracking ID # 151835)*

BACKGROUND: Cystic Fibrosis (CF) and Alpha-1 Antitrypsin Deficiency (AAT) cause progressive pulmonary failure in relatively young populations. We sought to understand how such patients approach end of life (EOL) decisions and the life experiences and circumstances which affect their decision-making processes
METHODS: Iterative focus groups (3 CF and 3 AAT) and analysis conducted in a manner informed by Grounded Theory.
RESULTS: CF patients often view their illness as an intrinsic, developmental component of their lives and selves whereas AAT patients tend to consider their illness as a aberrant event in an otherwise normal life. In both groups, individuals described progression from a state of relative normalcy and illness naiveté to a state of advanced disease and illness wisdom (acceptance and integration of illness and mortality). Progress along this spectrum was associated with an increased willingness to consider and discuss the end of life and its associated medical decisions. Participants described a desire to remain naïve and inexperienced in their illness. Progression in illness experience was marked by a series of transitions including experiences of disease progression, disability, and secondary illnesses, as well as portentous medical encounters (e.g. specialist and transplant evaluations). Factors that increased an individual's sense of control over their illness (spiritual faith, faith in medical care, faith in the efficacy of self-care regimens, and faith in emotional and cognitive resources like positive thinking) tended to delay or postpone progression through these

transitions, decrease their sense of their disease's severity, and decrease their willingness to consider end-of-life and transplant decisions. Participants at all points of illness progression described a hypothetical end of desirable life; those early in their illness careers had more difficulty defining this endpoint and its characteristics, were less inclined to consider and discuss the end of life, and were less accepting of its eventuality than those who were more experienced. Participants described a number of fears and concerns about discussing EOL decisions including fears that negative information is itself harmful, that accepting their mortality would change their doctor's focus, and that prognostic information predicating EOL discussions fails to account for their own personal resources and uniqueness. Participants expressed mixed feelings about physicians discussing illness progression, transplantation, and the end-of-life; some implying that such conversations could be harmful to their relationship with their providers.
CONCLUSIONS: Helping an individual with advanced lung disease make EOL decisions should be viewed as a continuous process, in a stages-of-change model. Physicians should be prepared to foster this discussion for patients in all stages of their illness and should be aware of the varying needs of patients at different places in their illness careers.

EPIDEMIOLOGY AND APPROPRIATENESS OF ACID SUPPRESSION THERAPY IN NURSING FACILITY RESIDENTS. T. Naviwali[1]; A. Stiltner[1]; S. Balogun[1]; K. Amir[1]; V. Lee[1]; J. Evans[1]. [1]University of Virginia, Charlottesville, VA. *(Tracking ID # 154614)*

BACKGROUND: The use of acid suppression therapy (AST) (H2 receptor blockers and Proton Pump inhibitors (PPIs)) has increased steadily over the last decade. Although these drugs are typically indicated for short term treatment of symptomatic gastrointestinal disorders, increasingly these medications are used on a long-term basis. In addition, prophylactic treatment of hospitalized patients, ostensibly for prevention of stress ulcers, is a common practice which often results in continued drug use following hospital discharge. In an effort to reduce unnecessary drug use, we undertook a study to determine the prevalence, duration, and indications for acid suppression therapy in a cohort of skilled nursing facility residents as well as to identify factors associated with AST use.
METHODS: Study Design: Retrospective cohort study. Population and sampling frame: All persons residing in either of 2 skilled nursing facilities (SNFs) in Charlottesville, Virginia, on November 1, 2005. Data Collection: Medical records and pharmacy data were reviewed and data elements of interest abstracted onto a standardized data collection form for further analysis. Data elements included type of acid suppression therapy, symptoms, indication for drug use, other prescription drug use, comorbid medical conditions, and duration of drug therapy.
RESULTS: Subjects ranged in age from 33 to 102 years (median 77.5); 64% were women. The median number of prescription drugs taken daily was 8 (range 0 to 20/day). Among 134 consecutive SNF residents, the point prevalence of AST use was 46% (n=62). PPIs accounted for 87% of AST drugs. Among 56 subjects taking PPIs at anytime since admission, drug therapy was discontinued in only 2 (3.6%). 54 current PPI users took PPIs for a median duration of 8 months (range 0.5 to 48 months). 8 Additional subjects took H2 blockers for a median of 3.5 months (range 1 to 7 months). The following drug indications were listed in the charts of subjects taking PPIs: GERD (52%), erosive esophagitis (2%), PUD (4%) ,other conditions (9%) , and unknown (33%). 93% of subjects taking acid suppressive drugs had no current symptoms at the time of chart review. AST drug use was strongly associated with admission from an acute care hospital where drug therapy typically began. AST did not vary significantly by gender or age, but was positively correlated with number of prescription drugs ($p<.001$) and negatively correlated with dementia diagnosis ($p<.001$).
CONCLUSIONS: AST drug use is quite common among elderly SNF residents, many of whom are first prescribed the drugs in the hospital and continue on them for a relatively long time while remaining asymptomatic. Although most subjects receiving AST have at least one diagnosis listed in the medical record as a justification for initiation of drug therapy, additional documentation to support initiation of therapy as well as continuation of therapy is generally lacking.

ETHICS AND QUALITY END-OF-LIFE CARE: OPPORTUNITIES FOR IMPROVEMENT. J.K. Dave[1]; M. Cantor[2]; R. Pearlman[3]. [1]Division of Aging, Brigham and Women's Hospital, Boston, MA; [2]VA New England GRECC, Boston Divisions, Boston, MA; [3]National Center for Ethics in Health Care (VHA), Seattle, WA. *(Tracking ID # 156721)*

BACKGROUND: Ethics is at the core of quality end-of-life care. The first step in improving ethics practices in end-of-life care is assessing the quality of those practices. This needs to precede the subsequent step of comparing those practices to established benchmarks. Despite the significance of ethics in the quality of end-of-life care, it has not been previously studied. The purpose of this four-site survey of Veterans Health Administration (VHA) staff was to assess the current status of knowledge of ethics standards and health care ethics practices in end-of-life care and examine the similarities and variations across sites.(Fig. 14)
METHODS: The survey included a stratified random sample of VHA clinical staff members. Survey respondents, including physicians, nurses, and allied health staff, were chosen from four service lines: 1) medicine, 2) surgery, 3) mental health, and 4) geriatric, rehabilitation and extended care. The sample also included senior managers and chaplains to ensure that their perspectives were included. The survey instrument was developed through an iterative process with feedback from experts in the field; focus groups of administrators, staff and patients; and individual interviews with staff. Both paper and web-based surveys were used. The respondents indicated their score on four- or five-point scales. We performed all analyses using Statistical Analysis Software (SAS), version 8.02. We calculated the frequency, percentages or mean with standard deviation. For simpler presentation of data we merged the responses into three categories: "Excellent" (usually a single most extreme response indicating best practice), "Acceptable" (usually the response immediately below the best practice), and "Needs Improvement" (the lowest categories). We used the Kruskal-Wallis test and a p-value of <0.01 to adjust for multiple comparisons.
RESULTS: In 13 of the 16 questions over 70% of the staff provided responses that fell into the "Acceptable" or "Excellent" categories. However, more than half the staff felt that intravenous hydration should be continued even when other treatments had been stopped. Responses to knowledge of ethics standards and health care ethics practices in end-of-life care were similar, except in three areas where significant variability across sites was observed. (Table 1.)

Table 1. Variation in ethics practices in end-of-life care

Survey questions	Responses (%)				P value
	Site 1	Site 2	Site 3	Site 4	
How often do clinicians at your facility decrease their interaction with dying patients merely because the goal of care is comfort?					0.012
Needs Improvement ("about half the time," "usually," "almost always")	31	41	18	17	
Acceptable ("sometimes")	37	23	52	42	
Excellent ("almost never")	33	36	31	41	
How well do your facility's clinicians treat pain in dying patients?					< .000
Needs Improvement ("not very well," "not at all well")	19	5	8	4	
Acceptable ("moderately well")	46	59	40	67	
Excellent ("very well")	35	36	52	29	
How well do your facility's clinicians treat symptoms other than pain in dying patients?					0.006
Needs Improvement ("not very well," "not at all well")	9	4	8	5	
Acceptable ("moderately well")	41	33	43	61	
Excellent ("very well")	50	63	48	34	

CONCLUSIONS: Within VHA, staff members reported similar, high-quality ethical practices in end-of-life care in the majority of measures. The one exception may be continuation of artificial hydration without clear goals. In three areas responses varied significantly across four sites. In order to know with certainty whether these findings identify opportunities for improvement, quality management staff need to drill deeper to understand the basis of the findings. If confirmed, one important implication relates to the VHA mission, which is to offer and provide high quality care to veterans, regardless of where they receive care. The variability in the reported ethics quality of end-of-life care across different facilities raises questions whether this aspect of quality is fairly distributed. Interventions to reduce these variations in ethics practices in end of life care may be needed.

ETHNIC DIFFERENCES IN TRUST IN THE MEDICAL CARE SYSTEM–A QUALITATIVE STUDY. L.E. Egede[1]. [1]Medical University of South Carolina, Charleston, SC. *(Tracking ID # 152802)*

BACKGROUND: Trust is defined as "the belief by an individual (the truster) that another entity (the trustee) would act in one's best interest in the future to prevent a potentially important negative outcome". Studies have shown that there are different objects of trust (i.e. one may trust an individual, but not necessarily trust the group they are part off). This study explored ethnic differences in patients' perceptions of trust in the medicare care system.
METHODS: A random sample (n=48) of patients seen in an academic medical center participated in 9 focus groups. Focus groups were segmented by ethnicity and gender. Experienced moderators matched to participants ethnicity and gender used semi-structured guides to conduct the focus groups. Sessions were audiotaped. Full and accurate transcripts of each session was obtained. Data was analyzed using grounded theory methodology. Transcripts of each session and moderator notes were read to identify themes related to trust of the medical care system using inductive analysis and constant comparison. Themes that emerged were used to modify probes for subsequent focus groups. Sessions were conducted until "theoretical saturation was reached. Triangulation techniques were used to establish validity of study findings.
RESULTS: Careful review of the transcripts showed that within ethnic groups, Black patients seemed more trusting of health care providers and less trusting of health care institutions; whereas White patients seemed less trusting of health care providers and more trusting of health care institutions. In both ethnic groups, there appeared to be low levels of trust in health care payers. We found that patients could be trusting of their health care provider and yet be distrustful of the health care institution where the provider worked. Similarly, it appeared that patients could be trusting of a health care provider or a health care institution and yet be distrustful of the health care payer. Overall, there seems to be poor correlation among the different objects of trust (i.e. health care provider, health care institution, and health care payer).
CONCLUSIONS: These findings suggest that instruments designed to measure trust in the medical care system that target a single object of trust (e.g. health care provider, health institution, or health payer) may yield misleading results in both White and Black patients.

ETHNIC DIFFERNCES IN MICRONUTRIENT INTAKE AND ITS EFFECT ON BLOOD PRESSURE: A POPULATION-BASED STUDY. D.J. Frisch[1]; S.R. Lipsitz[2]; S. Natarajan[3]. [1]New York University, New York, NY; [2]Harvard University, Boston, MA; [3]VA New York Harbor Healthcare System and New York University, New York, NY. *(Tracking ID # 156363)*

BACKGROUND: Studies have repeatedly demonstrated substantial ethnic differences in hypertension prevalence, blood pressure (BP) levels and hypertension control. This has been found despite controlling for confounders such as adherence to medications and access to care. Diet is a well-known risk factor for hypertension and for poor control. A careful population-based analysis of its role in hypertension in the context of ethnicity may provide important new insights. This study evaluates ethnic differences in micronutrient intake, examines micronutrient effect on BP levels by race and quantifies their contribution to BP differences.
METHODS: We evaluated data from the Third National Health and Nutritional Examination Survey, a population-based cross-sectional survey of the US adult non-institutionalized population. The key ethnic categories evaluated were non-Hispanic whites (NHW), non-Hispanic-Blacks (NHB) and Mexican-Americans (MA). The mean of 3 standardized BP recordings was used. Dietary information was obtained from 24-hour recalls, and nutrient intake levels calculated using the US Department of Agriculture's conversion method. The amounts consumed by each ethnic group was examined and tested for differences while controlling for confounders. Then their contribution to BP differences was evaluated in other multivariate models with systolic BP (SBP) as outcome. All analyses reported are from models that included age, gender, education, income, access to care, body mass index (BMI), urbanization, smoking, and vitamin supplementation. Analyses were conducted in SAS and SUDAAN and incorporated the strata and weighting variables to provide population estimates.
RESULTS: We included 18,162 adults in the analysis who provided dietary information and had their BP recorded. When compared to NHW, NHB (-580.52 mg) had significantly lower and MA (81 mg) higher potassium intake per day; MA also had lower sodium (−233 mg) intake per day. Compared to NHW, the daily intake of calcium (−182 mg), magnesium (−43 mg), phosphorus (−129 mg), and fiber (−1.55 gm) was lower in NHB while it was higher in MA (5.63 gm). Conversely, fat intake was higher in NHB (1.66 gm) and lower in MA (−3.45 gm). The effect of potassium intake on SBP was significant for NHW (−3.38 mm Hg/mg/kcal/day) and NHB (−2.32 mm Hg/mg/kcal)/day), but not for MA. Sodium intake did not significantly affect SBP. Magnesium was significant in NHW (- 19.18 mm Hg/mg/kcal/day) but not in NHB or MA. Fat and fiber intake had borderline ($.05<p<.10$) significance among NHB and MA in age-adjusted analyses but not in multivariate models.
CONCLUSIONS: This analysis reinforces current recommendations on dietary management of hypertension and provides new insights into ethnic differences in micronutrient intake. It evaluates diet in the context of important confounders and provides insight on the relative effect of different micronutrients on BP levels in different ethnic groups. This may allow us to refine current recommendations to tailor dietary management by ethnicity in order to ultimately improve hypertension control.

ETHNIC GROUP, GENDER AND PATIENTS' BELIEFS ABOUT THE OPTIMAL TIME TO DIE. H.S. Perkins[1]; J.D. Cortez[2]; H.P. Hazuda[1]. [1]University of Texas Health Science Center at San Antonio, San Antonio, TX; [2]Intercultural Development Research Association, Inc., San Antonio, TX. *(Tracking ID # 151129)*

BACKGROUND: Excellent end-of-life care considers patient beliefs about the optimal time to die. Since no research describes such beliefs, we studied them by two likely influences, ethnic group and gender.
METHODS: We conducted open-ended interviews with 26 Mexican-American (MA), 18 Euroamerican (EA), and 14 African-American (AA) elders. A consensus-based content analysis identified themes. Because some subjects responded several ways about a theme, percentages may add to over 100%.
RESULTS: Majorities of MA and EA men and sizable minorities of the other four groups noted the inevitability of death. (See table.) Further, majorities or near-majorities of all ethnic-gender groups said God determines the optimal time to die. Subjects also cited other factors that might determine that time.
CONCLUSIONS: Though largely agreeing about God as a determinant of the optimal time to die, these ethnic-gender groups differed widely about other possible determinants (such as patient preferences, family circumstances, lack of human causation, and illness severity). Given such diversity, sensitive end-of-life care requires that health professionals know each patient's beliefs and tailor care accordingly.

Patients' Beliefs about Inevitability and Optimal Time of Death (Percents)

	MA MEN	MA WOMEN	EA MEN	EA WOMEN	AA MEN	AA WOMEN
INEVITABILITY OF DEATH	86	33	71	45	29	43
OPTIMAL TIME OF DEATH IS WHEN . . .						
God determines it	71	42	57	64	86	43
Patient determines it	36	17	29	27	0	29
Family determines it	21	17	0	0	0	14
Family is prepared	29	33	14	9	0	0
Family has visited	14	25	0	9	29	29
Human action is NOT the cause	14	33	29	36	14	43
Patient is very sick	50	17	14	9	14	0
Patient is kept alive only by machines	36	17	14	18	14	14

ETHNIC VARIATIONS IN CAM USE AMONG ASIAN AMERICANS: RESULTS FROM THE 2002 NATIONAL HEALTH INTERVIEW SURVEY. D. Mehta[1]; R.S. Phillips[2]; E.P. McCarthy[2]. [1]Division for Research and Education in Complementary and Integrative Medical Therapies, Harvard Medical School, Boston, MA; [2]Division of General Medicine and Primary Care, Beth Israel Deaconess Medical Center, Boston, MA. *(Tracking ID # 151259)*

BACKGROUND: The use of complementary and alternative medicine (CAM) has increased in the United States. Many CAM therapies are embedded within Asian cultural and social traditions, yet little is known about CAM use by Asian Americans (AA) residing in the US. Using the 2002 National Health Interview Survey (NHIS), we compared the national prevalence of CAM use in the past 12 months between AA and non-Hispanic Whites (NHW), and identified factors associated with CAM use among AA. In addition, we examined variations in CAM use across the largest Asian ethnic groups surveyed.
METHODS: We used data from 917 AA and 20,422 NHW respondents to the 2002 NHIS Complementary and Alternative Medicine supplement. We examined use of 19 CAM therapies (excluding prayer) used in the past 12 months. We used bivariable analyses to compare prevalence of CAM between AA and non-Hispanic White adults and examined variations in CAM use across Asian ethnic groups. Multivariable logistic regression was used to 1) identify factors associated with CAM use in AA and 2) examine racial/ethnic differences in CAM use after adjusting for age, sex, place of birth, education, poverty status, region, marital status, insurance status, having a regular source of medical care, perceived health status, number of chronic illnesses, BMI, and current smoking. All analyses were performed using SAS-callable SUDAAN software to account for the complex sampling design and were weighted to produce national estimates.
RESULTS: Overall, 41% of AA, representing an estimated 3 million adults nationwide used at least one CAM therapy during the past 12 months, as compared to 37% of NHW ($p=0.057$). After adjustment, AA had increased odds of CAM use (adjusted Odds Ratio=1.19; 95% CI [0.89, 1.58] compared to NHW, but the difference was not statistically significant. An estimated 48% of US-born AA used CAM, as compared to 40% of foreign-born AA ($p=0.065$). However, CAM use did not vary by number of years in the US among foreign-born AA. Among AA, factors associated with increased CAM use in multivariable analyses included female gender, higher education levels, private insurance, increased number of chronic medical conditions, and residing in the Western US. Overall, the most common therapies used by AA were herbal medicine (24%), deep breathing exercises (12%), meditation (8%), and yoga (8%). Compared to NHW, the prevalence of herbal medicine use was greater among AA (24% vs. 19%; $p=0.002$). There was little variation in overall CAM use across the 3 largest Asian ethnic groups surveyed. CAM was used in the past 12 months by 45% of Asian Indians, 45% of Chinese, and 40% of Filipinos. Herbal medicine use was substantially higher among Chinese as compared to NHW (31% vs. 19%; $p=0.008$).
CONCLUSIONS: CAM use is common among AA, especially those who are women, have more years of formal education, have health insurance, and have greater disease burden. Nearly one-quarter have used herbal medicines; Chinese have particularly high rates of reported use. Surprisingly, foreign-born AA were not more likely to report CAM use despite the fact that traditional medicine practiced in many parts of Asia, such as herbal medicine and acupuncture, would be considered CAM in the United States.

ETHNICALLY SPECIFIC BARRIERS MAY ACCOUNT FOR INFLUENZA VACCINATION DISPARITIES. J.Y. Chen[1]; S.A. Fox[1]; S.E. Stockdale[1]; M. Kagawa-Singer[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 153392)*

BACKGROUND: Vaccination of persons at-risk from influenza is a cost-effective means to decrease mortality and morbidity. Significant racial/ethnic disparities of influenza vaccination rate exist between Whites and minority groups. To elucidate causes of racial/ethnic disparities in influenza vaccination, this study examines influenza vaccination rates in five racial ethnic groups (White, Latino, African American, Filipino American and Japanese American) and employs the health belief model to identify modifiable determinants of vaccination by race/ethnicity.
METHODS: We used data from a 2004 telephone survey of congregational attendants 50 to 75 years of age in 76 randomly selected faith-based congregations in Los Angeles and Honolulu. Of those who completed the telephone interview in English or Spanish, 841 self-identified as White, 184 as African American, 410 as Latino, 307 as Japanese American, and 218 as Filipino American. The overall response rate was 88%. We assessed influenza vaccination rate, perceived susceptibility to influenza, perceived severity of getting influenza, and the self-reported main barrier to influenza vaccination by race/ethnicity. We used bivariate and multivariate models to adjust for confounding variables.
RESULTS: Over 71% of Whites and Japanese Americans reported receiving a flu vaccine in the past year compared to 46% of African Americans, 44% of Latinos, 58% of Filipino Americans ($p<0.05$). The difference in the rate of receiving a flu vaccination between Whites and African Americans (65% vs. 49%) and White and Filipino Americans (65% vs. 50%) persisted in the multivariate analyses after controlling for sociodeomgraphic factors and perceived susceptibility and severity of getting influenza. Perceived susceptibility to influenza had the largest and most significant affect on influenza vaccination among Whites (96% among very concerned vs. 45% among not at all concerned, $p<0.001$), African Americans (91% among very concerned vs. 33% among not at all concerned, $p<0.001$), Japanese Americans (96% among very concerned vs. 56% among not at all concerned, $p<0.001$), and Filipino Americans (80% among very concerned vs. 42% among not at all concerned, $p<0.001$) after controlling for other covariates. African Americans were more likely than other groups to express concerns over the potential harmful effects of the vaccine, while Latinos were more likely to report access and cost barriers to receiving vaccination.

CONCLUSIONS: Our study offers four main policy implications for increasing influenza vaccination rates in the United States. First, interventions to increase influenza vaccination rates should focus on increasing the public's concern of contracting influenza. Second, we need strategies to address why African Americans are concerned over the issue of influenza vaccine causing influenza. Third, community outreach delivering linguistically appropriate information on how to practically obtain free or low-cost flu vaccination can help increase rates among Latinos. Finally, our study emphasizes the importance of disaggregating Asian American and Pacific Islander subgroups to examine health and receipt of health care; notably the low vaccination rates among Filipino Americans were masked by the high rates among Japanese Americans. Future interventions for influenza prevention will need to be specifically designed to meet the unique barriers to vaccination found in different racial/ethnic populations.

ETHNIC-SEX DIFFERENCES IN THE NEIGHBORHOOD-LEVEL FACTORS ASSOCIATED WITH SMOKING. N. Kandula[1]; M. Wen[2]; E. Jacobs[3]; D. Lauderdale[4]. [1]Northwestern University, Chicago, IL; [2]University of Utah, Salt Lake Clty, UT; [3]Rush University Medical Center, Chicago, IL; [4]University of Chicago, chicago, IL. *(Tracking ID # 154532)*

BACKGROUND: Prior studies have documented associations between neighborhood-level characteristics and individual smoking behavior in Non-Hispanic Whites, after adjusting for individual predictors. However, it is not known whether neighborhood-level characteristics are similarly associated with smoking prevalence for different ethnic-sex groups, among whom smoking behavior varies substantially. The objective of this study was to examine the associations between neighborhood-level SES, perceived neighborhood social cohesion, and individual smoking prevalence in a population-based sample of non-Hispanic Whites (NHW), Blacks, Latinos, and Asians, independent of individual sociodemographics. We also sought to determine whether associations between neighborhood factors and smoking varied across ethnicity-sex groups.
METHODS: We analyzed data from the 2003 California Health Interview Survey (CHIS), a cross-sectional, population-based telephone survey of 42,000 civilian households. Our sample included 26,506 non-Hispanic White (NHW), 7135, Latino, 2691 Black, and 3875 Asian adults. We performed ethnicity/gender-stratified multiple regression models with robust variance estimates to account for correlations in smoking among residents of the same neighborhood. Our dependent variable, smoking behavior, was dichotomized into either current smoking or current non-smoking. Individual-level data, including smoking, age, gender, race/ethnicity, SES, percent of life in the US, language spoken at home are from CHIS. Perceived neighborhood social cohesion (a scale tapping the extent of connectedness, trust, and solidarity among neighbors; coefficient of alpha=0.73) was constructed from CHIS. A neighborhood was defined at the census tract level. Survey participants' census tracts were linked to Census 2000 data for measuring neighborhood-level SES. Neighborhood-level SES was constructed using principal component factor analysis with orthogonal rotation from four dimensions of SES that are highly correlated: concentrated affluence, concentrated poverty, % of college-educated residents, and % of house ownership (reliability coefficient was 0.83.)
RESULTS: Smoking rates varied significantly by ethnicity/sex: 19% of NHW men, 16% of NHW women, 22% of Black men, 18% of Black women, 21% of Latino men, 8% of Latino women, 22% of Asian men, and 7% of Asian women reported being current smokers. Among NHW men and women, perceived neighborhood social cohesion and increasing neighborhood SES were associated with a lower odds of smoking, independent of individual-level characteristics. Neither neighborhood social cohesion nor neighborhood SES had an association with smoking among Blacks. For Latino men, increasing neighborhood SES was associated with lower odds of smoking (OR=0.78, 95% CI=0.65, 0.95). For Asian men, perceived neighborhood social cohesion was associated with lower odds of smoking. (OR=0.74, 95% CI=0.61, 0.90), but neighborhood SES was not. For Latino and Asian women, perceived neighborhood social cohesion and neighborhood SES were not associated with smoking.
CONCLUSIONS: The influence of perceived neighborhood social cohesion and neighborhood-level SES on smoking varies across ethnic-sex groups. The differing patterns of these associations by ethnicity/gender highlight the importance of conducting further research on specific neighborhood-level factors and the possible causal pathways that are relevant to smoking in different ethnic and gender groups.

EVALUATING A "FAIL-SAFE" SYSTEM TO FOLLOW UP ABNORMAL MAMMOGRAMS IN PRIMARY CARE. E. Grossman[1]; M.D. Aronson[1]; R.S. Phillips[1]; S.N. Weingart[2]. [1]Beth Israel Deaconess Medical Center, Boston, MA; [2]Dana-Farber Cancer Institute, Boston, MA. *(Tracking ID # 152627)*

BACKGROUND: Failure to follow up abnormal mammograms represents a significant risk to patient safety. In order to attenuate this risk, some health care organizations have developed tools for ensuring follow-up and communication of results. To examine the utility of this approach, we studied the performance of a paper-based reminder system for abnormal mammograms.(Fig. 15)
METHODS: We analyzed a "fail-safe" follow-up system for abnormal mammograms used at the adult primary care teaching practice of a Boston hospital. An administrator received a report of all abnormal mammograms ordered by clinicians in the practice. Approximately 3 months after an abnormal test, the administrator sent the clinician a copy of the radiology report and a result notification survey that asked whether the clinician was aware of the result, whether the patient was aware, whether follow up was planned, and whether there was documentation of the plan in the medical record. Clinicians received up to 4 monthly reminders. We abstracted information from the radiology reports and clinician surveys for all abnormal mammograms from January 1, 2001, to September 30, 2003. We examined the rates of return of clinician surveys and survey responses, stratified by degree of mammographic abnormality (BIRADS score). We examined clinician, patient, and test-result characteristics associated with survey returns, clinician awareness of results, and presence of a follow-up plan.
RESULTS: There were 949 abnormal mammograms with BIRADS scores of 0, 3, 4, or 5. In 78 of these cases (8%), the clinician did not return the result notification survey (Table). Clinicians indicated that they were unaware of the abnormal result for 73 (8%) of the 871 returned surveys; neither the clinician nor the patient was aware of 13 abnormal results (1%). Clinicians reported that there was no follow-up plan in place for 33 abnormal mammograms (4%) before reminder receipt. In 144 cases where clinicians identified a reason for the lapse, they most often cited incorrect identification of the ordering clinician, failure to receive the original radiology report, transition between clinicians (usually house officers), and patient non-adherence to follow-up plans. Compared to attending physicians, house officers were less likely to return the reminder form (27% unreturned vs. 6%, Fisher's exact test $p<.01$). However, house officers were more likely than attendings to benefit from the reminders (16% vs. 7% were unaware of test result, $p=.02$; 10% vs. 3% had no follow-up plan in place, $p<.01$). There were no associations between BIRADS score and likelihood that the clinician returned the survey, was aware of the test result, or had a follow-up plan ($p>.05$ for all 3 tests).

BIRADS score	N	Survey not returned	Clinician unaware of test result*	No follow-up plan*
0	367	34 (9%)	33 (10%)	13 (4%)
3	408	34 (8%)	33 (9%)	18 (5%)
4	141	7 (5%)	7 (5%)	2 (1%)
5	33	3 (9%)	0	0
Total	949	78 (8%)	73 (8%)	33 (4%)
* %'s are of all returned surveys (871 total).				

CONCLUSIONS: A paper-based fail-safe system for follow-up of abnormal mammograms can detect critical test results that might "fall through the cracks." A fail-safe system is particularly important for trainees. The success of this approach may require mechanisms to enforce physician participation.

EVALUATING MOTIVATORS FOR EXERCISE ADHERENCE IN PATIENTS WITH PERIPHERAL ARTERIAL DISEASE. R. Caggins[1]; T.C. Collins[2]. [1]Prairie View A & M University, Houston, TX; [2]Michael E. DeBakey VA Medical Center, Houston, TX. *(Tracking ID # 153993)*

BACKGROUND: Exercise therapy is an excellent noninvasive therapy for patients with symptomatic peripheral arterial disease (PAD). We explored perceptions of factors associated with exercise adherence in a racially diverse population of persons with PAD.
METHODS: We conducted qualitative interviews of patients with objective evidence of PAD from one local VA hospital and several community-based outpatient clinics. Within the initial interviews, we collected information on patient perceptions of the role of communication to increase exercise adherence. Based on factors identified within the social science literature, we re-analyzed these verbatim transcripts to identify patient perceptions that supported or refuted these factors in regards to their role in adherence to walking for exercise.
RESULTS: Of the 35 patients (19 men and 16 women), there were 14 whites, 12 African Americans, and 9 Hispanics. Based on 23 factors that were identified within the literature and applied to our data, we coded patient perceptions that supported these motivators. Five factors emerged as having a significant impact on patients' willingness to adhere to exercise therapy for PAD. The factors included an attraction to the type of exercise, a coexisting illness that could complicate the role of exercise, a good relationship with a doctor, a family member or friend who wants to exercise with the patient, and an ability to adapt to the requirements of the type of exercise. Factors which were not supported by our focus group participants included lethality or the belief that the intervention is needed to live, the likelihood that family and friends will comment if the exercise is not performed, the expectation of a benefit, or the concern that the exercise is useless.
CONCLUSIONS: Based on our additional analysis of this qualitative data, we were able to determine how previously defined factors believed to impact exercise adherence emerged as motivators for a cohort of persons with one chronic illness, PAD. This information will help to develop survey-type interventions for use in the primary care setting that will help to motivate patients with various atherosclerotic-type illnesses to exercise.

EVALUATION OF A PROSTATE CANCER SCREENING SHARED DECISION MAKING (SDM) PROGRAM THAT INCLUDES VALUES CLARIFICATION. C. Golin[1]; S. Sheridan[2]; A. Bunton[2]; B. Schwartz[1]; L. McCormack[3]; D. Driscoll[3]; C. Soloe[4]; R.P. Harris[1]. [1]University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]University of North Carolina, Chapel Hill, NC; [3]Research Triangle Institute, Research Triangle Park, NC; [4]Research Triangle Institute, Chapel Hill, NC. *(Tracking ID # 154524)*

BACKGROUND: Medical associations recommend shared decision making (SDM) for PSA screening. Although values clarification is a critical component of SDM, existing SDM tools for PSA screening have generally not included it.

METHODS: We developed an SDM program for PSA screening that coupled an informational video with a structured values clarification (VC) tool and tested it in a randomized controlled trial of 128 men at 4 clinical sites. The video showed men discussing five aspects of PSA screening with a doctor (potential outcomes for each option; the accuracy of the test, potential side effects from treatment that could occur from a positive test, likelihood of dying from prostate cancer, degree of uncertainty regarding the benefit of PSA). In the VC tool, men chose and ranked statements best representing how they felt about five aspects of the PSA test using color coded cards with two statements (one supporting and one not supporting PSA use) for each aspect. Men in the control arm watched a highway safety video. All participants completed self-administered surveys at baseline and post-intervention, assessing their desire to participate in the PSA decision, knowledge of PSA testing, and intent to have a PSA in the next 12 months.
RESULTS: For 3 of 5 aspects considered in the values clarification process, a majority of men chose a statement consistent with preferring not to have a PSA test (NO-PSA; 70% for treatment outcomes, 80% for risk of dying from prostate cancer, and 55% for test accuracy). For example, for "accuracy of the PSA" aspect, 55% of men chose "I would only want to have the PSA test if it could tell me for sure if I do or don't have cancer" (NO-PSA) whereas 45% chose "The fact that the PSA test doesn't give me a definite answer about whether I do or don't have cancer does not bother me; nothing in life is 100%" (PRO-PSA). Overall, seventeen percent of men chose < 1 NO-PSA statements, 55% chose 2–3 and 29% > 4 NO-PSA statements and 80% reported that the implications of their 5 card choices seemed right in reflecting their overall feelings. In ranking the importance of various aspects, "Certainty of treatment outcomes" was most often (32%) ranked as "most important" and "Likelihood of dying of prostate cancer" was most often ranked as the "least important" factor considered when deciding whether or not to have a PSA. Despite these findings, 45% of men in the intervention arm still planned to be screened after viewing the decision aid. Men in the intervention arm, however, had statistically significantly greater increases in their: 1) desires to participate in the PSA decision; 2) knowledge; and 3) intent to NOT be screened (Table 1).
CONCLUSIONS: Men who used a SDM tool that helped them clarify their values about the PSA test became more engaged in medical decision making and had greater changes in their knowledge and intent to be screened compared with controls.

Percent of men in control and intervention arms who had an increase in their "Desire to Participate", "Knowledge" and "Intent to NOT be screened"

	Increased Desire to participate	p-value	Increased Agreement "It is okay to decide not to have a PSA test after learning the facts"	p-value	Increased Intent NOT to be screened	p-value
Intervention n = 58	40%	< .0052	54%	0.0044	50%	< .001
Control n = 70	18%		27%		9%	

EVALUATION OF N-TERMINAL PRO-B-TYPE NATRIURETIC PEPTIDE (NT-PROBNP) AS A DIAGNOSTIC TEST FOR VENTRICULAR DYSFUNCTION IN PATIENTS WITH STABLE CORONARY HEART DISEASE AND NO HISTORY OF HEART FAILURE. D.C. Corteville[1]; K. Bibbins-Domingo[1]; S. Ali[1]; A. Wu[1]; N.B. Schiller[1]; M.A. Whooley[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 152308)*

BACKGROUND: N-Terminal Pro-B-type Natriuretic Peptide (NT-proBNP) is secreted by the cardiac ventricles in response to increased volume and pressure. NT-proBNP is useful as a diagnostic test for ventricular dysfunction in patients with acute decompensated symptoms. Whether NT-proBNP can be used as a diagnostic test for ventricular dysfunction in patients with stable coronary heart disease (CHD) and no history of heart failure is unknown.
METHODS: We measured NT-proBNP levels using NT-proBNP (Elecsys® proBNP, Roche, Indianapolis, IN) and performed transthoracic echocardiography in 814 patients from the Heart and Soul Study who had stable CHD and no history of heart failure. For ease of interpretation, we evaluated NT-proBNP cutpoints of 100, 200, 300, 400 and 500 pg/ml for diagnosing ventricular dysfunction. We hypothesized that NT-proBNP levels < 100 pg/ml would rule out ventricular dysfunction, and levels > 500 pg/ml would be highly specific for (rule in) ventricular dysfunction. We calculated sensitivities, specificities, likelihood ratios (LR), and areas under the receiver operating characteristic curve for NT-proBNP as a test for systolic or diastolic dysfunction in patients with stable CHD.
RESULTS: Of the 814 participants, 67 (8.3%) patients had systolic dysfunction defined as a left ventricular ejection fraction < =50%, and 77 (9.5%) patients had diastolic dysfunction defined as a pseudonormal or restrictive filling pattern with normal systolic function. NT-proBNP levels of > 100 pg/ml (n = 297) were 88% sensitive (43% specific) for ventricular dysfunction, with a negative LR of 0.28. NT-proBNP levels > 500 pg/ml (n = 150) were 89% specific (44% sensitive) for ventricular dysfunction, with a positive LR of 4.0. NT-proBNP levels between 100 and 500 were not diagnostic for ventricular dysfunction (area under ROC curve = 0.66).
CONCLUSIONS: In patients with stable CHD and no history of heart failure, NT-proBNP levels > 500 pg/ml indicate that ventricular dysfunction is highly likely, and NT-proBNP levels < 100 pg/ml indicate that ventricular dysfunction is highly unlikely. NT-proBNP levels between 100–500 pg/ml are not as useful for assessing ventricular dysfunction in patients with stable CHD and no history of heart failure.

EVALUATION OF PHARYNGITIS IN ACTUAL PRACTICE: THE DIFFERENCE BETWEEN GUIDELINES IS LARGELY ACADEMIC. J.A. Linder[1]; D.W. Bates[1]. [1]Brigham and Women's Hospital and Harvard Medical School, Boston, MA. *(Tracking ID # 152734)*

BACKGROUND: Guidelines from the American College of Physicians (ACP) and the Infectious Diseases Society of America (IDSA) concur that patients with 0 or 1 of the 4-point Centor criteria are at low risk for streptococcal pharyngitis and require neither testing nor antibiotics. However, these guidelines differ with respect to the use of clinical criteria and microbiologic testing for patients with intermediate and higher risk of streptococcal pharyngitis. We sought to measure, in actual practice, the adherence rate to different management strategies and examine the hypothetical effect of perfect adherence to each strategy.
METHODS: We performed a retrospective analysis of visits to primary care clinics by adults with a billing diagnosis of pharyngitis from October 2003 to May 2005 (n = 2097). We examined the association of the Centor criteria (fever, absence of cough, tonsillar exudates, and tender anterior cervical lymphadenopathy) with streptococcal testing, a positive test result, and antibiotic prescribing using the Chi-squared test. We measured adherence to 3 strategies: 1) empiric antibiotic treatment of patients with 3 or 4 Centor criteria (ACP–Empiric Strategy); 2) testing patients with 2 or 3 criteria and prescribing antibiotics to patients with a positive test or with 4 criteria (ACP–Test Strategy); and 3) testing patients with 2, 3, or 4 criteria and prescribing antibiotics to patients with a positive test (IDSA Strategy). Finally, we examined the testing and treatment implications of hypothetical perfect adherence to each strategy.
RESULTS: The cohort had a mean age of 37 years, was 81% female and 50% white. The Centor criteria were not predictive of streptococcal testing (for 0, 1, 2, 3, and 4 criteria the testing rate was 79%, 81%, 79%, 80%, and 74%, respectively; p = 0.63), but were predictive of a positive streptococcal test (8%, 13%, 22%, 31%, and 30%, respectively; p < 0.0001), and of antibiotic prescribing (25%, 34%, 63%, 80%, and 89%, respectively; p < 0.0001). Clinicians were adherent to the ACP–Empiric Strategy in 12% of visits, the ACP–Test Strategy in 30% of visits, the IDSA Strategy in 30% of visits, and no strategy in 66% of visits. The most common reason for non-adherence to any strategy was testing or antibiotic prescribing to patients at very low risk of streptococcal pharyngitis (1076 visits, or 78% of visits non-adherent to any strategy). Perfect adherence to the ACP–Empiric Strategy would have resulted in 0 tests and 370 antibiotic prescriptions (18% of cohort); the ACP–Test Strategy in 799 tests (38%) and 323 antibiotic prescriptions (15%); and the IDSA Strategy in 869 tests (41%) and 281 antibiotic prescriptions (13%).
CONCLUSIONS: Although which guideline to use has been hotly debated, the major problem in actual practice in the management of adults with pharyngitis is not which guideline to follow, but that clinicians fail to follow any guideline. Perfect adherence to different guidelines for adults with pharyngitis would lead to only modest differences in antibiotic prescribing. To reduce antibiotic prescribing, strategies should focus on avoiding testing and antibiotic prescribing to patients at low risk for streptococcal pharyngitis, regardless of the guideline used.

EVALUATION OF TOOLS FOR THE QUALITATIVE ASSESSMENT OF LOWER EXTREMITY EDEMA. S.H. Yale[1]; K. Brodovicz[2]; K. McNaughton[2]; G. Meininger[3]; N. Uemura[3]; C. Girman[2]. [1]Marshfield Clinic and Marshfield Clinic Research Foundation, Marshfield, WI; [2]Merck Research Laboratories, West Point, PA; [3]Merck Research Laboratories, Rahway, NJ. *(Tracking ID # 150846)*

BACKGROUND: There is no gold standard for the quantification of lower extremity edema. The currently accepted clinical technique captures pit depth and recovery time as a single edema score. This and other tools used in the measurement of lower extremity edema lack reliability, reproducibility, sensitivity, and specificity. We evaluated 8 tools for inter-examiner agreement, correlation with physician assessment, and feasibility of implementation in clinical practice.
METHODS: A cross-sectional observational study was conducted at the Marshfield Clinic to assess the following tools: separate clinical edema assessments of pit depth and recovery time at 3 locations, patient questionnaire, ankle circumference, figure-of-eight, edema tester (plastic card with holes of varying size pressed to the ankle with a blood pressure cuff at varying pressures), modified edema tester (edema tester with bumps), indirect leg volume and direct ankle volume (water displacement). Each of the 3 examiners assessed 20 diabetic patients. Ten patients had mild edema, 3 moderate, 3 severe, and 4 had no edema, by physician assessment. Subjects were randomized to receive either figure-of-eight and indirect leg volume or the edema tester. The remaining tools were assessed in all patients.
RESULTS: Tests with high inter-rater agreement included figure-of-eight (intraclass correlation coefficient (ICC) = 0.64, 0.86 right and left respectively throughout), direct ankle volume (ICC = 0.93, 0.96) and ankle circumference (ICC = 0.97, 0.97). Inter-rater agreement was low for clinical assessment at the lower calf (ICC = 0.53, 0.03), behind the medial malleolus (ICC = 0.28, − 0.01), and at the dorsum of the foot (ICC = 0.05, 0.11) Agreement was generally low for both the original and modified edema testers but varied by assessment condition: at 100 mmHg (ICC = 0.48, 0.12), at 150 mmHg (ICC = 0.75, 0.43) and

6 mm-bump modified edema tester at 150 mmHg (ICC = 0.40, 0.75). Agreement for indirect leg volume was moderate (ICC = 0.53, 0.66). Correlation with physician assessment was good for the clinical assessment and patient questionnaire. The patient questionnaire and ankle circumference measurement each took 1 minute to complete. Several tools took > 5 minutes to complete: indirect leg volume (6 min), direct ankle volume (8 min, excluding set-up time), and modified edema tester (10 min).
CONCLUSIONS: These data support the reproducibility of several of these assessments; the validity of these measures will need to be confirmed in larger studies. The figure-of-eight, direct ankle volume, and ankle circumference showed moderate to excellent inter-rater agreement, but figure-of-eight and direct ankle volume pose implementation challenges.

FACTORS ASSOCIATED WITH APPROPRIATE RECEIPT OF PHARMACOLOGIC VENOUS THROMBOLISM PROPHYLAXIS IN PATIENTS UNDERGOING MAJOR SURGERY. L.E. Goldman[1]; B. Ide[1]; B. Stone[1]; J. Maselli[1]; A.D. Auerbach[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 152261)*

BACKGROUND: Post-operative patients with a moderate to high risk of post-operative venous thromboembolism (VTE) should receive prophylaxis. Though VTE prophylaxis is a growing focus of quality improvement initiatives, there are few studies that evaluate which patient factors, surgical factors, and processes of care (e.g. clinical pharmacist involvement) predict physician adherence to guidelines.
METHODS: We analyzed data from the UCSF Perioperative Quality and Safety Initiative (PSQI), an observational trial of patients admitted for major noncardiac surgery at UCSF Medical Center between July 1 2003 and March 31, 2005. Operative data and clinical history were collected from charts of patients meeting JCAHO/CMS criteria for reporting of surgical infection prevention performance data; chart data were further supplemented (e.g. payor data) using administrative data. We focused our analysis on patients considered at high or moderate risk for VTE according to Chest guidelines and who were not ambulatory within 24 hours of surgery–all of whom should receive subcutaneous low-molecular weight or unfractionated heparin. We excluded patients with preoperative (e.g. history of heparin-induced thrombocytopenia) or postoperative (e.g. postoperative bleeding) contraindications to pharmacologic VTE prophylaxis. We then performed univariate and multivariate logistic regression models to determine factors associated with appropriate receipt of VTE prophylaxis.
RESULTS: Of 492 patients eligible for pharmacologic VTE prophylaxis (VTEP), only 166 (34%) received VTEP within 24 hours after surgery and 292 (59%) had received VTEP by 48 hours; 155 (32%) received VTEP in both time periods. In unadjusted analyses, patients who received VTEP were of the same age (mean age 59 vs. 59, $p = 0.09$) and gender (34% non-white vs. 38%, $p = 0.32$) as those who did not. Patients with chronic renal insufficiency were less likely to receive VTEP (17% vs. 35%, $p = 0.024$), while patients who received care from a clinical pharmacist (14% vs. 4%, $p < 0.01$) were more likely to receive VTEP by 48 hours; unadjusted analyses also demonstrated substantial variability across surgical services ($p < 0.001$). In multivariable models accounting for VTE risk, and excluding patients with contraindications to therapy, only surgical service predicted receipt of prophylaxis (Cardiothoracic 32% vs. General Surgery 46%, $p = 0.068$) (Gyncology 12% vs. General Surgery 46%, $p = 0.033$), (Gyn-Oncology 64%, $p = 0.026$) and (87% orthopedics vs. 46% General Surgery, $p < 0.001$)). Patient factors, elements of the preoperative evaluation, or clinical pharmacist involvement were not retained in final multivariable models.
CONCLUSIONS: In our institution, adherence to recommended guidelines was variable and most closely associated with surgical service-level factors. Neither patient specific factors nor available clinical aids (e.g. clinical pharmacists) were associated with higher-quality VTE prophylaxis. Effective VTEP implementation may require further attention to service-level barriers which our data cannot completely discern.

FACTORS ASSOCIATED WITH DELAYS IN PATIENT CARE FOR SMALL BOWEL OBSTRUCTION IN THE EMERGENCY DEPARTMENT. U. Hwang[1]; N.A. Bickell[1]. [1]Mount Sinai School of Medicine, New York, NY. *(Tracking ID # 152831)*

BACKGROUND: Time-sensitive conditions such as small bowel obstruction (SBO) offer the opportunity to study patient and Emergency Department (ED) factors, and processes of care that may affect timeliness of patient care. We undertook this study to determine whether greater ED patient census, lower medical staffing levels, and decreased hospital bed availability would result in prolonged time to necessary care.
METHODS: This was an observational study of patients with surgically or radiographically confirmed small bowel obstruction at an urban, tertiary care hospital. Patients were sampled prospectively (6/1/01–11/30/02). Detailed demographic, clinical data (patient signs & symptoms, lab, imaging and surgical findings and diagnoses), and time of care activities (ED arrival, & discharge, first exam, imaging, diagnosis, medical and surgical treatments), were abstracted from in & outpatient medical records. ED census & hospital occupancy were obtained from ED and inpatient databases. Staffing levels were obtained from payroll. Non-normally distributed time data were logarithmically transformed. The outcomes studied include: time to diagnosis, time to treatment (surgery or gastric tube placement), ED length of stay (LOS), and risk of surgical resection.
RESULTS: 208 patients were enrolled. Mean age was 55.5 years (SD ± 21.8), 56% were female, 39% were black or Hispanic, and 50% had commercial insurance or Medicare; 4% were diagnosed with intestinal obstruction or acute abdomen prior to being sent to the ED. In 47% of cases, the ED physician's diagnostic impression was intestinal obstruction. Of all patients, 65% had nasogastric tubes (NGT) placed, 50% underwent surgery (of whom half had a surgical resection), 20% were medically managed with only bowel rest and no NGT placement, and 5% died. Of the 199 patients diagnosed in the ED, median (IQR) times in minutes: to diagnosis was 145 (95, 214), to placement of gastric tube was 296 (172, 694), to surgery was 2810 (1068, 4678), and ED LOS was 465 (324, 641). For patients first seen and diagnosed in the ED, there were no significant associations between dependent time variables of interest (time of first patient exam, of imaging, of diagnosis, and of medical or surgical treatment) and ED census or staffing levels (physicians, nurses, technicians), or hospital bed availability at time of diagnosis. Patients with intestinal obstruction were more likely to have longer ED LOS (578 vs. 416 minutes; $p < 0.0001$) if they had Medicaid or no insurance, and if they were black or Hispanic compared to white (576 vs. 451 minutes; $p = 0.0004$). Patients had shorter ED LOS if the physician's diagnostic impression was obstruction (464 vs. 529 minutes; $p = 0.05$). Patient insurance type (RR = 1.32 [95% CI 1.15, 1.54]) and ethnicity (RR = 1.20 [95% CI 1.04–1.40]) appeared significant in linear models adjusting for key clinical variables. Patients with longer ED LOS, however, did not have greater risk of surgery or surgical resection.
CONCLUSIONS: ED census and staffing levels, and hospital bed capacity had no impact on times of ED care for patients with intestinal obstruction. Patient ethnicity and type of insurance, however, were associated with longer ED LOS. Identifying causes of delays in patient care may guide physicians and hospital administrators on ways to improve the quality of ED care for all.

FACTORS ASSOCIATED WITH DISCLOSURE OF ERRORS AMONG RESIDENTS. A.C. Kronman[1]; J.D. Orlander[2]; M. Paasche-Orlow[3]; R. Lew[4]. [1]Boston University School of Medicine, Boston Medical Center, Boston, MA; [2]VA Boston HealthCare System, Boston University School of Medicine, Boston, MA; [3]Boston University School of Medicine, Boston Medical Center, Newton, MA; [4]Boston VA Medical Center, Boston, MA. *(Tracking ID # 153690)*

BACKGROUND: The patient safety movement was launched in 1999 when the Institute of Medicine report "To Err is Human" urged the medical profession to increase error-reporting rates. While elements of professional medical culture are hypothesized to lead to widespread underreporting of medical errors, few studies have elucidated which aspects of medical culture are associated with a failure to disclose. Our objective was to evaluate the relationship between aspects of organizational culture and disclosure of error among clinical trainees.
METHODS: Anonymous, self-administered surveys were distributed to Medicine and Surgery residents at a single academic health center. Residents were asked to answer questions about their most significant medical error. Residents completed a demographic survey as well as three surveys of organizational culture that were modified for this study: 1) Team Psychological Safety measures the sense of safety for interpersonal risk taking among members of a work team (5/7 of items from full instrument administered); 2) Error Orientation measures attitudes of coping with error within a work environment (10/37 from full instrument administered); and 3) Safety Climate measures perceptions of commitment to patient safety in a work environment (4/19 from full instrument administered). Responses were coded with 6 point Likert scales, and summed to derive a total score for each survey. Residents' mistakes were categorized as medication-related, procedural, delayed diagnosis, failure to check laboratory results, or other. We used Chi-Square to evaluate differences between the dependent variable (disclosure), and categorical independent variables (gender, residency program, type of medical error). Two-sample t tests tested the relationship between disclosure and organizational culture scores.
RESULTS: Out of 109 surveys distributed, 99 residents returned surveys. Two residents were excluded from further analysis because they reported no mistake. Seventy-five per cent were extremely distressed by their mistake. While 31% (30/97) reported apologizing to patients and/or their family about the error, only 17% (17/97) reported disclosure. Twenty-four per cent (9/38) of the surgery residents disclosed their mistake, compared to 14% (8/59) of the medicine house staff ($p = .21$). Men were more likely to report disclosure (25%, 14/57) than women (3%, 3/38 $p = .03$). Those who made medication errors (27%, 26/97) were more likely to disclose their error than those who made procedural (12%, 12/97) or delayed diagnosis errors (11%, 11/97), $p = .05$). There was no association between disclosure status and Team Psychological Safety ($p = .94$), Error Orientation ($p = .96$), or Safety Climate ($p = .93$).
CONCLUSIONS: Only 17% of the residents reported disclosing their most significant error to their patient. Although factors in the learning environment may influence error disclosure among residents, this was not exhibited with the three measures of organizational culture used in this study. Individual factors, such as gender and type of error, were associated with a higher likelihood of disclosure. Our results imply that several individual characteristics may influence disclosure of error more than the learning environment. Further research is needed to identify successful educational interventions that promote disclosure of medical errors as well as to explicate the gender-related factors that influence disclosure of error.

FACTORS ASSOCIATED WITH PATIENT ADHERENCE TO LABORATORY BLOOD TESTING IN A PRIMARY CARE SETTING. J.A. Clemmer[1]; J.P. Metlay[2]; L.D. Ward[1]. [1]University of Pennsylvania, Philadelphia, PA; [2]VA Medical Center, Philadelphia, PA. *(Tracking ID # 152779)*

BACKGROUND: Laboratory blood testing is an essential part of outpatient medical care because the results are used to diagnose and manage many medical conditions. Patient adherence with such tests is crucial for comprehensive medical care. To improve adherence with laboratory blood testing it is important to identify factors that are associated with failure to complete the testing. Such factors may identify opportunities for increased counseling and/or the need for special mechanisms to improve adherence. The purpose of this study was to identify factors affecting patient adherence with laboratory blood testing ordered by outpatient internal medicine physicians.

METHODS: Patients at least eighteen years old from three large university-affiliated primary care practices were eligible. Patients had received their medical care at the same practice for at least one year. Consecutive patient-visits with laboratory blood tests ordered were retrospectively sampled with a target to collect roughly an equal ratio of patient visits to physicians at each site. We did not sample more than one visit per patient. The sampling period was January 3, 2005 to February 16, 2005 at one site and January 3, 2005 to May 30, 2005 at the two other sites. Adherence was defined as completion of the laboratory blood testing within ten days after the clinic appointment.
RESULTS: Overall, 206 patients were included. 36% of patients were adherent with the laboratory blood testing. On univariate analysis, patients who were married, non-smokers, and whose laboratory blood tests were ordered by a physician with whom they had at least one previous appointment or to evaluate an acute patient complaint were more likely adherent with completing the testing. Patients with hypertension or those who had missed at least one appointment in the last year without calling the practice to cancel were less likely adherent. Logistic regression revealed that patients whose laboratory blood tests were ordered for acute reasons (OR 2.60, 95% CI 2.60–6.30) and patients who were married (OR 2.26, 95% CI 1.04–4.90) were more likely adherent. Patients who had missed at least one appointment in the previous year without canceling (OR 0.35, 95% CI 0.19–0.64) were less likely adherent.
CONCLUSIONS: Adherence to outpatient laboratory testing was low. Several patient factors, most notably being married or receiving continuous care by the ordering physician were associated with adherence. Interestingly, age, sex, and prior adherence with other screening recommendations (i.e., colonoscopy and mammography) were not associated with adherence. Patients sent for routine testing, as opposed to testing for evaluation of acute conditions, were less likely adherent with the testing. Physicians should be aware that patients with a history of missed appointments are less likely to complete laboratory testing regardless of the urgency of the reason for testing. Future studies should examine the effects of these factors and whether education about the importance of non-acute laboratory testing may enhance adherence.

FACTORS ASSOCIATED WITH TOBACCO USE AMONG GIRLS AGE 13 TO 15 IN JUJUY, ARGENTINA. R. Mejia[1]; C.P. Kaplan[2]; S. Gregorich[2]; E. Alderete[1]; E.J. Perez-Stable[2]. [1]Universidad de Buenos Aires, Buenos Aires; [2]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 153718)*

BACKGROUND: Cigarette smoking rates in the Southern Cone are the highest in the Americas but there are limited data on predictors of smoking among youth. We evaluated the smoking behavior in a multiethnic sample of Argentinean adolescent girls and assessed factors associated with tobacco initiation and use. Our objective is to identify components that may be used in a prevention intervention.
METHODS: Data were obtained from a self-administered survey of 8th graders in the province of Jujuy in northwest Argentina. Participants were nested within 27 schools selected randomly to be representative of Jujuy public and private schools. The survey was pre-tested for cultural appropriateness and included questions on ethnic identity, smoking behavior, socioeconomic background and cultural and psychosocial factors. Participants were classified as ever smokers (experimenters, current smokers, and former smokers) or never smokers. Multivariate logistic models were used to examine variables related to tobacco consumption.
RESULTS: 1690 girls aged 13–15 completed the questionnaire (95% response rate) and were 5% European, 21% mixed and 74% indigenous. Among those who self-identified as indigenous 5% reported to be Amazonian; 60% Andean and 35% did not specify any group. About half of respondents (52%) reported never smoking, 27% reported experimentation only and 21% were current smokers (defined as smoking in previous 30 days). Smoking behavior varied by ethnicity as girls identified as Amazonian (66%; OR=3.17, 95% CI=1.20–8.37, p=0.020), and of mixed ethnicity 49%;OR=2.41, 95% CI=1.29–4.91, p=0.006) were more likely to smoke than European (34%) girls. Ever smokers were significantly more likely than non-smokers to: (see Table 1)
CONCLUSIONS: In this admixed Latin American population, indigenous ancestry may be an important predictor of cigarette smoking. Exposure to smokers including among peers and to engage in other risky behaviors appear to be key factors in smoking among adolescent girls. The significant psychosocial predictors of smoking are similar to those reported in multi-ethnic US populations and lay the foundation for common components in prevention interventions.

Table 1

Psychosocial Predictor	OR	CI 95%	p
Have teachers who smoke	1.79	1.22–2.60	0.003
Have social acceptance of smoking by elders	2.40	1.37–4.21	0.0023
Have 1 to 4 friends who smoke vs none	1.72	1.28–2.31	<0.001
Have 5friends who smoke vs none	3.37	2.16–5.26	<.0001
Try to lose weight vs maintain	1.63	1.36–1.96	0.051
Report thrill-seeking always vs never	2.57	1.53–4.32	<0.001
Report depression	1.54	1.19–1.99	0.001
Have repeated a grade in school	2.72	1.50–4.93	0.002
Be a current drinker of alcohol	2.84	1.78–4.53	<.0001
Be non-religious	1.06	1.01–1.11	0.013
Have worse grades in school	1.32	1.14–1.53	<0.001

FACTORS RELATED TO RETENTION OF HEALTH PROMOTERS IN A TRAINING PROGRAM IN HIGHBRIDGE AND MORRISANIA, BRONX, NY H. Chen Cheung[1]; A. Martinez[1]; M. Kogan[1]; G.A. Paccione[1]; E. Drucker[1]. [1]Montefiore Medical Center, Bronx, NY. *(Tracking ID # 153519)*

BACKGROUND: Highbridge and Morrisania are poor communities in the South Bronx, (57% Hispanic and 38% African-American) with rates of morbidity and mortality 50% higher than the rest of New York City. To raise health awareness and participation in a community health promotion program, physicians have been involved in educating community members interested in being trained as health promoters (HP). Although many individuals have demonstrated interest in participating, the attendance rate has decreased. From 125 people enrolled to the program over 4 years, 34 (27%) attended some sessions and only 6 remained active. The objective of our study is to identify factors that attracted or hindered participation.
METHODS: The study included 125 persons registered in the HP-training program, (mainly recruited from community centers and tenant meetings). We had an initial small group meeting with HP to develop an appropriate questionnaire and then attempted telephone interviews with all participants that had become inactive in the program (N=119). We were able to reach 41 and interview 24 (17 declined). The same questionnaire was also administered to 5 of the currently active health promoters in a group. Data were coded and analyzed using standard qualitative procedures.
RESULTS: The motivation to participate was mainly derived from interest in acquiring skills to help others and themselves ("I have diabetes and I told myself that I wanted to learn so maybe I can even know how to manage my diabetes".) All were hopeful of playing a role in improving others health. ("The role of the health promoter in the community is to orient the people: help, teach and invite them to join the chain of community self-help") The most common obstacles to participation included organizational issues ("I thought that the classes stopped, I called a number that they gave me and they did not call me back"), language barriers ("The doctors do not agree between themselves, everything is in English or in Spanish, I felt very deceived."), and competing personal responsibilities ("I have work and the kids"). The participants had different definitions of the community ("A group of organized people, not a location, but a group of people that live and share together in the same place"), which may affect their perception of needs ("in my building we do not have insurance problems because we all work"). Respondents spontaneously gave other factors that they believed affected health and healthcare in the community ("The main problems of the community are domestic violence, violence in the streets, drugs, lack of job security, and unemployment"). After sharing and discussing these data with active HPs, they became more aware of the diversity of problems within the South Bronx, problems that can vary between individual experiences, and resolved to overcome these obstacles as they go forward.
CONCLUSIONS: Participants perceived the main role of HPs is to inform and help the community in making health and lifestyle decisions. A more stable organizational structure with a consistent schedule of activities should improve participation in our program.

FAMILY DECISIONS ABOUT END OF LIFE CARE. A.K. Karasz[1]; L.T. Watkins[1]; G.M. Sacajiu[2]; M. Kogan[2]. [1]Albert Einstein College of Medicine, Bronx, NY; [2]Montefiore Medical Center, Bronx, NY. *(Tracking ID # 153914)*

BACKGROUND: Research on decision-making in end of life care has focused largely on the decisions of individual patients, but in most cases it is family members on whom the burden of decision-making lies. Current ethical guidelines supposed to guide families through end of life decision-making are based on what has been described as the "rational choice" model: a deliberative model which emphasizes the prior wishes and individual autonomy of the ill patient. Critics have argued that the guidelines reflect an individual rights-oriented moral framework that may be irrelevant to many families' actual priorities and needs. There is widespread acknowledgement in both the bioethics and research communities of the need to develop ethical guidelines and care models that are truly responsive to families. Yet efforts to move in this direction are stymied by a lack of empirical research into the processes through which families negotiate meanings and participate in end of life treatment decisions.
METHODS: This qualitative study used both observations and family interviews to gain understanding of moral thinking and discourse in family decision making. The study was conducted on an inpatient ward of an urban teaching hospital. 24 families of patients nearing the end of life, who were unable or unwilling to make decisions for themselves, were recruited over a period of 18 months. Family meetings between hospital staff and family members were observed and recorded, and families were subsequently interviewed to gain deeper understanding of their ethical priorities and strategies. In most cases telephone follow-ups, including a post-death interview, were conducted. The data were analyzed in an iterative procedure using standard qualitative techniques.
RESULTS: Family meetings were regarded as serious occasions in which all parties were concerned to behave in an ethical manner and 'do the right thing." However, the meetings did not involve extensive deliberations among various options; family decisions were more likely to involve 'assent' to the staff's position. An examination of moral discourse found that the first standard in the rational choice model, "patient's wishes", was mostly introduced by staff, who brought them into the discussion for the purpose of persuading families to limit life-extending care. Families often challenged the authority of the patient's wishes by suggesting that such wishes were transient, trivial, or context-dependent, or in other ways did not reflect an authentic expression of the patient's autonomy. Families were more likely to introduce the "best interest" standard and to use it to challenge the staff position. We found evidence that an

alternate moral framework emphasizing a convenental, rather than contractual, obligation between patients and families, played a role in families' moral thinking and sometimes came into conflict with the rational model.
CONCLUSIONS: Family decision making at the end of life does not appear to involve rational deliberation among various options, but an assent to the inevitability of the patient's decline and death. In addition to the considerations of the patient's wishes and best interests, hospital staff and bioethicists may provide better care for families by acknowledging the validity of alternative moral frameworks.

FAMILY EXPECTATIONS OF DEATH: THE ROLE OF FUNCTIONAL IMPAIRMENT AND RACE-ETHNICITY. B.A. Williams[1]; K. Lindquist[1]; S.Y. Moody-Ayers[1]; K.E. Covinsky[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 153436)*

BACKGROUND: Families describe the ability to expect a family member's death as critical to good end-of-life care, however death is often perceived as arriving unexpectedly. In the elderly, functional impairment is predictive of death; however, it is unknown whether functional impairment in older persons is associated with families' perception of a death as expected or unexpected.
METHODS: Our cohort consisted of 2,237 family members of decedents from the Health and Retirement Survey (HRS), a nationally representative longitudinal cohort study of older persons. Families of subjects who died after enrollment in HRS were interviewed within two years of the decedent's death in 1996–2000. Our outcome of interest was whether families reported that the death was expected, assessed by asking, "Was death expected at about the time it occurred or was it unexpected?" Our primary predictor was decedent's functional impairment (needing assistance in any ADL including eating, dressing, transferring, toileting and/or bathing) We also assessed patient race-ethnicity, based on self-identification from the pre-death interview.
RESULTS: Median age at death was 79 for whites and 75 for African Americans and Latinos. 51% of decedents were female, 70% had functional impairment. 39% of family respondents were spouses, 43% were adult children. Overall, 42% of families reported their family member's death was unexpected, this report varied according to the race-ethnicity of the decedent: 40% of whites, 52% of African Americans and 44% of Latinos reported their family member's death was unexpected ($p < 0.001$). Expecting death was strongly associated with functional impairment in the decedent, 71% of families of decedents with functional impairment expected death, compared to 24% of those without functional impairment ($p < 0.001$). After adjustment for age, gender, education, economic status, comorbidities, patient symptoms, religious service attendance, time to interview, and place of death, there were still significant associations between expecting death and functional impairment (OR 3.53, CI 2.71–4.60) and families of African Americans expected death less often than families of white decedents (OR 0.65, CI 0.48–0.87). There were no significant differences in expectations between families of Latino and white decedents, no interactions between race-ethnicity and functional impairment and the respondent's relationship was not associated with expectations.
CONCLUSIONS: Family members of older adults expected death only 58% of the time. While families of functionally impaired elders were more likely to expect death when it occurred, the expectation of death was significantly lower for families of African Americans than for whites. These results suggest opportunities where end-of-life communication can be improved.

FEASIBILITY AND OUTCOMES OF ON-SITE HEPATITIS C TREATMENT IN OPIATE AGONIST TREATMENT PROGRAMS. A.H. Litwin[1]; K.A. Harris Jr.[1]; P.J. Zamor[1]; I.J. Soloway[2]; P.L. Tenore[2]; D. Kaswan[1]; S. Nahvi[1]; J.F. Reinus[1]; M.N. Gourevitch[3]; J.H. Arnsten[1]. [1]Albert Einstein College of Medicine, Montefiore Medical Center, Bronx, NY; [2]Albert Einstein College of Medicine, Bronx, NY; [3]New York University, New York, NY. *(Tracking ID # 154069)*

BACKGROUND: Hepatitis C virus (HCV) infection affects nearly 5 million people in the United States and is a major cause of morbidity, mortality, and health care expenditure. Although injection drug users (IDUs) bear a particularly heavy burden from HCV and are likely to transmit it by sharing drug paraphernalia, few IDUs have received treatment for HCV. Physician reluctance to treat HCV in IDUs has been attributed to concerns about poor treatment adherence associated with ongoing substance abuse or comorbid psychiatric disorders. Prior studies have shown that linking drug abuse treatment with on-site primary medical care has improved adherence to on-site treatment for both tuberculosis and HIV, but this model has not been tested for HCV. We describe the implementation and preliminary outcomes of a model of co-located opiate agonist treatment and primary medical care that includes HCV-related care.
METHODS: We conducted a retrospective chart review in eight affiliated opiate agonist treatment clinics where on-site HCV treatment was provided between January 1, 2003 and December 15, 2005. In all eight clinics HCV evaluation and treatment were provided by internists with expertise in both HIV and addiction medicine, using a standardized protocol. Patients with recent (within 6 months) or active (within 1 month) drug use, HIV/HCV coinfection, current psychiatric illness, or cirrhosis were all eligible for HCV treatment. All patients received pegylated interferon (peginterferon alfa-2a or peginterferon alfa-2b) in combination with twice daily ribavirin for either 24 or 48 weeks. Rates of early viral response (EVR=at least 2 log decrease in HCV viral load at 12 weeks), end of treatment response (ETR=undetectable viral load at the end of 24 or 48 weeks depending on genotype), and sustained viral response (SVR=undetectable viral load 24 weeks after completion of therapy) were determined, and factors associated with SVR were identified using multiple logistic regression.
RESULTS: Seventy current or former drug users initiated on-site treatment for HCV in their opiate agonist treatment program during this three year period. The majority (89%) had a history of IDU, and nearly half (47%) had used illicit substances either 6 months or 1 month prior to HCV treatment. Most were Latino (69%) or African-American (19%). A significant minority (30%) were HIV-infected, current psychiatric illness was common (67%), and 36% had advanced fibrosis on biopsy. HCV genotype 1 was predominant (71%). Most patients (86%) completed twelve weeks of treatment, and 75% achieved an EVR. Over half (54%) achieved an ETR at either 24 or 48 weeks, and 38% achieved a SVR. Twenty-nine percent of patients used illicit substances during HCV treatment. Multivariate logistic regression revealed that only genotype 2 or 3 (OR=18.6, 95% CI=1.8, 195) and adherence to at least 80% of expected duration of treatment (OR=19.7, 95% CI=1.5, 254) were independently associated with SVR.
CONCLUSIONS: Our results show that IDUs with complex medical and psychiatric comorbidities can be effectively treated for HCV with a model of co-located substance abuse and primary medical care. Future studies should evaluate interventions designed to improve HCV treatment adherence and outcomes in this marginalized population.

FEASIBILITY OF INSTITUTING PATIENT-REPORTED MEASURES IN AN HIV CLINIC SETTING USING TABLET PC TECHNOLOGY. H. Crane[1]; W.B. Lober[1]; E. Webster[1]; R.D. Harrington[1]; T. Davis[1]; M.M. Kitahata[1]. [1]University of Washington, Seattle,WA. *(Tracking ID # 153422)*

BACKGROUND: Information from patient-reported measures (PRM) of health states such as mental health and lipodystrophy (LD) can improve patient care, enhance patient-provider communication, and facilitate clinical outcomes research. However, barriers to instituting these measures in clinical care include time required for patients to complete the instruments, staff needed to enter patient responses, and data processing to generate results. Recent technological advances such as the development of software to enable patients to complete PRMs via tablet PC with touch screens (TTS) may overcome these barriers and provide reliable results in a more timely fashion. We examined the feasibility of using TTS to collect PRMs in an outpatient HIV clinic setting.
METHODS: Patients presenting for routine HIV care were asked to complete a questionnaire containing 70 items. Patients responded to each item by selecting the appropriate radio button using a stylus. We used TTS to run a web-based, survey software application over a wireless network infrastructure using SSL/TLS encryption. The LD questions asked patients to rate changes in size of individual body regions. No change is scored as 0, mild, moderate, and severe increases are scored as +1, +2, and +3, respectively and mild, moderate, and severe decreases are scored as −1, −2, and −3 allowing separate scores for lipoatrophy (LA) and lipohypertrophy (LH). LA and LH scores of 13 or greater are considered moderate. A symptom score is calculated based on the number of symptoms that interfere with a patient's normal activity to at least a moderate degree, with higher scores indicating greater symptom burden. PHQ-9 depression severity scores of 10–19 are considered moderate.
RESULTS: 106 patients completed the questionnaire, 6 started but did not complete it, 3 required assistance (1 due to vision, 2 due to literacy), and 19 refused. Participants had a mean age of 43 years, 81% were men, and 28% reported a history of injection drug use. The median time to complete the questionnaire was 12 minutes. 8% reported at least moderate LH, 5% reported at least moderate LA, 43% had a symptom score of 4 or greater, and 35% reported at least moderate depressive symptoms. Compared to patients without LA, those with moderate LA experienced both higher symptom scores ($p = 0.02$) and depression scores ($p = 0.04$).
CONCLUSIONS: Collection of PRMs using TTS was feasible in a busy HIV clinic. TTS-based collection of PRMs required only modest investment, eliminated data entry time, and imposed minimal staff and patient burden. It may improve data accuracy by disallowing ambiguous or multiple answers, and by eliminating transcription errors in data entry. TTS collection of PRMs is a promising tool to facilitate both outcomes research and clinical care, and does not require extensive computer expertise. However, collection must be integrated with clinic flow, and data must be clinically relevant, valid, and reliable. Future goals of this project include adapting the questionnaire for delivery in multiple languages, automating patient flow between check-in and notification of triage of patient arrival, and providing real-time information to providers to improve care.

PRM Domains and Items

Measure/Domain	# of items
FRAM/LD	12
PHQ/depression anxiety	10
EuroQOL/HRQL	5
Smoking	4
Alcohol/drugs	8
Functional status	4
Symptoms	20
ACTU/Adherence	4

FISRT-YEAR MEDICAL STUDENTS' PERCEPTIONS OF CHRONIC PAIN PAIN PATIENTS. D.W. **Rudy**[1]; **A. Hensley**[1]. [1]University of Kentucky, Lexington, KY. *(Tracking ID # 154253)*

BACKGROUND: Only around half of patients with chronic non-cancer pain report adequate relief. The reasons for this discrepancy are complex and may include the patient's subjective nature of pain often coupled with a lack of

"objective data" and the legitimate concerns about prescribing narcotics by the physician sets up a potential conflict in the patient-physician relationship. The majority of physicians feel that their training in medical school is inadequate to prepare them to work with patients with chronic pain. Why is this? One potential answer may be within the informal curriculum where chronic pain patients are often viewed with suspicion, frustration, and anger. Perhaps the empathy that medical students may initially have for such patients is "trained out of them." As a starting point to address this question we assessed first-year medical students' responses to a trigger tape of a patient requesting narcotics for chronic pain.
METHODS: 101 first-year medical students viewed a 2 minute video clip of a patient with chronic headaches and obvious anxiety asking her physician to prescribe a refill of narcotics with a larger number of pills. Immediately following the encounter, students completed a brief questionnaire including students' ideas of the patient's perspective and what the student would think or feel in the role of the physician. Written responses were analyzed for thematic categories by two reviewers in an iterative process. The two reviewers then coded the students' responses for the presence or absence of the themes. Discrepancies were resolved via consensus.
RESULTS: Students believed that the patient expected the physician to prescribe narcotics without hesitation (86%), that the patient was struggling with emotional issues (63%) and she perceived the need for narcotics in order to function (54%). In the role of the physician students believed that the patient was addicted to narcotics (72%), had an underlying psychiatric issue (32%), and was using the narcotics as a means of treating her emotional issues (28%). The feeling the students expressed were primarily empathy (45%) and sympathy (19%). Only of 8% students expressed irritation. The majority of students (70%) would recommend counseling. 72% of students would not prescribe the narcotics.
CONCLUSIONS: As a group the students showed a good understanding of the scenario. The patient was experiencing pain from a physical and emotional standpoint. They have a good understanding of the patient's perspective in that she feels the drug helps her function and is frustrated with the doctor's reluctance to prescribe it. Her requests for a dose escalation and admitting to not being able to function without the drug indicate dependence. Interestingly, the predominant emotional responses from students were sympathy and empathy. The literature indicates that most residents would respond with frustration and anger. Students did wish to address the patient's emotional needs though counseling and getting to the root cause of her stress. Overall, these first-year students demonstrate a good patient-centered perspective of this scenario. Would a repeat of the study towards the end of medical school show a decline?

FOLLOW-UP AFTER ABNORMAL SCREENING IN A BREAST CANCER CONTROL PROGRAM. D. Mukherjee[1]; J. George[1]; R.C. Burack[1]. [1]Wayne State University, Detroit, MI. *(Tracking ID # 153727)*

BACKGROUND: The impact of mammography and a clinical breast exam (CBE) on breast cancer mortality is dependent on timely and complete resolution of abnormal screening findings. Minority status, lower SES, absent insurance and public-only insurance are known risk factors for delayed or absent follow-up among women with abnormal screening results. In our prior study conducted among Medicaid eligible, minority women provided insurance through Wayne County HMO, only 31% of women with highly suspicious mammograms (BIRAD 4 and 5) followed up within 60 days. Thus simply providing insurance may be an incomplete intervention without active case management. The Michigan Wayne County, Breast and Cervical Cancer Control Program (BCCCP), a federal-state parnership, enrolls uninsured women, 40 to 64 years of age with household incomes less than 250% of Federal poverty income threshold. Enrolled women are provided "free" breast cancer screening plus case management to promote timely follow up after abnormal screening. Our objectives were to demonstrate the impact of added case management by describing follow-up patterns within the BCCCP and identify factors associated with timely follow-up among previously uninsured, economically disadvantaged, minority women.
METHODS: A retrospective review was performed on a BCCCP database of 5184 women who received a screening mammogram and a CBE from October 2004 to June 2005. Sixty-five percent of the study population was black and 70% had household incomes below the federal poverty income threshold . Women with abnormal CBE (breast lump), BIRAD 0 (needing additional follow-up) and BIRAD 4 and 5 (suspicious and highly suggestive of malignancy respectively) were identified as abnormal screening findings. Our primary outcome was defined as a diagnostic resolution confirming a cancer or a benign diagnosis within 60 days of the index abnormal screening finding, based on medical record review. Bivariate and multivariate logistic regression was used to examine factors associated with timely (within 60 days), delayed (greater than 60 days) or failed (never diagnosed) resolution.
RESULTS: Of the 5184 screened women, 796 (15.4%) had an abnormal screening result (abnormal CBE = 296, BIRAD 0 = 472, BIRAD 4,5 = 28). Seventy-nine percent of women with BIRAD 4 and 5, 68.5% with Abnormal CBE and 67.9% with BIRAD 0 reached timely (within 60 days) diagnostic resolution. However, the type of screening abnormality (Abnormal CBE, BIRAD 0, BIRAD 4,5), age (40–49, 50–59, 60–64), ethnicity (black, white) and history of previous screening with or without abnormality (prior abnormal screening, prior normal screening and no prior screening) were not associated with timely resolution. In the multivariate model only higher socio-economic status (household income above federal poverty level compared to household income below the federal poverty threshold) was associated with timely resolution (OR, 1.51; 95% CI, 1.01–2.26).
CONCLUSIONS: Adding supportive case management to insurance resulted in timely diagnostic resolution after an abnormal screening for the majority of women enrolled in our cancer control program. Since prompt diagnostic resolution and treatment initiation depends on timely follow-up after abnormal screening, extension of similar case management in other settings could contribute to improved breast cancer control outcomes.

FOOD INSECURITY IS ASSOCIATED WITH DIABETES. H.K. Seligman[1]; A.B. Bindman[1]; E. Vittinghoff[1]; M. Kushel[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 151254)*

BACKGROUND: More than 11% of the American population reports being food insecure, or having inadequate access to food, at some time during the previous year. Among women, mild food insecurity (food insecurity without hunger) is associated with obesity. This association may be driven by an increased reliance on nutritionally-poor, calorically-dense foods, which tend to cost less than healthier alternatives. We sought to determine whether an association exists between food insecurity and type II diabetes mellitus.
METHODS: We used the 1999–2002 National Health and Nutrition Examination Survey (NHANES), a cross-sectional, nationally-representative survey of the non-institutionalized population of the United States. Our independent variable was individual-level food insecurity over the previous 30 days, assessed in NHANES using the United States Department of Agriculture's standard questionnaire and defined as a 3-level categorical variable (secure, insecure without hunger, or insecure with hunger). Our outcomes were obesity (measured body mass index >30) and diabetes (by self-report or fasting plasma glucose >125). We included all women over the age of 20 years (n = 3634) in the analysis and performed multivariate logistic regression adjusting for age, race/ethnicity, parity, and BMI (for the diabetes outcome). All results are weighted to account for the complex survey design.
RESULTS: In adjusted and unadjusted analyses, mild food insecurity (insecurity without hunger) is associated with obesity, while severe food insecurity (insecurity with hunger) is not. Both food insecurity with and without hunger are associated with diabetes (see table).
CONCLUSIONS: These results confirm the previously observed association between food insecurity without hunger and obesity in women. The association between food insecurity and diabetes has not been previously observed. Unlike the relationship observed with obesity, that observed with diabetes is graded; more severe forms of food insecurity are associated with higher diabetes risk, independent of body mass index. Further research should address whether food insecurity acts as a risk factor for diabetes or increases one's awareness of inadequate access to balanced meals. Food insecurity may be one mechanism by which low socioeconomic status predisposes to diabetes.

Food Insecurity is Associated with Both Obesity and Diabetes

	Food secure (n = 2911)	Food insecure without hunger (n = 571)	Food insecure with hunger (n = 152)
	OR	OR (95% CI, p-value)	OR (95% CI, p-value)
Odds of obesity, unadjusted	1	2.0 (1.7–2.5, p < 0.001)	1.2 (0.8–1.9, p = 0.4)
Odds of obesity, adjusted for age, race, and parity	1	1.8 (1.5–2.2, p < 0.001)	1.1 (0.7–1.9, p = 0.6)
Odds of diabetes, unadjusted	1	1.6 (1.1–2.2, p = 0.007)	2.4 (1.5–3.7, p < 0.001)
Odds of diabetes, adjusted for age, race, and parity	1	1.8 (1.2–2.8, p = 0.01)	3.1 (1.7–5.6, p = 0.001)
Odds of diabetes, adjusted for age, race, parity, and BMI	1	1.6 (1.0–2.4, p = 0.03)	3.2 (1.8–5.8, p < 0.001)

FOREIGN-BIRTHPLACE AS A BARRIER TO BREAST CONSERVING SURGERY FOR EARLY STAGE BREAST CANCER IN LATINA WOMEN. M.S. Goel[1]; D.W. Baker[1]; S.A. Khan[1]; E.P. McCarthy[2]. [1]Northwestern University, Chicago, IL; [2]Harvard University, Boston, MA. *(Tracking ID # 153615)*

BACKGROUND: Health care disparities have increased over time for Latina women in the US. Latinas who are foreign-born may be particularly vulnerable to health disparities because of reduced access to care or cultural differences. Although breast conserving surgery (BCS) has equivalent long-term mortality to mastectomy for the treatment of early-stage breast cancer, studies have shown it is commonly underutilized by disadvantaged populations even after clinical characteristics are considered. Therefore, we aim to examine whether Latina women with early-stage breast cancer, particularly those who are foreign-born, are less likely than white women to receive BCS and to determine whether rates of BCS vary over time by ethnicity and birthplace.
METHODS: Demographic information and cancer characteristics (stage, tumor size, nodal involvement, grade, histology, estrogen receptor status, progesterone receptor status) were obtained on women diagnosed with stage I or II breast cancer from the 1992–2002 public use Surveillance, Epidemiology, and End

Results (SEER) database. We calculated unadjusted rates of BCS and then created a logistic regression model using generalized estimating equations to account for clustering by tumor registry. We adjusted for age, marital status, year of diagnosis, and cancer characteristics. We compared BCS use in non-Latina white women (n=104,650) with U.S.-born (n=3,580) and foreign-born (n=4,312) Latina women. We examined temporal trends in rates of BCS. We also further examined whether rates of BCS for US-born and foreign-born Latinas increased at rates similar to whites by testing for interactions between year of diagnosis and a combined variable for race/ethnicity and birthplace.
RESULTS: The mean age of women was 60 years. 56% were diagnosed with stage I disease and 11% were Latina. White women were older than U.S-. and foreign-born Latin women (mean ages 62, 58, 55 years, respectively) and were more likely to be diagnosed with stage I disease (59%, 49%, 40%, respectively). In unadjusted analyses, foreign-born Latina women had lower rates of BCS than U.S.-born Latina and white women (53%, 59%, 61%, respectively, $p<0.01$). After adjustment, foreign-born Latina women remained substantially less likely to have BCS than white women [adjusted odds ratio 0.81 (95% CI 0.69–0.96)]. However, no significant differences in BCS were observed between U.S.-born Latina and white women. Overall rates of BCS increased over time for each group; however, we found that differences in BCS use between foreign-born Latina and white women are increasing over time. Trends in BCS use between U.S.-born Latina and white women were similar over time.
CONCLUSIONS: Foreign-born Latina women undergo breast conserving surgery for early stage breast cancer at rates substantially lower than white women, and these differences appear to be increasing over time. Future studies should focus on identifying potential mechanisms for the observed differences in care among foreign-born Latinas and whether they contribute to disparities in health outcomes.

FREE PHARMACEUTICAL SAMPLES: CHARACTERISTICS OF US RECIPIENTS IN 2002. S.L. Cutrona[1]; S.J. Woolhandler[1]; K.E. Lasser[1]; D.H. Bor[1]; D. Mccormick[1]; D.U. Himmelstein[1]. [1]Cambridge Hospital/Harvard Medical School, Cambridge, MA. *(Tracking ID # 150413)*

BACKGROUND: Free pharmaceutical samples are used widely in the United States, but little information is available on the people who receive such samples. We studied characteristics of free sample recipients in 2002, hypothesizing that uninsured and low-income persons would be more likely to receive samples.
METHODS: We analyzed population-based data on 39,165 U.S. residents from the 2002 Medical Expenditure Panel Survey (MEPS). We calculated the total number of free samples distributed, as well as the number of people receiving samples in 2002 as a percentage of all respondents and as a percentage of all those taking prescription drugs. We performed both univariate and multiple logistic regression analyses to determine demographic predictors of sample receipt and identified the medications most frequently given as free samples.
RESULTS: In 2002, 37.2 million Americans received a total of 125 million free samples. Samples accounted for 4.6% of all prescription medications and were given to 20.1% of persons receiving any prescription medication. Persons who were insured all year represented 77.7% of all MEPS respondents, and received 82.9% of all samples and 89.6% of all medications. In univariate analysis of all respondents, individuals who were insured all year were more likely to receive a sample than those uninsured part or all year (14.1% of those insured all year received samples vs. 11.5% of those uninsured part of the year, 9.8% of those uninsured all year; $p<0.0001$). In univariate analysis restricted to respondents who received prescription medications, there was no difference between groups (20.1% of respondents insured all year received samples vs. 20.8% of those uninsured part of the year, 21.3% of those uninsured all year; $p=0.2$). Three-quarters of the free samples (94.6 million) went to people who had prescription medication insurance at the time of sample receipt. Among all respondents, the poor were least likely to receive free samples while individuals in the highest income category were the most likely (10.3% of people below poverty level received a sample vs. 14.6% of people earning>400% poverty level; $p<0.0001$). In multivariate logistic regression analyses using all respondents, receipt of a free sample was associated with being in the highest income category (OR 1.14, $p=0.0408$), white race (OR 1.32, $p<0.0001$), non-Hispanic ethnicity (OR 1.22, $p=0.0088$), receiving a higher number of prescription medications (OR 3.12, $p<0.0001$), speaking English (OR 1.38, $p=0.0003$), female gender (OR 1.26, $p<0.0001$) and receiving medical care in a non-hospital setting (OR 1.49, $p<0.0001$); respondents with insurance all year were less likely than the uninsured to receive a sample (OR 0.732, $p<0.0001$) on multivariate analysis. The three most frequently prescribed samples in 2002 (in order of frequency) were Vioxx (rofecoxib), Celebrex (celecoxib), and Lipitor (atorvastatin).
CONCLUSIONS: One-fifth of Americans who take prescription medications receive free samples, but most of these samples go to higher income, insured patients. It is concerning that Vioxx, a drug subsequently withdrawn from the market, was the most frequently distributed sample in 2002.

FROM PUBLIC TO PRIVATE CARE: THE HISTORICAL TRAJECTORY OF MEDICAL SERVICES IN A NEW YORK CITY JAIL. N. Shalev[1]. [1]Montefiore Medical Center, New York, NY. *(Tracking ID # 153643)*

BACKGROUND: The United States has emerged as the industrial world's leading incarcerator. The health of the nation's inmates became a matter of national attention in the mid-1970's, after a series of deadly prison riots exposed the paucity of medical services behind bars. Subsequently, the Supreme Court guaranteed prisoners' right to medical care in its 1976 decision Estelle v. Gamble. Since then, the exponential rise in prison population, along with the epidemics of HIV, TB and hepatitis C, have drawn attention to the health impact of correctional medical care. The objective of this study is to examine the administrative history of medical services within a correctional facility in New York City: Rikers Island. The investigation traces the organizational changes in the medical service at Rikers Island in order to understand its impact on prisoner care.
METHODS: Archival materials were searched, reviewed, and analyzed. A historical narrative was derived from the archival information. The materials included records from the mayor's office, municipal archives, city hall library and the Montefiore Medical Center archive. Archival materials were searched according to the following categories and terms: prisons and jails, hospitals, Department of Correction, Department of Health, Health and Hospitals Corporation, Rikers Island. The complete New York Times database was similarly searched. Materials were arranged chronologically, read, and analyzed for patterns pertaining to the study question.
RESULTS: Between the 1930's and early 1970's, jurisdiction over medical care at Riker's Island resided within the Department of Correction. This arrangement persisted until the early 1970's when rising concern over the ethical treatment of prisoners led to heightened scrutiny of medical standards at the jail. In a series of reports commissioned by the New York City Department of Health, the dual role of the Department of Correction as incarcerator and caregiver was deemed a conflict of interest detrimental to prisoners' health. In 1971, the city delegated responsibility for care at Rikers to the Department of Health. Two years later, the city contracted Montefiore Medical Center, a voluntary, non-profit hospital, to provide care at Rikers Island. Montefiore Medical Center provided comprehensive ambulatory services at Rikers Island between 1973 and 1997. This period was marked by the emergence of the dual epidemics of HIV and TB, for which standards of care were established and delivered. In 1997, mirroring national trends in health care financing, the city contracted St. Barnabas, a hospital-based HMO, to provide care at Rikers on a fixed, per-inmate fee. This was the nation's largest correctional health contract to date and was subject to criticism of unprecedented profit margins for the HMO. After three years, the HMO was replaced by a private, for-profit, prison health care corporation, Prison Health Services, Inc. The current contract has been subject to investigation by the State Commission of Correction for poor quality of care.
CONCLUSIONS: Over the past half a century, medical care for inmates at Rikers Island has shifted from the public domain into the hands of a private, for-profit, corporation. The introduction of market considerations into correctional health services threatens to compromise the right of prisoners to standard medical care. Further study is needed to determine how these organizational changes have affected the quality and outcomes of medical care for prisoners.

GENDER DIFFERENCES IN DYSLIPIDEMIA: ARE WOMEN WITH TYPE 2 DIABETES BEING TREATED LESS AGGRESSIVELY COMPARED TO MEN?. Q. Ngo-Metzger[1]; J. Billimek[1]; D. Roblin[2]; D. Sorkin[1]; J. Read[1]; S. Greenfield[1]; S. Kaplan[1]. [1]University of California, Irvine, Irvine, CA; [2]Kaiser Permanente Division of Research, Atlanta, GA. *(Tracking ID # 153844)*

BACKGROUND: Although studies document potential under-treatment of dyslipidemia among women with coronary heart disease, to date no studies have examined gender differences in lipid management among patients with Type 2 Diabetes.
METHODS: We examined quality of diabetes care by comparing measurement rates and outcomes of hemoglobin A1c and LDL cholesterol in a sample of diabetic patients treated at Kaiser Permanente Georgia in 2002 (n=6100) and 2003 (n=14979). Glycemic control was defined as hemoglobin A1c (HbA1c)<8.0 and lipid control as LDL level<100 mg/dl. We compared rates of measurement and outcomes for men and women using bivariate and multivariate analyses. $P<.001$ was set to account for multiple comparisons.
RESULTS: Women made up 49.5% of the sample in 2002 and 52.3% in 2003. There was no age difference between men and women in the 2002 sample. In the 2003 sample, the mean age for men was 56.2, for women 54.3 ($p<0.05$). Although women and men received lipid and A1C screening at similar rates, and had similar rates of glycemic control, fewer females than males exhibited LDL levels<100 mg/dl and<130 mg/dl. Results were similar in multivariate analyses adjusting for age.
CONCLUSIONS: Despite comparable measurement rates, LDL outcomes are poorer for female than male patients. This gender difference suggests that female patients with diabetes may be less aggressively treated for dyslipidemia, and therefore be differentially at risk for cardiovascular disease.

⟨2002 Sample⟩	Men	Women	Mean Differences (±95% CI)
N	3078	3022	–
% receiving annual HbA1c test	80.1	81.0	−0.9 (−2.9, 1.1)
% receiving annual lipid tests	77.0	77.5	−0.5 (−2.6, 1.6)
% with HbA1c <8 mg/dl	50.7	52.3	−1.6 (−4.1, .9)
% with LDL <130 mg/dl	72.8	68.0	4.8 (2.5, 7.1)**
% with LDL <100 mg/dl	38.0	31.4	6.6 (4.2, 9.)**
⟨2003 Sample⟩			
N	7145	7834	–
% receiving annual HbA1c test	67.3	62.7	4.6 (3.1, 6.1)**
% receiving annual lipid tests	67.3	65.3	2.0 (0.5, 3.5)*
% with HbA1c <8 mg/dl	53.4	57.3	−3.9 (−5.5, −2.3)*
% with LDL <130 mg/dl	68.6	59.9	8.7 (7.2, 10.2)**
% with LDL <100 mg/dl	34.4	24.7	9.7 (8.2, 11.2)**

*$p<.05$; **$p<.001$

GENDER DIFFERENCES IN OPIOID PRESCRIPTION AMONG VETERANS WITH CHRONIC PAIN. S. Kaur[1]; K.M. Stechuchak[2]; K.D. Allen[1]; C.J. Coffman[1]; L.A. Bastian[1]. [1]Duke University/Durham VA Medical Center, Durham, NC; [2]Durham VA Medical Center, Durham, NC. *(Tracking ID # 153956)*

BACKGROUND: Controversy surrounding opioid use for treatment of chronic pain syndromes has limited prescribing these drugs in the past due to concerns of efficacy, tolerance, dependence and abuse. Recent studies on veterans with chronic pain suggest that age, depression, presence of personality disorder and history of substance abuse are closely linked to opioid use versus nonsteroidal anti-inflammatory use. These preliminary studies of veteran populations have not examined gender differences in opioid use to treat chronic pain syndromes as a result of limited inclusion of women. However, it has been noted in community-based studies that being female is a predictor of narcotic analgesic use.
METHODS: We identified all men and women veterans at the Durham VAMC in fiscal year (FY) 2002 between the ages of 21 and 60 that had a diagnosis of chronic pain. Men and women were age-matched at a 2:1 ratio. Women and men that died in 2002 or 2003 were excluded. We then obtained FY 2003 prescription data for our sample from the VA centralized pharmacy database. We compared opioid prescription information among veterans using Chi-square tests.
RESULTS: We identified 406 female and 812 male veterans for this study. Mean age for both groups was 42.6 years (SD 8.5 for men, 8.6 for women). Common pain sites identified were: joint pain, back pain, headache, abdominal pain, limb pain, pelvic pain, chest pain and bone spur pain. We found that overall, 50% of the men and 43% of the women were prescribed opioid medications in FY 2003 ($p=0.01$). Among our sample with a psychiatric comorbidity, 63% of men and 49 % of women were being prescribed opioids ($p=0.001$). Among veterans that were service-connected for health issues, 51% of men were being prescribed opioids, compared to 44% of service-connected women ($p<0.05$).
CONCLUSIONS: This is the first study to examine gender differences in chronic pain and narcotics use. We found that women veterans with chronic pain are less commonly prescribed opioid medications than men. Future studies should explore gender differences in appropriateness and efficacy of narcotics in this population.

GENDER DIFFERENCES IN READING ABILITY IN ADULTS WITH DIABETES OVER TIME. N.S. Morris[1]; B. Littenberg[1]. [1]University of Vermont, Burlington, VT. *(Tracking ID # 153706)*

BACKGROUND: Forty seven percent of Americans have limited reading ability. Health professionals consistently try to communicate preventive health advice, specific instructions regarding diagnostic testing and medication use, and strategies for self-management of specific health conditions. Printed materials are often used to supplement verbal communication. Little is known about the stability of reading skills in adults or of the need for periodic screening of literacy over time. The objective of this study was to examine the changes in reading ability among adults with a chronic health condition over a 2 year period.
METHODS: Design: Cross sectional survey; part of a larger project, the Vermont Diabetes Information System (VDIS), a cluster-randomized trial of a diabetes decision support system. Subjects/Setting: 171 adults with diabetes randomly selected from VDIS primary care practices in Vermont, northern New York, and New Hampshire who completed 2 in-home surveys 24 months apart. Measures: Demographic data, height, weight, the Patient Health Questionnaire (PHQ-9) a self-administered depression scale; the SF-12, a measure of physical and mental functional health status; the Self-Administered Comorbidity Questionnaire (SACQ), and the Short Test of Functional Health Literacy (S-TOFHLA), a 36-item timed reading comprehension test designed to measure reading ability. Analysis: The t-test was used to examine the change in reading ability over time for the cohort and for men and women as separate groups. Linear regression was used to explore the association between the change in the STOFHLA score and sex after potentially confounding patient characteristics were controlled.
RESULTS: There was no significant change over time in the STOFHLA score overall (STOFHLA score =-.34; P=.51). Unadjusted, women lost 1.62 points in their STOFHLA score (P=.05) compared to a 0.93 increase in men (P=.14). There was a significant change in the STOFHLA score between men and women (STOFHLA score =2.55; P=.01). Adjusting for age, income, education, race, duration of diabetes, body mass index, smoking, ETOH use, A1C, Alzheimer's disease, depression, physical function, mental function, and having had a stroke, women still experienced a greater decline in their reading ability over a two year period compared to men (difference =2.89; P=.004).
CONCLUSIONS: These preliminary findings inform us that among adults with diabetes, women experience a greater decline in reading ability over 2 years than men. Further study is needed with a larger and more diverse population. Consideration of possible mechanisms that might explain this difference such as cognitive status, social support, and ongoing intellectual engagement, should be explored.

GENDER DIFFERENCES IN THE BENEFITS OF A DOMESTIC VIOLENCE WORKSHOP USING STANDARDIZED PATIENTS. M. Lineberry[1]; J.F. Wilson[1]; J. Gibson[1]; S.A. Haist[1]. [1]University of Kentucky, Lexington, KY. *(Tracking ID # 156836)*

BACKGROUND: Domestic violence (DV) is pervasive in today's society, with 15% of women reporting abuse by an intimate partner in the past year and 51% reporting abuse during their lifetime. While increased attention is being given to DV in the health care setting, physicians report feeling unprepared to care for DV victims and graduating medical students rate time devoted to instruction in domestic violence in medical school as inadequate. Studies show that men lag behind women in the treatment of DV victims. The purpose of this study is to determine the impact of a DV workshop (WS) using standardized patients (SPs) on knowledge and skills of third-year medical students.
METHODS: A four-hour DV WS was developed as part of a new curriculum for a required third-year medical school four-week primary care internal medicine clerkship and delivered to one-half of the rotational groups each year. The WS incorporates four SP cases representing different clinical challenges (abuse identification/screening, safety planning, and local resources for victims). A faculty preceptor leads a group discussion of the dynamics of abuse and sensitive approaches to treating DV victims. Participating students are provided a 22-page DV reference, and all students in every rotational group are assigned DV readings. At the end of the rotation, all students take a written exam (three DV questions) and multi-station SP exam (one DV station, 30 year-old woman presenting with back pain and blood in urine) including a post-SP encounter open-ended written exercise (Write your plan/advice/counseling for this patient). Scores on the written exam DV questions, DV-specific SP checklist (17 items) and subscales (safety plan, 3 items; reporting, 2 items), and DV open-ended written exercise of workshop participants and non-participants were analyzed with simple means, standard deviations, and multiple regression approaches controlling for a Preventive Medicine SP station and USMLE Step 1.
RESULTS: From 2001 to 2004, 137 (66 female and 71 male) students participated in the DV WS and 129 (48 female and 81 male) did not. WS participants performed significantly better than non-participants on the DV written exam items ($2.78 \pm .5$ vs. $2.52 \pm .5$, $F=16.9$, $p<.001$) and the open-ended written exercise (5.44 ± 2.1 vs. 3.02 ± 1.7). WS participants also scored better on the DV-specific SP checklist ($80.24 \pm 16.4\%$ vs. $64.65 \pm 24.6\%$, $F=38.09$, $p<.001$), safety plan subscale ($91.24 \pm 21.9\%$ vs. $62.27 \pm 34.2\%$, $F=69.38$, $p<.001$), and reporting subscale ($82.12 \pm 35.2\%$ vs. $56.98 \pm 47.5\%$, $F=24.86$, $p<.001$). The effects remained significant for written items, open-ended written exercise scores, and DV-specific SP checklist and subscales scores when we investigated each gender individually ($p<.02$). Male WS participants performed better ($p<.05$) than male WS non-participants on 11/17 (64.7%) DV-specific checklist items while female WS participants performed better ($p<.05$) than female WS non-participants on 5/17 (29.4%) DV-specific checklist items ($F=4.571$, $p=.040$).
CONCLUSIONS: Students participating in a four-hour SP workshop display superior DV knowledge and clinical skills as assessed by DV-specific items on a written examination, open-ended written exercise, and SP clinical exam. Male students' clinical skills seem to be enhanced by the workshop more than females'. These findings suggest that incorporating a DV workshop using SPs into medical school curriculum may help both male and female physicians better and more equivalently treat patient-victims of DV.

GENDER DIFFERENCES IN THE RELATIONSHIP BETWEEN NEIGHBORHOOD SOCIO-ECONOMIC CHARACTERISTICS AND ALLOSTATIC LOAD. C. Bird[1]; B. Finch[2]; D. Do[1]; J. Escarce[1]; N. Lurie[3]; T. Seeman[4]. [1]The RAND Corporation, Santa Monica, CA; [2]San Diego State University, San Diego, CA; [3]The RAND Corporation, Arlington, VA; [4]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 156656)*

BACKGROUND: Few studies examine whether potential biological pathways through which neighborhoods affect health differ by gender. We examined the extent to which neighborhood characteristics are related to men's and women's biological markers of stress, based on a summary index of allostatic load (AL), adjusting for individual characteristics.
METHODS: Using 3-level hierarchical linear regression, we analyzed National Health and Nutritional Examination Survey III (NHANES) interview and laboratory data, merged with data on sociodemographic characteristics of their residential census tract. AL was measured as a summary score (range 0–9) based on clinical cut points for 9 indicators from 3 systems: metabolic (total cholesterol, HDL cholesterol, glycosylated hemoglobin, waist/hip ratio), cardiac (systolic and diastolic blood pressure, radial heart rate) and inflammatory (c-reactive protein, serum albumin). Analyses included 14,320 adults from 83 counties and 1805 census tracts, who completed surveys and medical exams, were not missing key components of the outcome measures, and whose residential census tract could be geocoded. The sample was 47% male; 43% white, 27% black, 26% Hispanic, 4% other. Subjects ranged in age from 19.5 to 90 (mean=48); 53% were employed and 58% had at least a high school education. The mean family income/poverty ratio was 2.41.
RESULTS: Across all models, individual level socio-economic controls including Hispanic ethnicity ($p<.001$), lower family income ($p<.03$), lower education ($p<.05$), lack of employment ($p<.005$), age ($p<.001$) were independently associated with higher AL. Adjusting for individual level characteristics, living in a census tract with a higher percentage of households in poverty was associated with a higher AL for women but not men (coeff. for women=.351, $p=.01$ versus -.007 for men, $p=.965$). In separate analyses, higher median income (in 10k units) was associated with lower AL for women but not men (coeff. for women=-.042, p .001 vs. -.015 for men, $p=.302$), and percentage of adults in the tract with less than high school education was associated with higher AL for women but not men (coeff. for women=.389, $p<.001$, vs. .221 for men, $p=.056$). In contrast, for men but not women living in a tract with a higher percentage of blacks was associated with higher AL (coeff. for men=.185, $p=.027$, vs. .075 for women, $p=.296$).
CONCLUSIONS: Gender differences in neighborhood income, education, and racial composition effects on AL suggest that neighborhoods themselves may influence both individual and population health differently for men and women. By assessing potential pathways through which health—and gender differences in health may be generated, this study contributes to a larger effort aimed at developing an understanding of whether changing neighborhood features, such

as neighborhood quality could improve health and reduce health disparities. The mechanisms through which these effects are produced need to be explored.

GENERIC VS. BRAND HYPERTENSION MEDICATION USE BY SENIORS UNDER CARDIOLOGIST AND GENERALIST CARE. A.D. Federman[1]; E.A. Halm[1]; A.L. Siu[1]. [1]Mount Sinai School of Medicine, New York, NY. *(Tracking ID # 156265)*

BACKGROUND: Specialists tend to prescribe newer agents more frequently than generalists. However, little is known about the differences in generic and brand medication use by adults who receive generalist and specialist care. We examined patterns of generic hypertension medication use among elderly Medicare beneficiaries seen by generalists and cardiologists.
METHODS: We conducted a cross-sectional analysis of data from the 2001 Medicare Current Beneficiary Survey (MCBS; n=12,864, 71% response rate). MCBS interviewers record drug names verbatim from pill bottles or pharmacy receipts 3 times per year. Physician specialty was determined by linking Medicare Part B claims with the Unique Provider Identification Number file. We included community-dwelling beneficiaries over 65 with hypertension, who had $\geq$ 1 office visit to a generalist (internist or family practitioner) or to a cardiologist or both, and who used angiotensin converting enzyme inhibitors (ACEI), beta-blockers (BB), or calcium channel blockers (CCB) that were available as either brand or generic agents. We conducted 3 sets of analyses examining the association of provider type with the main outcome, brand vs. generic drug use within each drug class (ACEI, n=283; BB, n=1266; CCB, n=637). We used two definitions of cardiologist care: (1) the survey respondent had $\geq$ 1 office visits to a cardiologist; (2) the survey respondent had more office visits to a cardiologist than to a generalist. Because results were qualitatively similar for multivariate analyses involving both definitions, we only report analyses involving definition (1). Logistic regression models were adjusted for age, sex, race, ethnicity, urban residence, Census region, income, type of prescription coverage, total number of prescription drugs, and cardiovascular disease (coronary disease and CHF). Adjusted odds ratios were converted to relative risks (RR) and SUDAAN software was used for all statistical analyses to correct standard errors for the MCBS sampling design.
RESULTS: Of the 2784 subjects included in the analysis, 15% had $\geq$ 1 visits to a cardiologist. Compared to subjects receiving generalist-only care, those with $\geq$ 1 cardiologist visits more frequently lived in urban areas (16% vs. 11%, p=.02), and had coronary disease or CHF (58% vs. 38%, p<.0001). The proportion of individuals lacking prescription coverage and having household income below poverty level did not differ significantly between the 2 groups. Rates of generic hypertension medication use were generally lower for subjects receiving cardiology care vs. generalist care: BB, 62% vs. 73%, p=.007; CCB, 41% vs. 61%, p=.004; and ACEI 57% vs. 58%, p=.89. In multivariate analyses, those under cardiologist care were less likely to use generic CCBs than those seeing generalists only (RR 0.46, 95% CI 0.27 to 0.76, p=.002), whereas no significant differences were observed for ACEI and BB.
CONCLUSIONS: Elderly Medicare beneficiaries with hypertension who have 1 or more annual visits to a cardiologist are more likely than those under generalist care to use branded calcium channel blockers when equivalent generic agents are available. Targeting cardiologists for interventions to increase generic calcium channel blocker prescribing may represent an opportunity to reduce out-of-pocket drug costs for elderly patients with cardiovascular disease.

GLOBAL RATINGS OF HEALTHCARE BY PATIENTS–UNLIKE TECHNICAL QUALITY–ARE NOT RELATED TO SURVIVAL IN VULNERABLE OLDER PATIENTS. J.T. Chang[1]; C.P. Roth[2]; T. Higashi[3]; N.S. Wenger[1]. [1]University of California, Los Angeles, Los Angeles, CA; [2]The RAND Corporation, Santa Monica, CA; [3]Kyoto University, Kyoto, . *(Tracking ID # 156936)*

BACKGROUND: Quality measurement has several domains including technical quality provided to patients and patients' subjective ratings of the care they receive. We demonstrated that a comprehensive measurement system of technical quality of care provided to community-dwelling vunerable older adults is related to their survival over the subsequent 3 years. To understand the relationship between quality assessment and outcomes, we examined the relationship between patient-reported global ratings of healthcare and survival.
METHODS: The Assessing Care of Vulnerbale Elders project developed a set of quality indicators (QIs) for vulnerable community-dwelling older adults at increased risk for functional decline and death. Patients' global ratings of healthcare received over the prior 12 months and ratings of provider communication were measured by interview using Consumer Assessment of Healthcare Providers and Systems (CAHPS®) 2.0 items. Using information collected from medical records and interview, technical quality of care scores were calculated as the percentage of care processes received for all QIs for which each patient was eligible. Technical quality of care data for a 13-month period and global healthcare rating were available for 236 patients from a sample of 420 vulnerable older adults selected from two senior managed care plans. Death data were obtained from the National Death Index during the 3 years after the quality measurement period and a mean of 34 months after the interview. We conducted multivariate survival analysis using the Cox proportional hazards models to examine the relationship between patient ratings and survival. Covariates included gender, vulnerability score (a measure of sickness including age), mental health, number of hospitalizations and office visits during the quality measurement period, and number of chronic conditions.
RESULTS: Patients' mean global rating of healthcare was 8.9 on a 0–10 scale. Patients' mean technical quality of care score was 0.55 on a 0–1 scale. Overall, the 3-year mortality rate was 15%. In the adjusted Cox proportional hazards model, higher patient global ratings of health care were not associated with mortality within 3 years after the quality measurement period (hazard ratio 1.02 [CI, 0.79 to 1.34]). Technical quality was significantly associated with lower mortality for this cohort after 500 days (hazard ratio 0.31 [CI, 0.12 to 0.80] for a 10% higher quality score).
CONCLUSIONS: Vulnerable elders' global ratings of care, unlike technical quality, are not related to survival. Assessments of care should include both patient ratings and independent assessments of technical quality.

GREATER SPIRITUAL WELL-BEING IS ASSOCIATED WITH LESS DEPRESSION IN PATIENTS WITH HEART FAILURE. D. Bekelman[1]; S.M. Dy[2]; D.M. Becker[2]; I. Wittstein[2]; D.E. Hendricks[2]; T. Yamashita[1]; S.H. Gottlieb[2]. [1]University of Colorado Health Sciences Center, Denver, CO; [2]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 154083)*

BACKGROUND: In patients with chronic heart failure (HF), depression is common and associated with poor quality of life, short-term declines in health status, more frequent hospitalizations, and higher mortality. Identifying patient-centered remediable coping factors associated with depression may provide targets for interventions to reduce adverse outcomes in HF. Spiritual well-being as an important, modifiable coping resource in patients with terminal cancer and is associated with less depression, but little is known about the role of spiritual well-being in patients with HF. The primary objective of this study was to identify the relationship between spiritual well-being and depression in a population of patients with symptomatic HF.
METHODS: In a cross-sectional study, a convenience sample of 60 patients aged 60 years or older with NYHA Class II-IV HF were recruited from cardiology clinics at an academic-affiliated community hospital and a tertiary referral hospital. The main outcome measures were depression symptoms using the geriatric depression scale-short form (GDS-SF) and spiritual well-being using the total scale and two subscales (meaning/peace, faith) of the functional assessment of chronic illness therapy-spiritual well-being scale (FACIT-Sb). All measures were analyzed as continuous variables. The outcome was number of depression symptoms, and predictors included spiritual well-being, social support, number of physical symptoms, and health status. Spearman correlation coefficients were used to estimate bivariate associations. Multivariate linear regression models were developed to determine whether spiritual well-being provided an independent or additive contribution in predicting depression.
RESULTS: The median age of participants was 75 years, 63% were male, and 78% were white. Females were more likely to have higher depression scores (median GDS-SF for men=2, for women=4, p=0.04). Fourteen participants (23%) had clinically significant depression (GDS-SF>5). Figure 1 is a scatterplot showing the depression score as a function of the total spiritual well-being score. A regression line shows that greater spiritual well-being is associated with less depression (F=14.3, p<0.001). There was a strong correlation between greater spiritual well-being and less depression (Spearman's correlation -0.58, p<0.001). In particular, greater meaning/peace was strongly associated with less depression (r=$-$0.60, p<0.0001), while faith was only modestly associated (r=$-$0.38, p<0.01). Greater social support (r=$-$0.40, p<0.001), fewer physical symptoms (r=0.38, p<0.01), and better health status (r=$-$0.56, p<0.001) were also associated with less depression. In separate multivariate regression analyses accounting for social support, physical symptoms, and health status, greater spiritual well-being continued to be significantly associated with less depression. Between the two spiritual well-being subscales, only the meaning/peace subscale contributed to this effect and accounted for between 11–16% of the variance in depression in each multivariate model
CONCLUSIONS: Among outpatients with symptomatic heart failure, greater spiritual well-being, particularly meaning/peace, was strongly associated with less depression. Enhancement of patients' sense of spiritual well-being, a feature of palliative care, might reduce or prevent depression and thus improve quality of life and other outcomes in this population.

GROUP MEDICAL VISITS: PATIENT SATISFACTION IN V.A. CLINICS. L. Skoretz[1]; D. Castro[1]; J. Sawada[2]. [1]Loma Linda VA Healthcare System, Loma Linda, CA; [2]Pfizer, Inc., Irvine, CA. *(Tracking ID # 154735)*

BACKGROUND: Healthcare organizations are under pressure to lower costs and improve care including access to clinical appointments. Group visits have emerged as a way to decrease cost, yet improve clinical outcomes and patient satisfaction. Drop-in group medical appointments (DIGMA), developed in 1996, were designed to solve patient access problems using existing resources as well as help physicians manage large patient panels. DIGMAs are 90-minute appointments for 10–15 patients, led by a physician and behavioral health professional. Each DIGMA is a series of one-on-one patient encounters in a group setting. Advantages of DIGMAs outside of Veterans Affairs (VA) clinics include improved access and quality of care, more time with the physician, better management of large patient panels, increased productivity and enhanced patient and physician satisfaction. It is known that VA patients have a higher number of co-morbid medical and psychiatric conditions than the general population. Since there are no studies regarding DIGMA impact on patient satisfaction within the VA setting we set to determine whether DIGMAs in a VA Primary Care setting have a positive impact on patient satisfaction in the areas of access, provider interactions and overall satisfaction.
METHODS: A retrospective survey of patients who participated in a single provider's Primary Care VA DIGMA during a 3-month period. The Survey of Healthcare Experiences of Patients (SHEP), developed in conjunction with the Picker Institute, is a 106-item survey that is mailed out monthly to a random sample of ambulatory care patients in the VA clinics. Our 60-item survey took 55

questions related to access and satisfaction from the SHEP survey and added 5 specific DIGMA-experience questions. Our survey was mailed to 100 consecutive DIGMA participants along with a self-addressed envelope; all surveys were returned voluntarily and anonymously.
RESULTS: Forty-eight out of 100 mailed surveys were completed and returned. The results for each of the questions in our survey were compared to results from corresponding questions on the SHEP survey during the same time period. When compared to the SHEP results, 43 of 52 questions received a better response (up to 26% better), 3 questions received an equivalent response; 5 questions were DIGMA specific without comparison responses. In areas of access, provider interactions and overall satisfaction DIGMA patients scored the DIGMA experience higher than the comparison SHEP results for our facility. Additionally, the provider reported improved patient access to appointments. DIGMA patients felt the group interaction and peer support was helpful to their care (69%); learned from other patients in the group (65%); would recommend a shared medical appointment to others (69%); when compared to the one-on-one interview, found DIGMA was equally or more useful (71%). At their next appointment patients preferred: DIGMA follow-up (8%), either DIGMA follow-up or one-on-one (31%), one-on-one (50%), unsure or no response (10%).
CONCLUSIONS: DIGMAs provide VA Primary Care patients increased access to care with enhanced satisfaction. DIGMAs are a useful tool for VA physicians to manage large patient panels and improve access to care. However, this setting may not be appropriate for all patients or providers. A majority of patients find the DIGMA appointments helpful; in fact, some would prefer it over the traditional one-on-one visit.

GROWTH OF HOSPITALISTS IN THE VETERANS ADMINISTRATION (VA) HEALTH-CARE SYSTEM: 1997–2005. P.J. Kaboli[1]; T.W. Barrett[2]; S. Vazirani[3]; L. Osterberg[4]; A.D. Auerbach[5]. [1]Iowa City VAMC and the University of Iowa, Iowa City, IA; [2]Portland VA Medical Center/Oregon Health & Science University, Portland, OR; [3]Greater Los Angeles VAMC, Los Angeles, CA; 4 Palo Alto VA Medical Center/Stanford University, Palo Alto, CA; 5University of California, San Francisco, San Francisco, CA. *(Tracking ID # 153411)*

BACKGROUND: The Veteran's Administration (VA) is the largest single provider of healthcare in the U.S., with 129 hospitals providing acute inpatient medical care. The growth of hospitalists in academic medical centers and the private sector has been well described. Our objective was to describe the evolution of hospitalists in VA and explore the impact of residency work hour reform on inpatient care.
METHODS: A 24-item internet based survey was sent to the Chiefs of Medicine at 129 VA Medical Centers (VAMC) that provide acute inpatient care in December 2005. Questions included past, current, and future use of hospitalists, and the structure of care in general medical and medical intensive care units (MICU). The impact of residency work hour reform was also queried.
RESULTS: 48 of 129 surveys were completed (37%), of which 69% (33) reported having hospitalists care for general medical patients. Of these, 12 were started in 2005, 11 from 2001–2004, and 10 from 1997–2000. At the initiation of the hospitalist programs, hospitals averaged 2.3 full time equivalents (FTEs) and cared for 38% of medical patients. Currently, the programs average 3.4 FTEs providing care to 71% of medical patients. Projecting forward 2 years, these programs estimated they will have 5.1 FTEs caring for 79% of medical patients. Of the 15 VAMCs without hospitalists, 2 (14%) anticipate hiring hospitalists in the next 2 years. 90% of current hospitalists are VA employees, while 10% were employed by both VA and university affiliated hospitals. MICUs were available in 46 of 48 hospitals, of which 17 (44%) were "open", allowing for non-critical care physicians to admit patients. Of these MICUs, hospitalists admitted patients to 14 (82%). University medical centers were affiliated with 80% of the VAMCs, providing training to residents and medical students. When asked about changes in residency work hours, 44% reported that the changes were more likely to make them expand or start hospitalist programs, 45% said they were more likely to use non-teaching services, and 32% said they were more likely to use mid-level providers. 71% agreed/strongly agreed that reductions in residency work hours have made it more difficult to provide high quality of care in a safe environment, 72% said it was harder to teach medical students, and 87% said it was harder to teach residents.
CONCLUSIONS: The growth of hospitalists in VA has paralleled the growth in other systems of care with almost 3 of 4 VAMC using hospitalists to care for over 70% of medical patients. Our findings suggest that the VA may be the largest single employer of hospitalist and that hospitalists in VA, a fully integrated healthcare system, may have significant impact on quality and outcomes of care. With reductions in residency work hours, the role of hospitalists and the number of programs will likely expand in VA. Further work to increase the survey response rate will improve the validity of the findings.

HEALTH CARE BELIEFS AND NEEDS OF DEPRESSED WOMEN WITH A HISTORY OF INTIMATE PARTNER VIOLENCE. C. Nicolaidis[1]; J. Gregg[1]; H. Galian[1]; B. McFarland[1]; M. Curry[1]; M. Gerrity[2]. [1]Oregon Health & Science University, Portland, OR; [2]Portland VA Medical Center, Portland, OR. *(Tracking ID # 153490)*

BACKGROUND: Many studies document the high prevalence of intimate partner violence (IPV) and depression in primary care populations and the strong association between them, but less is known about depressed IPV survivors' beliefs, concerns, and health care needs. Understanding these perspectives may influence how providers address depression with their female patients.
METHODS: We conducted a mixed method study including a cross-sectional survey and 5 focus groups. Consecutive adult female patients presenting to an academic internal medicine clinic on recruitment days were offered a survey including validated measures. Those with a history of IPV and depressive symptoms were asked to participate in a focus group discussion. Recruitment continued until theme saturation was met. Surveys were analyzed using descriptive statistics and multivariate regression. Focus groups were audio-taped and transcribed. Investigators analyzed focus group data using thematic analysis, coding and recoding transcripts until there was agreement on common themes. Participants were offered a chance to respond to preliminary themes for validation.
RESULTS: 382 female internal medicine patients completed surveys (60% response). 33% had a lifetime history of IPV and 38% had current depressive symptoms. History of IPV and current depressive symptoms were associated with each other ($p<0.001$) and were both independently associated with greater physical complaints ($p<0.001$). Twenty-three women participated in 5 focus groups. Though selected due to their depression, participants often felt their greatest concerns were physical. They acknowledged that mental health problems compound physical symptoms, but they often stressed that physical symptoms are not "caused" by depression. They appreciated the need for healthcare workers to know about their depression and IPV history to get a "full picture" of their health. However, they were often hesitant to discuss such issues with providers due to their fear that such information would make providers think their symptoms were "all in their head" or would encourage providers to under-treat their pain. They wanted to see changes in the healthcare system that would improve treatment of their depression, but only if they felt providers believed their physical complaints, had an appreciation for their "intelligence," and respected their beliefs about their body, health, and healthcare needs.
CONCLUSIONS: Depression and IPV are both associated with greater physical symptoms. Concerns about being considered a hypochondriac or receiving suboptimal pain treatment may be hampering patients' ability to discuss issues regarding depression or IPV openly with providers. Providers must be careful in how they assess for depression or IPV, especially in patients with chronic physical symptoms. One might preface such questions with statements acknowledging that past traumas or current mental health concerns do not cause physical symptoms, but they can make symptoms "more severe" or "harder to treat". Though it is unclear if such views are limited to abuse survivors, one can hypothesize that concerns about being considered "crazy" may be heightened by the dynamics of abusive relationships. When managing patients with depression, abuse histories, and physical symptoms, it is important to highlight the way these may interact while validating patients' experience of their symptoms and their understanding of their illness.

HEALTH CARE EXPERIENCES AND NEEDS OF STREET-BASED SEX WORKERS IN NEW YORK CITY. J. Widoff[1]. [1]Montefiore Medical Center, Bronx, NY. *(Tracking ID # 153058)*

BACKGROUND: Sex work is an occupation involving the exchange of sexual services for economic compensation. It has long been a means of economic self-sufficiency for women, especially for, though not limited to, women with limited education or other resources. Sex workers are at significant risk for poor health outcomes. Most of the research on sex workers' health is focused on the perceived danger they pose as vectors of disease transmission to society at large. There have been only a handful of studies that have addressed sex workers' health agenda or experiences. These few studies suggest that sexually transmitted diseases may not be the primary concern of sex workers, nor the most common occupational hazard experienced by them. The objective of this qualitative study was to explore the self-perceived health care needs of street-based sex workers and the perceived barriers to receiving this care.
METHODS: Participants were recruited and interviewed during outreach work by two community based organizations in Brooklyn and the Bronx. In one-on-one, semi-structured interviews, they were asked to describe previous and idealized health care interactions and identify health care needs. Their responses were analyzed using a grounded theory approach to content analysis.
RESULTS: Twenty women participated. They had been engaged in sex work for an average of 11 years (range of 1 to 26 years–with over 200 person years of experience). There was a high degree of health care resource utilization: the majority of the women reported medical care at least every three months. Several women had frequent health care experiences because it is a requirement during arrest and processing on Riker's Island. For two of the women, their only medical care occurred during their arrests. The communication skills of the medical provider were most often cited as the reason for a positive health care interaction. Negative health care experiences were most often due to perceived discrimination regarding drug use or sexual practices. More than half the women reported not disclosing their sex work to medical providers. Actual medical problems (past or present) were extremely varied. Sexually transmitted diseases were not frequently identified as current or past medical problems. Most of the women identified safer sex practices as the most important health care issue for sex workers. They also described a significant amount of violence on the job and several identified this as an important health care issue. Fewer identified the emotional effects of the work as being of great importance. When asked to identify an ideal health care experience, the majority described greater interpersonal engagement by the medical provider. Several suggested that a mobile health care unit, which could reach them where they live and work, would most significantly improve their access to care.
CONCLUSIONS: This exploratory qualitative study begins to identify the perceived health needs and barriers to care for street-based sex workers. The results suggest both programmatic and provider-level strategies to improve health care experiences and outcomes for this population.

HEALTH CHARACTERISTICS OF SURVIVORS OF HURRICANE KATRINA: RESULTS FROM A RANDOM SAMPLE OF EVACUEES. K. Patel[1]; C. Meade[1]; B. Springgate[2]; S. Perry[1]; N. Lurie[1]. [1]The RAND Corporation, Santa Monica, CA; [2]Tulane University, Los Angeles, CA. *(Tracking ID # 154147)*

BACKGROUND: The devastation associated with Hurricane Katrina has had significant economic, emotional and physical consequences. The mental and physical health characteristics of survivors and what, if any, association there is with evacuation decisions, is unknown.
METHODS: We surveyed a random sample of survivors in Baton Rouge, Houston and San Antonio three to 5 weeks Katrina's landfall. Eligible adults (persons >/=18 years) were Hurricane Katrina evacuees and either residing in a shelter or residing somewhere outside of a shelter but accessing financial assistance through a local distribution site. We approached a total of 846 adults; 655 (78% response rate) were interviewed. The most common reason for non-response was not having enough time to complete the 46 item questionnaire. Survey domains included self reported health status pre and post- Katrina and questions related to factors affecting evacuation decisions. We used a 17 item PTSD screening scale and the PHQ-2 for to screen for depression.
RESULTS: The majority of respondents were African American (81%), female (62%) with an overall sample mean age of 46 years. The sample was evenly divided between survivors from shelter and non-shelter locations (48% and 52% respectively). 43% of our sample did not have health insurance prior to the hurricane and the uninsured were more likely to be African American, female and in a household with dependents under the age of 18 (LR=2.3). 73% of the entire sample reported that their overall physical health was excellent PRIOR to the hurricane, compared with only 55% afterwards, (P<0.001). 24% of respondents believed that their mental health status declined significantly and over 63% of the sample screened positive for post traumatic stress disorder and/or depression. Of those who screened positive for PTSD or depression, 42% reported that they did not have any means to seek mental health care since being displaced. In terms of health conditions affecting their ability to evacuate, respondents who evacuated less than 24 hours before the hurricane were different than those who evacuated 24 hours prior to the hurricane's landfall: people who evacuated within 24 hours of the hurricane had a significantly higher number of health conditions (mean=3 conditions) than those who evacuated in advance of the Hurricane (mean=1.2, p value<0.001)
CONCLUSIONS: Following Hurricane Katrina, approximately 38% of our sample reported a significant decline in their physical health status, mental health status or both. Such declines in physical status have not been previously reported and suggest the need for careful monitoring of this population. Policy makers should be planning now to deal with substantial population mental health needs, should these levels of distress persist.

HEALTH SERVICES UTILIZATION FOR PEOPLE WITH HIV INFECTION: COMPARISON OF A POPULATION TARGETED FOR OUTREACH WITH THE U.S. POPULATION IN CARE. W.E. Cunningham[1]; N. Sohler[2]; C. Tobias[3]; M. Drainoni[4]; J.B. Bradford[5]; C. Davis[6]; H. Cabral[3]; C. Cunningham[7]; L. Eldred[8]; M. Wong[1]. [1]University of California, Los Angeles, Los Angeles, CA; [2]City University of New York Medical School, New York, NY; [3]Boston University, Boston, MA; [4]Boston University, Bedford, MA; [5]Virginia Commonwealth University, Richmond, VA; [6]Charles R. Drew University, Lynwood, CA; [7]Albert Einstein College of Medicine, Bronx, NY; [8]HRSA, Rockville, MD. *(Tracking ID # 154671)*

BACKGROUND: Many persons with HIV infection are not in regular medical care and are excluded from studies of patients in regular care. However, these hard to reach groups are important to study, because they may be in greatest need of services. To compare the sociodemographic, clinical, and health care utilization characteristics of a multi-site sample of hard-to-reach HIV positive persons with a nationally representative cohort of persons with HIV infection who were receiving care in the United States and to determine whether the independent correlates of low ambulatory utilization differed between the two samples.
METHODS: We compared sociodemographic, clinical, and utilization characteristics in two samples of adults with HIV infection: 1286 persons from 16 sites across the U.S. interviewed in 2001-02 for the Targeted HIV Outreach and Intervention Initiative (Outreach), a study of underserved persons targeted for supportive outreach services; and 2,267 persons from the last interview wave of the HIV Costs and Services Utilization Study (HCSUS), a probability sample of persons receiving care from providers and interviewed in 1998. Descriptive statistics were contrasted between the two samples. We then conducted logistic regression including age, gender, race/ethnicity, education, income, employment, homelessness, insurance, CD4, health status, drug and alcohol use, antiretroviral use, and having a case-manager, as well as interactions by study sample to identify differences between the two samples in sociodemographic and clinical associations with ambulatory medical visits.
RESULTS: The Outreach sample compared with HCSUS had markedly higher proportions of older persons, blacks (59% vs. 32%, p<.0001), Hispanics, those with low socioeconomic status (annual income <$10,000 75% vs. 45%, <.001) and persons with homelessness, no insurance, and heroin or cocaine use (58% vs. 47% ,<.01). They were also more likely to have in the prior six months fewer than two ambulatory visits (26% vs. 16%, <.01), and to not be on antiretroviral treatment (37% vs. 11%, <.0001). In multivariate analysis Hispanic ethnicity, low income, and heavy alcohol use had significantly different associations in the two populations with low ambulatory care utilization (significantly interacted).
CONCLUSIONS: Compared with HCSUS, the hard to reach HIV-positive sample had far greater proportions of traditionally vulnerable groups, and heavy alcohol use was associated with low ambulatory utilization. Addressing heavy alcohol use may be effective at improving utilization of care for hard to reach HIV positive populations.

Multivariate Odds Ratios and Interactions between Outreach and HCSUS

Characteristics	Outreach	HCSUS	Interaction P-Values
White-Ref.			
Black	1.21 (0.75–1.94)	1.71 (1.18–2.49)**	0.24
Hispanic	0.81 (0.39–1.69)	2.34 (1.56–3.52)****	0.02
Annual Income <$10,000	0.73 (0.56–0.96)*	1.35 (1.04–1.75)*	0.001
Heavy alcohol-(5+drinks/day)	1.74 (1.23–2.45)**	1.00 (0.73–1.37)	0.05

*P<.05,**P<.01, ***P<.001,****P<.0001.

HEPATITIS B AMONG CHINESE ADULTS IN WESTERN WASHINGTON AND BRITISH COLUMBIA: RESULTS FROM A REVIEW OF LABORATORY SEROLOGY RECORDS. J.H. Choe[1]; T. Hislop[2]; C. Teh[2]; H. Le[1]; A. Low[2]; E. Woodall[3]; V.M. Taylor[3]. [1]University of Washington, Seattle, WA; [2]BC Cancer Agency, Vancouver, British Columbia; [3]Fred Hutchinson Cancer Research Center, Seattle, WA. *(Tracking ID # 156713)*

BACKGROUND: Although chronic infection with hepatitis B virus (HBV) often is clinically asymptomatic, approximately 1/4 of cases develop chronic active hepatitis and subsequent sequelae, including cirrhosis and hepatocellular carcinoma (HCC). Chronic hepatitis B infection and its sequelae disproportionately affect Asian immigrants. More than half of the chronic HBV carriers in the United States (US) are of Asian ethnic descent, and the highest HCC incidence rates in US cancer registries are among Asian American men. The purpose of our study was to review and to describe serologic HBV laboratory test results among Chinese, the largest Asian ethnic population in the US and Canada.
METHODS: In 2005 we conducted a series of population-based surveys focused upon hepatitis B and liver cancer. Participants were Chinese adults aged 18-64 years old, from households randomly selected by surname from Seattle, Washington and from Vancouver, BC. Surveys were collected in-person by trained multilingual field interviewers from 987 Chinese adults. Survey participants who reported having had HBV serologic testing during the preceding five years were identified; project staff contacted the medical providers for this subset of survey participants (with their explicit permission), to request confirmatory laboratory HBV serologic test results. Results from review of these laboratory medical records are reported here.
RESULTS: We reviewed patient medical records from more than 175 survey participants that met our data collection criteria. Records from 117 included HBV serology test results. Of these, 21 (18%) had medical records that were consistent with current chronic HBV infection (positive for HBV surface or "e" antigen, or with detectable viral levels by serum DNA testing); 10 of the 35 HBV records from Seattle, and 11 of the 82 HBV records from Vancouver survey participants were consistent with chronic infection. Records from 21 (18%) were consistent with individuals who were not immune to HBV and susceptible to future infections (i.e., negative for HBV surface antibody). 50 (43%) individuals had serology test results that demonstrated immunity to HBV (i.e., positive for HBV surface antibody), either from prior acute infection or from previous immunization. For 25 (21%), the reviewed HBV serology results were insufficient to conclude whether the individual was chronically infected or immune.
CONCLUSIONS: Public health authorities have recommended HBV testing among populations from areas of high endemic rates of HBV infection. Although a relatively small number of records were reviewed, our data suggest high rates of chronic HBV infection among adults in Chinese communities in North America. Serologic testing for HBV offers the opportunity for clinicians to identify patients who might benefit from timely initiation of antiviral therapies (e.g. interferon, lamivudine, or adefovir); to monitor the chronically infected for early development of HCC or cirrhosis; and to counsel lifestyle behavior changes (e.g. reduction of alcohol consumption). Serologic testing also can identify those susceptible individuals that might benefit from HBV vaccination. As part of a comprehensive strategy to reduce the disproportionate burden of chronic hepatitis B and hepatocellular carcinoma among Asian immigrants, clinicians should consider routine HBV serologic testing for Chinese adult patients and their families, and should consider offering HBV vaccination for those without evidence of immunity.

HERITABILITY OF HYPERKYPHOSIS IN OLDER PERSONS. M. Huang[1]; E. Barrett-Connor[2]; D. Kado[1]. [1]University of California, Los Angeles, Los Angeles, CA; [2]University of California, San Diego, San Diego, CA. *(Tracking ID # 153955)*

BACKGROUND: Hyperkyphosis, or an increased thoracic curvature, is often considered one of the undesirable consequences of osteoporosis. However, up to half of those with the worst hyperkyphosis do not have vertebral fractures. Therefore, hyperkyphosis is likely a result of other important and possibly genetic causes.
METHODS: To investigate whether a family history of hyperkyphosis is associated with an increased risk of hyperkyphosis, we used data from the Rancho Bernardo Study of 1183 participants, aged 45–92 (mean age 70.9 years), who participated in the 1988–1991 osteoporosis visit. At this visit, 1,054 (89.1%) participants answered questions that inquired whether their natural mother and/or natural father had a history of a dowager's hump or a spine that was stooped or bent forward. Of these, 18.2% reported that their mother had a dowager's hump, and 3.8% reported that their father had a dowager's hump

Lateral spine X-rays were obtained at a 1992–1995 follow-up visit. Thoracic spinal curvature was defined as the angle of intersection between lines drawn from the superior border of T4 and inferior border of T12.
RESULTS: In age-sex adjusted logistic models a maternal history of dowager's hump increased the odds of being in the highest quartile of kyphosis (OR=1.95; 95% CI: 1.36–2.79, p=0.0003). In a multivariable model adjusted for age, sex, spine bone mineral density, and body mass index, the association between mother's history of dowager's hump and being in the highest quartile of kyphosis remained significant (OR=1.76; 95% CI: 1.21–2.56, p=0.0032). Additional adjustment for morphometric spine fractures or family history of fracture did not change these results. In similarly adjusted linear model, the association between mother's history of dowager's hump and worse degrees of kyphosis was also siginificant (p=0.0036).
CONCLUSIONS: While we cannot exclude possible recall bias as a potential explanation for our study findings, these results present preliminary evidence that hyperkyphosis is a heritable condition, and is not simply a manifestation of underlying osteoporosis.

HIDDEN FROM PLAIN SIGHT: RESIDENTS' DOMESTIC VIOLENCE SCREENING ATTITUDES AND REPORTED PRACTICES. A.A. Baig[1]; E. Shadigian[2]; M. Heisler[3]. [1]University of California, Los Angeles, Los Angeles, CA; [2]University of Michigan School of Medicine, Ann Arbor, MI; [3]University of Michigan/Ann Arbor VA Healthcare System, Ann Arbor, MI. *(Tracking ID # 153197)*

BACKGROUND: Domestic violence (DV) is prevalent across all racial and socioeconomic classes in the United States. Little is known about whether physicians differentially screen based on a patient's race or socioeconomic status (SES) or about resident physician screening attitudes and practices in clinical settings.
METHODS: Objective: To assess the relative importance of patient race and socioeconomic class, resident characteristics, and clinical characteristics in resident physician DV screening practices. Design, Participants: 167 residents from six specialties at a large academic medical center responded to an on-line survey (response rate: 54%). Each randomly assigned survey included one of four case scenarios and questions on attitudes and practices regarding DV screening. Measurements: We conducted bivariate and multivariate analyses of patient, resident, and clinical practice characteristics associated with the importance residents place on DV screening and if they would definitely screen for DV in the case scenario.
RESULTS: Residents were equally likely to report that they would screen the African American woman and the Caucasian woman in the case scenario (51% vs. 57%, p=0.40). There were also no statistically significant differences in reported screening for the patient of lower SES and the patient of higher SES (49% vs. 58%, p=0.26). Thirty-seven percent of residents, however, incorrectly reported that rates of domestic violence are higher among African-Americans than Caucasians. A majority of the residents (66%) incorrectly reported that rates of domestic violence are higher among women of lower SES than of higher SES. In multivariate analyses, residents who knew where to refer DV victims (AOR=3.54, 95% CI: 1.43–8.73) and whose mentors advised them to screen for DV (AOR=3.46, 95% CI:1.42–8.42) were more likely to screen in the case scenario.
CONCLUSIONS: Although residents have incorrect knowledge about the epidemiology of DV, they showed no racial or SES preferences in screening for domestic violence among the different case scenarios. Improvement of mentoring and educating residents about referral resources may be promising strategies to increase resident DV screening overall.

HOME SCREENING FOR SEXUALLY TRANSMITTED INFECTIONS IN HIGH-RISK YOUNG WOMEN (DAISY): RANDOMIZED CONTROLLED TRIAL. R.L. Cook[1]; L. Ostergaard[2]; S. Hillier[1]; P. Murray[1]; C.H. Chang[1]; D.M. Comer[1]; R.B. Ness[1]. [1]University of Pittsburgh, Pittsburgh, PA; [2]Aarhus University Hospital, Aarhus, . *(Tracking ID # 156395)*

BACKGROUND: Many sexually active young women do not receive recommended screening for chlamydial infections. Self-testing at home may eliminate several barriers to STD screening, but repeated home screening in a high-risk population has not been previously evaluated. Our aim was to assess the impact of home screening on STD screening rates and detection of infections in a sample of young women at high risk for STDs.
METHODS: 388 women aged 15–24 who were at increased risk for STDs were recruited from community clinics and high-prevalence neighborhoods. Participants were randomly assigned to receive either a home testing kit (n=197) or an invitation to attend a medical clinic (n=191) for screening at 6, 12, and 18 months after enrollment. The primary outcomes were number of chlamydial and gonococcal tests completed and infections detected over two-years of follow-up, as determined by laboratory data and medical record abstraction. Over 84% of participants completed the final follow-up assessment.
RESULTS: Baseline characteristics were similar in the two groups (mean age 18.9 years, 70% black, 66% uninsured or on Medical Assistance). 71% of the women in the home screening group returned at least 1 test, and 10% of all home tests were positive. All women with positive home tests were treated, and no complications were reported including no change in frequency of cervical cancer screening. Women in the home screening group completed significantly more STD tests overall (2.0 vs. 1.5 tests per person-year, p=0.002) and more asymptomatic STD tests (1.2 vs. 0.8 tests per person-year, p<0.001). A greater proportion of women in the home testing group returned at least one asymptomatic test (82.2% vs. 61.3%, p<0.001), and at least 2 asymptomatic tests (56.9% vs. 37.2%, p<0.001). A similar number of infections were detected in the home screening and clinic screening groups (21 vs. 25 infections per 100 person years, p=0.38), and there was no significant difference between groups in the incidence of asymptomatic infections or pelvic inflammatory disease. In subgroup analyses, the impact of the intervention on STD testing but not STD detection appeared to be more pronounced in women recruited from neighborhoods compared to women recruited from clinics, and in women who were aged 19–24 compared to women aged 15–18.
CONCLUSIONS: Home screening significantly increased the acceptability and utilization of STD testing in this group of high-risk young women. However, there was no significant difference in the number of infections detected.

HOME SELF COLLECTION OF VAGINAL SAMPLES FOR HUMAN PAPILLOMA VIRUS AMONG LATINAS: FEASIBILITY AND SATISFACTION. I. De Alba[1]; A. Manetta[1]; F.A. Hubbell[1]. [1]University of California, Irvine, Irvine, CA. *(Tracking ID # 153796)*

BACKGROUND: Despite recent progress, Latinas continue to have the highest incidence and the second highest mortality rate from cervical cancer. The human papilloma virus (HPV) has been etiologically linked to cervical cancer and HPV testing is currently recommended as an adjunct to Pap smears. However, self-collection of vaginal samples for HPV with Pap smears in those with positive results may be an alternative screening method in populations in which Pap smears are difficult to obtain. Furthermore, self collection at the patient's home and on their own time may have additional advantages. This approach may reach more women. It may also help overcome barriers to Pap smear use such as culturally-related beliefs, embarrassment regarding the pelvic exam, lack of time, poor access to health care, inadequate transportation or lack of child care. There are no previous studies on self collection of HPV samples in non-clinical settings such as the patient's home. The aim of this study was to assess the sensitivity, specificity and satisfaction of this novel approach to cervical cancer screening among Latinas.
METHODS: Lay health workers distributed self collections kits to Latinas at community schools, health fairs and other local events and door to door. Women age 18 years, with no Pap smear in the past year and no history of hysterectomy or cervical cancer were eligible for inclusion. Participants collected the vaginal sample in the place and time of their preference and returned the kits to the lay health workers. Hybrid capture II essay tested for high-risk HPV types 16, 18, 31 and 33. All HPV positive women and two HPV-negative controls per case were invited for a repeat physician collected HPV test. We assessed the sensitivity and specificity of HPV self-sampling, as compared to physician sampling, and satisfaction of self collection in the following categories: clarity of instructions, ease of self-collection and understanding of results.
RESULTS: A total of 881 Latinas were included in the study. Most women were 30-44 years old (51%). Mexicans constituted the largest group (88.7%), followed by Central Americans (6.8%). Of the 881 kits returned, 13.3% tested positive for high risk HPV. Using physician collection as the gold standard, self-collection had a sensitivity of 90% and specificity of 88%. Participants reported excellent or very good satisfaction as follows: clarity of instructions (81%), ease of self collection (82%) and understanding of procedures in case of a positive result (82%). Overall experience was reported as excellent or very good by 64% and only 2.6% reported a poor of fair experience. Only 2% of women reported physician collection as more convenient than self collection.
CONCLUSIONS: Home self collection of vaginal samples for HPV testing had high sensitivity, specificity and satisfaction among Latinas. This approach may provide an additional tool for cervical cancer control, especially in populations with limited access to health care or with cultural or sociodemographic barriers to cervical cancer screening.

HOT FLASHES AND BONE DENSITY IN POSTMENOPAUSAL WOMEN. A.J. Huang[1]; D.G. Grady[2]; H. Shen[2]; E. Vittinghoff[2]; K.E. Ensrud[3]; K.C. Johnson[4]; D.C. Bauer[2]. [1]Veterans Affairs Medical Center, San Francisco, CA; [2]University of California, San Francisco, San Francisco, CA; [3]University of Minnesota, Minneapolis, MN; [4]University of Tennessee, Memphis, TN. *(Tracking ID # 152355)*

BACKGROUND: Hot flashes are among the most frequent complaints of women after menopause, affecting up to 80 percent of women in the immediate perimenopausal period, and persisting for up to 5 years after natural menopause in almost a third of women. Several recent studies have suggested that greater frequency of hot flashes may be associated with greater risk of bone loss during the menopausal transition. We sought to determine whether the presence or frequency of persistent hot flashes more than 5 years after menopause is associated with reduced bone mineral density (BMD) in older women.
METHODS: We performed a cross-sectional analysis using baseline data from the Ultra-Low-dose Transdermal estrogen Assessment (ULTRA) study. Participants were women, aged 60 to 80 years, who had a uterus and were at least 5 years beyond menopause, and were required to have bone density normal for age (z score -2.0 at the lumbar spine). Prior to randomization, women were asked to describe the current frequency of their hot flashes using a 6-point Likert scale (i.e., "none," "little," "some," "a good bit," "most," vs "all of the time"). Bone density at the L2-L4 lumbar spine and total hip was measured at this visit by dual X-ray absorptiometry (DXA). The least square means procedure was used to determine adjusted mean BMD at the total hip and lumbar spine for women with different frequency of hot flashes at baseline.
RESULTS: Of the 417 participants, 64 percent (n=266) had hot flashes "none of the time," 20 percent (n=84) had hot flashes "a little of the time," and 16 percent (n=66) had hot flashes "some" to "all of the time." After adjusting for age, body mass index, race, and smoking status, the mean BMD at the total hip was lower for women with hot flashes "some" to "all of the time" versus "none" or "a little of the time," although this difference did not reach statistical signifi-

cance. The adjusted mean BMD at the lumbar spine did not differ substantially between women with infrequent versus frequent hot flashes.

	Adjusted mean BMD		Difference in	95% CI for	p-value
	+ hot flashes*	– hot flashes**	adjusted mean BMD	difference	
Lumbar spine, g/cm^2	0.939	0.946	-0.008	-0.044, 0.029	0.55
Total hip, g/cm^2	0.818	0.841	-0.023	-0.051, 0.005	0.08

*Hot flashes occurring "some" to "all of the time"
**Hot flashes occurring "none" or "a little of the time"

CONCLUSIONS: The presence of persistent hot flashes more than 5 years after menopause was not significantly associated with lower bone density among older women in this cohort. This suggests that greater frequency of hot flashes may not predict clinical risk of fracture among postmenopausal women in the age group in which osteoporosis is most likely to be a problem.

HOT FLASHES AND VAGINAL DRYNESS PERSIST INTO THE LATE POST-MENOPAUSE. R. Hess[1]; C.L. Bryce[1]; W.N. Kapoor[1]; R.B. Ness[1]; R. Hays[2]; M.A. McNeil[1]; J. Chang[1]; K.A. Matthews[1]. [1]University of Pittsburgh, Pittsburgh, PA; [2]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 153937)*

BACKGROUND: Management of menopause has undergone radical change, with the use of hormonal therapy recommended only for the minimal time necessary to manage symptoms. Yet the duration of menopausal symptoms is not well understood and symptoms are generally believed to be transient. The purpose of this paper is to describe baseline symptoms from a 5-year, longitudinal, primary care based study, designed to elucidate the effect of the menopausal transition on HRQOL.
METHODS: Women ages 40–65 years at varying menopausal stages seen in a single general internal medicine practice were invited between January and November 2005 to participate in STRIDE. Self-administered questionnaires assessed demographics (age, education, marital status, race, and ethnicity), menopausal status (based on standard bleeding pattern definitions), menopause-specific symptoms (hot flashes and vaginal dryness), hormone therapy use, medical comorbidities, attitudes towards menopause and aging, social support, and HRQOL (RAND-36). Menopausal symptoms were characterized on a 5-point response scale. Women with positive symptoms at least some of the time (≥ 3) were asked to rate how "bothersome" those symptoms were on the same scale. Baseline characteristics were described using frequencies and measures of central tendency. Characteristics predicting symptom reporting and identifying symptoms as bothersome were analyzed using χ^2 and logistic regression techniques.
RESULTS: 725 women, mean age 51 (SD=6.4), completed baseline questions. Most (74%) were white, 53% were married or in a committed relationship, 35% held graduate degrees. The table shows the percent of women in each status group, with symptoms, and, of those women with symptoms (n=371), identifying symptoms as bothersome. Hot flashes were reported more often by women who were non-white, had lower educational attainment, more negative attitudes towards menopause, less social support, and lower scores on the RAND-36 emotional well being scale (EWB). Married women and those with lower scores on the EWB more often reported vaginal dryness. Only lower EWB was negatively associated with being bothered by menopausal symptoms ($p < .02$ for all comparisons). All variables, except social support, continued to be associated with symptom reporting and identifying symptoms as bothersome in multivariable models.

Menopausal Status	Women in status group	Hot Flashes	Vaginal Dryness	Symptoms Bothersome
Pre-	20%	0	0	–
Early Peri-	22%	42%	30%	70%
Late Peri-	7%	50%	40%	84%
Early Post-	15%	52%	37%	78%
Late Post-	19%	44%	46%	84%
Hysterectomy	18%	52%	33%	81%

CONCLUSIONS: Menopausal symptoms remain prevalent throughout all menopausal stages and symptomatic women continue to consider them bothersome through late post-menopause (mean age 58, SD=4.6). These data begin to shed light on the possible duration of therapy necessary for symptom management. Further research is needed into menopause management strategies.

HOW ARE INTERNAL MEDICINE RESIDENTS' ATTITUDES ON THE MEDICAL PROFESSION SHAPED BY TRAINING?. S.B. Gratton[1]; S.Y. Chung[1]; R. Kohlwes[2]. [1]University of California, San Francisco; San Francisco Veterans, San Francisco, CA; [2]San Francisco Veterans, San Francisco, CA. *(Tracking ID # 150319)*

BACKGROUND: Internal medicine residents encounter numerous new experiences and challenges during residency training. It is often one of the most formulative periods of a physician's professional development. Much literature has been devoted to study of coping mechanisms or support strategies for residents for well-known stressors such as coping with professional stress or how to approach death and dying situations. Studies have also shown that residency is associated with increased depression and anger. We hypothesize that residents in addition may undergo a change in their perspective of the role of a physician and of the medical system as a result of their experiences during this vulnerable maturational training period. Our goal is to evaluate how internal medicine residents' perception of their professional role as a physician changes over their three years of residency training.
METHODS: We administered a qualitative questionnaire of five open-ended questions to 60 internal medicine second and third year residents at our academic institution. We analyzed the answers using focused ethnography. Two independent researchers subsequently coded the responses to generate dominant themes. Disputes were adjudicated in an iterative process with all three authors. We reviewed the answers with a subset of the population as a measure of validity for our generated themes.
RESULTS: One of the dominant themes which emerged was that residents struggle with the number of roles they feel they need to fill as a physician. Residents are expected to try to learn their new roles at the same time as balancing them. Several felt inadequate in this area. Frustration was commonly voiced about inefficiencies in the medical system, which lead some to pursue subspecialty careers or to consider a career outside of direct patient care. Another theme was the desire to improve the public awareness of end-of-life discussions to decrease the number of families new to the notion of advanced directives. Peers, friends, or spouses were listed as the most common support mechanism for influential experiences. Few mentioned processing their experiences using structured interaction with residency faculty. Residency support groups were helpful for the subset of residents that attended.
CONCLUSIONS: At a large university training program, many residents are having significant emotional and development experiences that deal with the medical system, death and dying, and family interaction. These residents perceive they do not have structured mentorship to help with their reaction to these experiences. We recommend that further methods be made available to internal medicine residents to assist them in processing influential experiences to help them maintain their ideals of physicianship and guide them into the next stage of their career.

HOW DID YOU MEET HIM? THE SETTING OF NEW SEXUAL PARTNER ENCOUNTERS AND RISKY SEXUAL BEHAVIOR IN MSM WITH AND WITHOUT HIV INFECTION. R.L. Cook[1]; V. Sundaram[2]; D. Ostrow[3]; C. Cox[4]; W. Qiao[5]; R. Stall[1]; B. Visscher[6]; J.B. Hylton[5]. [1]University of Pittsburgh, Pittsburgh, PA; [2]Indiana University, Muncie, IA; [3]Northwestern University, Pittsburgh, PA; [4]Johns Hopkins University, Pittsburgh, PA; [5]Johns Hopkins University, Baltimore, MD; [6]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 156420)*

BACKGROUND: Men who have sex with men (MSM) meet new sexual partners in a variety of settings. We sought to describe the settings in which MSM met new sexual partners, to determine the association of these settings with risky sexual behavior and sexually transmitted infections (STIs), and to compare the findings in HIV-positive and HIV-negative men.
METHODS: We analyzed data from 1683 men (794 HIV-positive, 889 HIV-negative) in the Multicenter AIDS Cohort Study who presented for at least 1 of 3 follow-up visits in 2003–2005 and who met at least one new male sexual partner since their previous assessment. Participants reported information on demographic characteristics, sexual behavior, new STIs, substance use, HIV status, and whether they met a new partner at one or more of 8 specific types of settings. We assessed the relationship of the three most commonly cited settings with risky sexual behavior (unprotected anal intercourse with 2 or more partners) and STIs using multivariate logistic regression that adjusted for demographic characteristics, substance use, and HIV status.
RESULTS: The most common settings where MSM met new sexual partners were the internet (34.3%), a bar (31.8%), a bathhouse (28.7%), indoor public places such as a bathroom or bookstore (18.8%), a party (18.4%), and outdoor public places or parks (17.8%). Younger men were more likely to meet new partners on the internet or a bar, whereas older men were more likely meet new partners in a bathhouse. Men reported unprotected anal intercourse with 2 or more partners at 27% of visits (34% HIV-positive and 24% HIV-negative), and recent STIs at 7% of visits (10% HIV-positive and 5% HIV-negative). In multivariate analyses, men were significantly more likely to report having unprotected anal intercourse with 2 or more partners if they met a new partner on the internet (OR 1.91, 95% CI 1.53–2.37), in a bathhouse (OR 1.77, 95% CI 1.42–2.21), or in a bar (OR 1.30, 95% CI 1.07–1.58), compared to men who did not meet a partner in these settings. Men were significantly more likely to report having been diagnosed with a new STI if they met a new partner on the internet (OR 1.59, 95% CI 1.13–2.23) or a bathhouse (OR 1.51, 95% CI 1.07–2.14). These associations did not differ significantly by HIV status. No other demographic or substance use characteristic was consistently associated with each of these outcomes in both HIV-positive and HIV-negative men.
CONCLUSIONS: In this sample of MSM, the setting of first contact of a new sexual partner was consistently associated with risky sexual behavior and STIs. The internet, bathhouses, and other specific settings where MSM meet new partners should receive increased attention in HIV prevention interventions that target HIV-positive and HIV-negative men.

HOW DO HOSPITALIZED PATIENTS FEEL ABOUT RESIDENT WORK HOURS, FATIGUE AND DISCONTINUITY OF CARE?. K.E. Fletcher[1]; F.C. Wiest[2]; L. Halasyamani[3]; J. Lin[4]; V. Nelson[5]; S.K. Saint[6]; M. Schapira[7]. [1]Milwaukee VAMC/Medical College of Wisconsin, Milwaukee, WI; [2]University of Washington/Seattle VAMC, Seattle, WA; [3]None Given, Ann Arbor, MI; [4]University of Washington, Seattle, WA; [5]Medical College of Wisconsin, Milwaukee, WI; [6]Ann Arbor VAMC/University of Michigan, Ann Arbor, MI; [7]Medical College of Wisconsin/Milwaukee VAMC, Milwaukee, WI. *(Tracking ID # 151598)*

BACKGROUND: Enhancing patient safety by decreasing resident fatigue was an important factor in the institution of the resident work hour rules. However, decreasing resident work hours often leads to reduced continuity of care. Both resident fatigue and discontinuity of care may cause concern in hospitalized patients. These concerns, if present, could affect satisfaction and trust in the physician teams. We sought to determine the opinions of hospitalized patients about resident work hour limits, and their experience of physician discontinuity and resident fatigue during hospitalization.
METHODS: We surveyed general medical inpatients in 2004–2005 at four geographically diverse institutions, including 2 VAMCs. The anonymous written survey included an introduction defining the members of the physician team and emphasizing that the questions referred to their inpatient care. The survey included items about patients' perceptions of resident work hours, fatigue, discontinuity of care, satisfaction, and trust in the physician team as well as demographics and general questions about the hospital stay. Patients were eligible if they spoke English, were able to give consent, were 18 years or older, and were likely to leave the hospital within the next 24 hours.
RESULTS: Response rates, recorded at 3 of the 4 sites, were 70%, 69% and 58%. Our sample (n = 176) was 29% female, 16% African-American with a mean age of 60. Most patients (73%) were aware of the resident work hour issue. Half (49%) agreed that residents' hours should be limited. Patients estimated that residents worked 60 hours weekly (SD = 15), but thought the maximum should be 51 hours (SD = 16) ($p < 0.001$). Most patients were satisifed with their physician teams (84%). Trust was high. Half (52%) believed that someone from the team should be in the hospital at all times. Interestingly, 29% believed both that resident work hours should be limited and that a team member should be available at all times. When asked which was more likely to lead to a problem, having new but well-rested doctors or their regular but tired doctors, 44% thought that the regular, tired doctors would be more problematic, while 38% chose new, rested doctors. The remainder (18%) did not respond. Other patient concerns are summarized in Table 1.

Table 1

	% Answering moderately or very worried
Residents are too tired to take care of me	9%
No one from the team is around when I need them	15%
How often doctors hand over care to each other	11%
	% Answering agree or strongly agree
I feel safer when one of the team doctors is in the hospital overnight	48%

CONCLUSIONS: Patients are divided about limiting resident work hours. They also appear deadlocked about whether someone from the team should always be in the hospital. Few patients are worried about either fatigue in the residents caring for them or about the number of hand-offs in their care. Nearly equal numbers believed that problems could arise from having their regular (but fatigued) doctors versus new (but rested) doctors. Patients' responses likely reflect the tension between the desire to have both familiar and rested doctors.

HOW DO I PERFORM A PARACENTESIS TO DIAGNOSE SPONTANEOUS BACTERIAL PERITONITIS OR PORTAL HYPERTENSION?. C.L. Wong[1]; J.M. Holroyd-Leduc[1]; K.E. Thorpe[1]; S.E. Straus[1]. [1]University of Toronto, Toronto, Ontario. *(Tracking ID # 151500)*

BACKGROUND: Diagnostic abdominal paracenteses are commonly performed in clinical practice to assess the ascitic patient. The objectives of this study were to systematically review i) the evidence for techniques used to complete a diagnostic paracentesis that may decrease the risk of adverse events and improve diagnostic yield; ii) the evidence about test accuracy of ascitic fluid analysis in patients suspected of spontaneous bacterial peritonitis (SBP) or portal hypertension.
METHODS: Data Sources: Searches of Medline (from 1966 to May 2005) and EMBASE (from 1980 to May 2005) were completed to identify relevant English language studies. Additional articles were identified from searching the bibliographies of retrieved articles. Study Selection: Studies of patients undergoing interventions at the time of diagnostic paracentesis to reduce adverse events or improve diagnostic yield were included. Interventions of interest included measurement of coagulation parameters, location of needle insertion, use of ultrasound guidance, use of specially-designed needles, and immediate inoculation into blood culture bottles at the bedside. Prospective studies that enrolled mainly adults and used appropriate reference standards (e.g. ascitic fluid culture for SBP, invasive portal pressure measurement for portal hypertension) were selected for analyzing diagnostic test accuracy. Data Extraction and Analysis: Two investigators independently appraised the quality of each article and extracted relevant data. For diagnostic studies, data were extracted on parameters for SBP and portal hypertension including ascitic fluid leukocyte count (WBC), ascitic fluid polymorphonuclear leukocyte (PMN) count, ascitic fluid pH, blood-ascitic fluid pH (B-AF pH) gradient, and serum-ascites albumin gradient (SAAG). A random effects model (DerSimonian and Laird) was used to calculate summary likelihood ratios (LR).
RESULTS: There were no randomized studies on the use of ultrasound guidance, routine pre-procedure coagulation screening, nor special needles. 5 studies of lesser quality, including case-series and cohort studies, examined the coagulation status of patients but did not identify values beyond which serious hemorrhage would result from a diagnostic paracentesis. One study compared bedside inoculation with delayed inoculation in the laboratory and found bedside inoculation was more sensitive for diagnosing SBP ($\chi^2 = 5.85$, $p < 0.02$). 14 studies assessing the accuracy of WBC and/or PMN counts, and 9 studies assessing the accuracy of pH and/or B-AF pH gradient for diagnosing SBP were identified. Pooling the results of these studies, a PMN count > 500 cells/μl was accurate in diagnosing SBP (LR 10.6 [95% CI 6.1–18.4]) and ≤ 500 cells/μl may be useful in ruling out SBP (LR 0.16 [95% CI 0.08–0.33]). A WBC > 1000 cells/μl (LR 9.1 [95% CI 5.5–15.1]) and a pH < 7.35 (LR 9.0 [95% CI 1.9–40.6]) can help diagnose SBP. Combined results from 4 studies with data from 1029 samples found an SAAG < 11 g/L can rule out portal hypertension (LR 0.06 [95% CI 0.018–0.20]).
CONCLUSIONS: These results suggest that it is unclear if coagulation studies are necessary before diagnostic paracentesis. Ascitic fluid should be inoculated into blood culture bottles immediately at the bedside. PMN count is useful in diagnosing SBP and the SAAG is useful in ruling out portal hypertension. Future research should focus on the role for ultrasound guidance, needle design and the best location for needle insertion.

HOW DO PHYSICIANS' RELIGIOUS BELIEFS SHAPE THEIR INTEGRATION OF UNCONVENTIONAL HEALING PRACTICES? A QUALITATIVE STUDY. F.A. Curlin[1]; J. Kellemen[1]; J. Fredrickson[1]; R. Gorawara-Bhat[1]. [1]University of Chicago, Chicago, IL. *(Tracking ID # 153655)*

BACKGROUND: Religions and complementary and alternative medicines (CAM) appear to be related to one another in complex ways. Both practitioners of religious traditions and supporters of CAM have been critical of what they see as conventional biomedicine's increasingly reductive, bureaucratic, impersonal form of health care. Yet religious persons may be skeptical of and resistant to those CAM practices which have historical connections to other religious traditions and esoteric spiritualities. To date, there have been no studies of the ways physicians' relate their religious (and secular) commitments to their approaches to CAM practices. This study sought to qualitatively explore the ways practicing physicians from a range of different religious (and secular) traditions judge the efficacy and legitimacy of different types of CAM practices.
METHODS: Semi-structured interviews with 28 physicians to date from multiple religious traditions including Protestant, Catholic, Jewish, Hindu, Buddhist, and not religious. Participants were asked whether and why they would, or would not, consider integrating different practices including acupuncture, botanicals, Reiki, the Relaxation Response, hair analysis, Vodun, intercessory prayer, and faith healing. These were selected as practices that represent different CAM categories. Interviews were transcribed, coded, and analyzed for emergent themes through an iterative process of qualitative textual analysis.
RESULTS: Physicians rarely invoked religious concepts in explaining their openness or resistance to different CAM practices, and often said explicitly that they try to keep their religious beliefs separate from their approaches to patients. Rather, the strongest theme was that CAM practices are to be tolerated and many times legitimated if they are initiated or found to be helpful by patients, so long as the CAM practice does not interfere with conventional medicine and is not, in the physician's judgment, likely to cause harm. We did find that several physicians were "uncomfortable" with energy-based and spiritually rooted practices such as Reiki, Vodun, mind-body cures, faith-based healing, and prayer. In our sample, physicians tended to by less supportive of practices rooted in religious and spiritual traditions different from their own, but few gave explicitly religious reasons for their resistance. The latter said they could not support practices they believe are rooted in erroneous religious ideas.
CONCLUSIONS: Physicians justified the integration of CAM practices principally as an expression of support for patients' wishes. Some physicians appear to be resistant to those healing practices that are rooted in religious and spiritual traditions that differ from their own, but few would explain that resistance as coming from their religious framework. Future studies are needed to assess the extent to which religious traditions shape physicians' willingness to integrate different unconventional healing practices.

HOW DOES PHYSICIAN MOOD MODIFY WILLINGNESS TO ORDER RISKY TESTS OR TREATMENTS?. M.A. Sayla[1]; A. Labroo[1]; R. Moloney[1]; G.C. Alexander[1]. [1]University of Chicago, Chicago, IL. *(Tracking ID # 150353)*

BACKGROUND: Considerable research has documented that mood impacts judgment. For example, positive mood states are associated with a greater willingness to take low risks (e.g. betting $1 with a 50% chance of winning $2), but a decreased willingness to take high risks (e.g. betting $10,000 with a 50% chance of winning $20,000). However, few studies have examined how mood may influence decision-making in clinical settings.
METHODS: We conducted an Internet survey of SGIM members and randomly assigned them to one of three mood conditions. Mood was induced by asking physicians to write about a happy, routine, or sad patient encounter. Physicians then rated how they currently felt on a scale from 1–7. After this, physicians were given four randomly ordered vignettes. Two vignettes described a patient with chest pain possibly needing an angiogram, but at risk of dye-induced nephropathy (Vignette #1) or stroke (Vignette #2). Two vignettes described a patient with shortness of breath possibly from a pulmonary embolism but at risk of a minor (Vignette #3) or major (Vignette #4) gastrointestinal bleed if hepar-

inized. Physicians rated how likely they would be on a scale of 1–10 to order the test (angiogram) or the treatment (heparin). Data were analyzed using a 3 (mood) × 2 (setting; test vs. treatment) × 2 (risk) repeated-measures analysis-of-variance (ANOVA) using mood (positive, neutral, negative) as the between-subjects factor and setting (chest pain vs. shortness of breath) and risk (minor, major) as within-subject factors.
RESULTS: A total of 181 physicians were assigned to positive (n=70 physicians), neutral (n=60), or negative (n=51) mood. Our manipulation check confirmed that physicians reporting a happy experience reported feeling better (mean=5.44) than those reporting a neutral (mean=4.95) or sad experience (mean=4.42, $p<0.001$). The ANOVA revealed the expected main effect of risk; physicians were more willing to order the low risk (mean=7.45) than high risk (mean=6.47) test or treatment ($F(1,178)=112.80$, $p<0.01$). In addition, a two-way interaction emerged between setting and risk ($F(1,178)=17.01$, $p<0.01$). Importantly, these effects were qualified by a three-way interaction among mood, setting, and risk ($F(2,178)=3.07$, $p<0.05$). For example, physicians in negative mood were less likely than those in the other moods to order to order heparin when the patient was at risk for a major GI bleed (5.33 vs. 6.40, $t(178)=5.03$, $p<0.001$). Thus, the impact of mood on risk aversion varied as a function of the setting examined and risk undertaken. There were no differences in risk tolerance between physicians assigned to the happy versus neutral conditions.
CONCLUSIONS: Consistent with studies in non-medical settings, we found that physicians experiencing negative mood may be less likely to order a risky test or treatment than physicians in neutral or positive moods. Although the differences in risk aversion were of unclear clinical significance, these finding may have important implications for medical decision making at extreme mood states. Future efforts are needed to better understand what types of clinical decisions are most likely to be influenced by fluctuations in physicians' mood, and how these differences may impact patients' quality of care.

HOW DOES TRUST INFLUENCE RESPONSE TO PUBLIC HEALTH MESSAGES DURING A BIOTERRORIST EVENT?. L. Meredith[1]; D. Eisenman[2]; H. Rhodes[1]; G. Ryan[1]; A. Long[3]. [1]The RAND Corporation, Santa Monica, CA; [2]University of California, Los Angeles/RAND, Los Angeles, CA; [3]Los Angeles County Department of Health Services, Los Angeles, CA. *(Tracking ID # 154433)*

BACKGROUND: Trust is a critical component in the health care decision making process and may play a significant role in individuals' responses to public health crises, including bioterrorism. Studies document that African Americans relative to other race/ethnic groups are less likely to trust that the public health system will respond fairly to their health needs if there is a bioterrorist attack. These studies leave open questions of what specific aspects of trust are key, how it varies during an evolving bioterrorist attack, and how public health officials can design effective communication programs for maintaining trust in communities living with the suspicion of inequitable treatment. We sought to understand the specific components of trust that influence community responses to a bioterrorist attack and its public health recommendations.
METHODS: We performed qualitative analysis of data from 75 African-American adults living in Los Angeles County who participated in focus groups stratified by socioeconomic status (up to vs. above 200% of federal poverty guidelines) and age (18–39 years old vs. 40–65 years old). Discussions elicited reactions to information presented in escalating stages of a bioterrorism scenario that mimicked the events and public health decisions that might occur. We used an inductive analysis strategy to investigate how trust influenced participants' reactions to the evolving public health decisions.
RESULTS: We identified 6 components of trust: 1) fiduciary responsibility, 2) honesty, 3) competency, 4) consistency/reliability, 5) faith, and 6) other trust-related issues that did not fit clearly into the other five categories. Honesty and information consistency were the components most frequently identified as determining trust with 143 and 140 passages each respectively, compared with 115 for fiduciary responsibility, 59 for faith, 58 for competency, and 31 other trust issues. The relative importance of the 6 trust components varied as the scenario evolved; honesty was most important upon initially hearing of a public health crisis: "The people at the top are only giving the people at the bottom maybe 30 percent of the truth because they don't want everybody panicking." Fiduciary responsibility ("I remember what happened with the AIDS virus and [at] Tuskegee with syphilis and [smallpox with] the Indians Our government has a history of using bioterrorism as a method of population control, so why would I suddenly trust them to save my life?") and consistency were important upon confirmation of a smallpox outbreak and the ensuing public health response. Personal doctors were frequently described as trusted sources of information. The only variation by age and SES of the focus groups was that younger/high SES groups discussed honesty more frequent than did the other groups.
CONCLUSIONS: Consistent with the risk communication literature, findings suggest that honesty and information consistency across multiple sources are essential to delivering effective risk messages. The absence of differences between groups was inconsistent with the literature suggesting that uniform policies can be used to address groups varying in age and SES. Findings can help public health officials design communications that enhance trust during a bioterrorist event.

HOW MANY DOCTORS DOES IT TAKE TO TREAT A PATIENT? THE CHALLENGES THAT FRAGMENTED CARE POSES FOR PAY-FOR-PERFORMANCE. H.H. Pham[1]; D. Schrag[2]; A. O'Malley[1]; P.B. Bach[3]. [1]Center for Studying Health System Change, Washington, DC; [2]Sloan-Kettering Institute for Cancer Research, New York, NY; [3]Memorial Sloan Kettering Cancer Center, New York, NY. *(Tracking ID # 152636)*

BACKGROUND: Pay-for-performance initiatives are based on the suppositions that patient care can be attributed to individual physicians through observing stable care patterns over time, and that most physicians will have a reasonable amount to gain through improved performance. We quantify the extent to which: 1) patient care can be attributed to individual physicians; 2) care relationships remain stable over time; and 3) physicians serve as the usual provider for a sizeable proportion of their patient panels.
METHODS: Analysis of claims patterns from 2000–2002 for 1.92 million Medicare fee-for-service beneficiaries treated by one of 7,216 physician respondents to the Community Tracking Study Physician Survey (2000–2001). We use well-accepted algorithms for attributing care to individual providers in beneficiary-level and physician-level analyses of Medicare claims to determine the stability of care relationships and the degree to which these relationships capture the totality of care delivered. We also use 2001–2002 Medicare Current Beneficiary Survey data to compare survey and claims-based methods of identifying usual care relationships. We excluded beneficiaries with disability or end-stage renal disease, "snowbirds," and those who entered Medicare managed care, hospice, or nursing homes during the study period. Our main outcome measures include the proportion of visits consumed by beneficiaries that are associated with their usual physician, and those billed for by physicians that are associated with their usual patients; the degree of beneficiary switching of usual physicians over time; and the prevalence of different scenarios of switching reflective of whether switching occurred between physicians in beneficiaries' existing care networks, or involved physicians new to their care networks.
RESULTS: On average, beneficiaries annually saw 2.8 primary care physicians (PCPs) and 5.8 specialists, for a total of 8.7 physicians in 5.1 different practices. Care delivered by physicians other than usual physicians accounted for a mean of 41.5% of beneficiaries' evaluation and management (E&M) visits. For 9% of the beneficiaries who reported stable relationships with their usual providers of a year or more, evidence of a continuing relationship with a usual physician was not apparent based on analysis of claims. Under claims-based attribution, 29.5% of beneficiaries switched usual physicians from year to year. In physician-level analyses, a mean of 59.7% of PCPs' patients were not their usual patients, representing 29.7% of their E&M visits. The analogous proportions were 89.8% and 67.2% for medical specialists. PCPs had a mean of 36.0% and medical specialists 65.2% of their usual patients switch to a different usual physician each year. Under the least restrictive attribution method evaluated, only half of physicians' usual patients would still be assigned to them after two years. Results were substantively similar when practices, rather than individual physicians, were examined.
CONCLUSIONS: Care relationships in fee-for-service Medicare are highly fragmented and unstable over time. Pay-for-performance reliant on claims-based attribution neither captures a significant proportion of care received by beneficiaries nor that delivered by physicians, and thus faces obstacles to implementation.

HYPERTENSION PREVALENCE AND RATES OF AWARENESS, TREATMENT, AND CONTROL; FINDINGS FROM THE NEW YORK CITY HEALTH AND NUTRITION EXAMINATION SURVEY. S. Angell[1]; R. Garg[2]; C. Gwynn[2]; L. Bash[3]; L. Thorpe[2]; T.R. Frieden[2]. [1]New York City Department of Health and Mental Hygiene, New York City, NY; [2]New York City Department of Health and Mental Hygiene, New York, NY; [3]Johns Hopkins Bloomberg School of Public Health, Baltimore, MD. *(Tracking ID # 156098)*

BACKGROUND: Cardiovascular disease (CVD) is the leading cause of death in the US and in New York City (NYC). Population data are scarce and estimates from national survey data may lack detail needed to specify local at-risk populations. This study estimates the prevalence of hypertension, a major cardiovascular risk factor, and assesses rates of awareness, treatment, and control among NYC adults using data from the first community Health and Nutrition Examination Survey (HANES).
METHODS: The NYC HANES is a complex sampling survey modeled on the National HANES. Survey data were collected June-December 2004. Eligible, consenting NYC residents aged >=20 were interviewed face-to-face, and had measurements taken using standardized NHANES protocols and equipment. Hypertension was defined as an average systolic pressure of >=140 mm Hg or an average diastolic pressure of >=90 mm Hg or currently taking prescribed anti-hypertensive medication (self-reported). Analyses were stratified by age, sex, race/ethnicity, and place of birth (US/Puerto Rico born vs. foreign-born, incorporating time in US). Prevalence estimates were age-adjusted to the Year 2000 U.S. Standard Population aged 20 years and older. Predictive marginals were used to adjust prevalence by place of birth for age.
RESULTS: The overall survey response rate was 55%, with 1970 participants completing both the interview and physical examination. One quarter (25%) of NYC adults had hypertension. Prevalence increased by age, from 4% of those 20–39 years, to 64% of those over 60 years. Blacks were 1.5 times as likely as whites to have hypertension, 33% (CI 29–37) compared with 21% (CI 18–24). Twenty percent (CI 14–26) of those foreign-born in the US<10 years had hypertension, compared with 28% (CI 24–31) of those in the US for >=10 years, and 26% (CI 23–29) of those US/Puerto Rico born. Predictive marginal estimates were similar. Overall levels of awareness, treatment, and control of hypertension were 75%, 63% and 44% respectively. Women tended to have better control then men, 48% (CI 33–48) compared with 41% (CI 37–59). Fifty percent of whites (CI 38–62) were controlled, compared with 42% of blacks (CI 29–55), 43% of Latinos (CI 32–53%), and 38% of Asians (CI 19–61%). Forty-six percent (CI 38–54%) of those US/Puerto Rico born and 44% (CI 30–59) of foreign-born in the US >=10 years were controlled, compared to 33% (CI 20–49) of those foreign-born in the US for <10 years.
CONCLUSIONS: While overall hypertension prevalence is similar to national estimates, rates of awareness, treatment and control are likely higher in NYC

(National HANES 1999–2002, 63%, 45% and 29% respectively). Data suggest important racial/ethnic disparities may exist in NYC. Furthermore, lower hypertension prevalence in more recently arrived immigrants appears to diminish with duration of residency. Local hypertension interventions should assure effective targeting of foreign-born and communities of color for prevention and treatment. Increasing access to care, and promoting adherence to treatment guidelines will be important components of this effort.

HYPOVITAMINOSIS D IN HIP FRACTURE PATIENTS. L.N. Miura[1]; E.F. White-Chu[1]; E.M. Haney[2]; L. Homer[1]. [1]Legacy Portland Hospitals, Portland, OR; [2]Oregon Health & Science University, Portland, OR. *(Tracking ID # 153496)*

BACKGROUND: Vitamin D insufficiency is prevalent in the geriatric population. Decreases in sun exposure, capacity of the skin to manufacture vitamin D, renal function, and ingestion of vitamin D containing foods all contribute to vitamin D insufficiency in the older adult. A large body of evidence reveals that hypovitaminosis D is tightly linked with reduced bone density and increased risk for hip fracture. We investigated the incidence of vitamin D insufficiency in a cohort of geriatric patients hospitalized for acute hip fracture.
METHODS: A total of 398 patients age 45 and older with acute proximal femur fracture of any type, were enrolled in this prospective, observational study from August 2001 to August 2005. These patients were consecutively admitted to an inpatient-based community hospital hip fracture program, directed by a geriatrician. Vitamin D insufficiency was defined as 25-hydroxyvitamin D (25-OH vitamin D) levels $\leq$20 ng/mL. We collected vitamin D and intact parathyroid hormone (iPTH) levels at admission starting in 2003 and analyzed the data according to season: winter, spring, summer, and fall. We used descriptive statistics, t-tests, and analysis of variance to test our hypothesis that a substantial number of our patients would have insufficient 25-OH vitamin D levels. Specific dosages of vitamin D and dietary intake were not available.
RESULTS: Out of 398 patients, 197 had vitamin D levels recorded on admission: 55 males, 142 females. Average age: 79.8 (range of 48–100 years). 25-OH vitamin D levels ranged from $<$5 to 54 ng/mL, with an average of 16.1 ng/mL. 125 patients (63.5%) had vitamin D levels $\leq$20 ng/mL. The average iPTH level was 96.3 pg/ml with a range of 15 to 358 pg/ml. Analysis of variance tests revealed that the average vitamin D level and iPTH level was the same for all seasons ($p=0.16$ and $p=0.20$, respectively). Only 56 patients (28.4%) were taking some form of vitamin D on admission: calcium+vitamin D, multi-vitamin with D, or vitamin D alone. Of these patients, 27 (48.2%) were still vitamin D insufficient with levels $\leq$20 ng/mL.
CONCLUSIONS: Of those patients admitted with hip fracture who had vitamin D levels measured, the majority was insufficient. Furthermore, only a small proportion of these patients were on any type of vitamin D supplementation. Nearly 50% of these patients had vitamin D insufficiency despite self-reported supplementation. This study was limited by its small size, single institution, and unspecified vitamin D dosages or dietary intake. However, the implications are important. With the aging of the population and an anticipated rise in hip fractures, measurement and adequate supplementation of vitamin D may play an important role in hip fracture prevention.

IDENTIFICATION OF LIMITED ENGLISH PROFICIENCY PATIENTS: DOES THE U.S. CENSUS QUESTION MEASURE UP?. L.S. Karliner[1]; A. Napoles-Springer[1]; D. Schillinger[2]; K. Bibbins-Domingo[2]; E. Perez-Stable[1]. [1]Medical Effectiveness Research Center for Diverse Populations, UCSF, San Francisco, CA; [2]San Franicsco General Hospital, UCSF, San Francisco, CA. *(Tracking ID # 153409)*

BACKGROUND: Increasingly, policy makers and researchers are recognizing the importance of limited English proficiency (LEP) as a contributor to health disparities. However, there is no uniform measure for identifying those patients with a language barrier. We set out to assess whether use of the U.S. Census definition of LEP adequately identifies those participants with a significant language barrier.
METHODS: We recruited participants stratified by language from a public hospital cardiology clinic between March 2004 and January 2005. Patients were interviewed about their communication with their physicians. We compared patient response to the U.S. Census question "how well do you speak English" (not at all/not well=limited English proficiency; well/very well=English proficiency) to actual language of interview (English/Cantonese/Spanish), self-report of preferred language for receipt of medical care (English/Cantonese/Spanish/both English and Cantonese or Spanish equally/other language), self-report of ability to discuss symptoms with physicians in English (not at all/not well/well/very well), self-report of ability to understand physicians' recommendations in English (not at all/not well/well/very well).
RESULTS: 179 patients were interviewed; mean age was 54 (range 21–84), half were high school graduates, and one-third had no insurance. Of the 103 participants identified as LEP using the U.S. Census measure–self-reported speaking English 'not at all' ($n=57$) or 'not well' ($n=46$) $-$ 76 were interviewed in Spanish, 26 in Cantonese and one in English. Similarly, 97 LEP participants (94%) preferred to receive their medical care in a non-English language; two reported a preference for English, four reported an equal preference for English and Spanish/Cantonese. Among English proficient participants, two (3%) reported a preference for a non-English language; both of these participants reported speaking English 'well'. Of those participants identified as LEP, only two (2%) felt they were able to discuss their symptoms 'well' with their physicians in English, while eight (8%) felt they were able to understand their physicians' recommendations 'well' in English. This is in contrast to those participants identified as English proficient, 69 (91%) of whom felt they were able to discuss their symptoms and understand their physicians' recommendations 'well' or 'very well' in English.
CONCLUSIONS: The U.S. Census definition of LEP identifies the vast majority of those patients who prefer to receive their medical care in a non-English language. Additionally, those participants categorized as LEP report difficulty communicating about symptoms and recommendations with their physicians in English, indicating a significant language barrier. We recommend that this question become the uniform item to assess LEP in clinical practice.

IDENTIFICATION OF PREDICTORS FOR ICU ADMISSION/READMISSION AFTER CONSULTATION BY THE RAPID RESPONSE TEAM. C. Sargent[1]; D.S. Hall[1]; D. Steinke[1]; C.S. Newell[1]; M.R. Gilliam[1]; T.S. Caudill[1]; J. Conigliaro[1]. [1]University of Kentucky, Lexington, KY. *(Tracking ID # 154034)*

BACKGROUND: The University of Kentucky Rapid Response Team (RRT) was developed following participation in the University HealthSystem Consortium (UHC) failure to rescue project to respond to patients displaying early signs of deterioration and to prevent further decline. The purpose of this study was to identify predictors of ICU admission/readmission in deteriorating patients.
METHODS: Data collected by the RRT included signs and symptoms of patient deterioration and risk factors for deterioration, nursing and medical interventions for deteriorating patients, and demographic characteristics including age, heart rate, blood pressure, location (medical or surgical unit), primary service, and history of previous ICU admission. Data were collected for April 2005 through June 2005. We used logistic regression to determine predictive variables associated with ICU admission/readmission.
RESULTS: There were 1496 consults recorded by the RRT. Of these, 219 were for patient deterioration. Only patients admitted/readmitted to the ICU or remaining insitu were analyzed leaving 191 consults on 149 patients. (Patients could have more than one consult but each consult was treated independently.) Patients transferred to telemetry or step-down units, who expired, and with missing data were not included in this analysis. Of the 191 consults, 87 were admitted/readmitted to the ICU and 104 remained insitu. There were no statistically significant differences in demographic characteristics or variables such as heart rate and blood pressure between the two groups. Univariate analysis revealed that respiratory related variables such as tachypnea/dyspnea, use of supplemental O2, hypoxia and hypercapnia, increase in confusion or restlessness, diagnosis of pneumonia or atelectasis, previous ICU transfer less than 48 hours, ICU length of stay were predictors associated with ICU admission/readmission. Logistic regression analysis revealed that use of supplemental O2 to keep SpO2 greater than 94% (OR 4.15, 95% CI 2.12–8.15), history of alcohol or hypnotic use (OR 4.98, 95% CI 1.27–19.49), previous ICU transfer less than 48 hours (OR 2.64, 95% CI 1.14–6.13), ICU length of stay greater than seven days (OR 6.81, 95% CI 1.87–24.82), and increased monitoring of vital signs (OR 3.14, 95% CI 1.55–6.37) were predictors associated with ICU admission/readmission.
CONCLUSIONS: Several clinical variables were associated with ICU admission/readmission in deteriorating patients. The development of a predictive model for ICU admission/readmission can facilitate identification of at-risk patients, and thus promote early intervention to prevent deterioration. Further research to identify patient characteristics and modifiable factors are needed to develop and refine systems based multidisciplinary interventions.

IDENTIFYING RISK FACTORS ASSOCIATED WITH NON-MEDICAL PRESCRIPTION OPIOID USE: RESULTS FROM A NATIONAL SURVEY. W.C. Becker[1]; R.A. Desai[2]; J.M. Tetrault[3]; L.E. Sullivan[1]; D.A. Fiellin[1]. [1]Yale University, New Haven, CT; [2]Yale University, West Haven, CT; [3]Clinical Epidemiology Research Center, West Haven VA Hospital, West Haven, CT. *(Tracking ID # 153164)*

BACKGROUND: The non-medical use of prescription opioids has risen in recent years, and surpasses illicit heroin use. Clinicians are keenly interested in identifying patient factors associated with non-medical use of prescription opioids to avoid iatrogenic addiction. The purpose of this study was to identify demographic and clinical characteristics associated with non-medical use of prescription opioids in a national sample of U.S. adults.
METHODS: We performed an analysis on the 2003 National Survey of Drug Use and Health (NSDUH). The NSDUH collects data on drug use and its correlates among the civilian, non-institutionalized U.S. population over 12 years of age. In a sub-sample of respondents 18 years and older ($n=37,026$), we investigated the association of demographic and clinical variables with non-medical use of prescription opioids (defined as taking an opioid only for the feeling it causes or taking an opioid prescribed for someone else) in the past year. To account for sampling methodology in the NSDUH, we utilized sample weights that normalized data to the distributions based on the 2000 census. Each independent variable was examined for bivariate association with non-medical use of prescription opioids and in a multivariable logistic regression model.
RESULTS: 52% of respondents were female and ages ranged from 18 to 80. The prevalence of past year substance use disorders was as follows: non-medical use of opioids (4.56%), cigarette use (30.61%), alcohol abuse or dependence (7.75%), marijuana use, abuse or dependence (10.22%), cocaine use, abuse or dependence (2.57%), crack cocaine use (0.63%), heroin use, abuse or dependence (0.15%) inhalant or hallucinogen use, abuse or dependence (1.77%), non-medical tranquilizer or sedative use, abuse or dependence (2.24%), and non-medical stimulant use, abuse or dependence (1.05%). Mental illness and good/fair/poor overall health were reported by 9.02% and 38.74% of subjects, respectively, and 2.32% respondents reported missing at least one day of work in the past 30 for both absenteeism and illness. On multivariable analysis, the

following risk factors were associated with past-year non-medical opioid use: younger age (18-25 years-old, OR 6.29; 2.63–15.06); past year alcohol abuse or dependence (OR 1.62; 1.12–2.32); past year marijuana use, abuse or dependence (OR 2.27; 1.87–2.76); past year cocaine use, abuse or dependence (OR 1.81; 1.31–2.51); past year inhalant and/or hallucinogen use, abuse or dependence (OR 2.00; 1.54–2.61); past year non-medical tranquilizer and/or sedative use, abuse or dependence (OR 12.77; 9.62–16.96); past year non-medical stimulant use, abuse or dependence (OR 3.06; 2.24–4.19); initiating illicit substance use before age 13 (OR 2.34; 1.54–3.55); mental illness (OR 1.44; 1.17–1.78) and missing at least one day of work in the past 30 for either absenteeism and illness (OR 1.37; 1.01–1.87).
CONCLUSIONS: Past-year, non-medical use of prescription opioids occurs in nearly 5% of the U.S. population over age 18. Clinicians should consider non-medical use of prescription opioids of higher potential risk in young patients with prior illicit and licit drug or alcohol abuse/dependence, those who initiated illicit substance use before age 13, those with mental illness, and those with poor employment attendance.

IMMIGRANT PERCEPTIONS OF DISCRIMINATION IN US HEALTHCARE. N. Kandula[1]; M. Wen[2]; E. Jacobs[3]; D. Lauderdale[4]. [1]Northwestern University, Chicago, IL; [2]University of Utah, Salt Lake City, UT; [3]Rush University Medical Center, Chicago, IL; [4]University of Chicago, chicago, IL. *(Tracking ID # 153874)*

BACKGROUND: US healthcare disparities may be due in part to differential experiences of discrimination within the healthcare context. The majority of research about discrimination in healthcare has focused on race/ethnicity and African Americans, with little information about whether immigrants are more likely to experience discrimination than the US-born. Because immigrants are clustered in certain racial and ethnic groups, failure to consider immigration status could distort race/ethnicity effects. We examined whether foreign-born persons are more likely to report discrimination in healthcare than US-born persons in the same race/ethnic group, whether the immigration effect varies by race/ethnicity, and whether the immigration effect is "explained" by socio-demographic factors.
METHODS: We used cross-sectional data from the 2003 California Health Interview Survey (CHIS). CHIS is a population-based telephone survey of 42,000 civilian households, selected through random digit dial. Logistic regression models use replicate weights to adjust for non-response and complex survey design. Subjects: 39,200 adult respondents. Outcome Measure: The main dependent variable was self-reported perception of discrimination in a health care setting within the past 5 years. Adult respondents were asked "Was there ever a time within the last 5 yrs when you would have gotten better medical care if you had belonged to a different race or ethnic group?"
RESULTS: The percentage foreign-born ranged by race/ethnicity from 5% of African American/Blacks to 79% of Asians. The percentage of respondents reporting that they would have gotten better medical care if they had belonged to a different race or ethnic group varied by race/ethnicity. Blacks, Latinos and Native Americans all had relatively high rates (6–7%) that were similar to each other. Asians had somewhat lower percent reporting discrimination (4%) that was nonetheless much higher than Whites (1.5%). Immigrants are more likely to report discrimination than US-born persons, after adjusting for socioeconomics, language and health care access factors. Speaking a language other than English at home increases discrimination reports regardless of birthplace; higher socioeconomic status is not protective for the foreign-born. For Asians, only the foreign-born are more likely than Whites to report discrimination. Increased perceptions of discrimination are attributable to sociodemographic factors for US-born Latinos, but not for foreign-born Latinos. For Blacks, immigration status has little additional effect on perceptions of discrimination in health care.
CONCLUSIONS: All other racial/ethnic groups are more likely than Whites to report that they would have gotten better medical care if they had belonged to a different race/ethnicity group. However, for Asians and Latinos, immigration status is a significant additional predictor of perceived discrimination and modifies the effects of race/ethnicity. Within each race/ethnicity group, the foreign-born are more likely than the US-born to report discrimination. Immigration status should be included in studies of healthcare disparities because nativity is a key determinant of discrimination experiences for Asians and Latinos.

IMPACT OF BARCODE MEDICATION ADMINISTRATION TECHNOLOGY ON HOW NURSES SPEND TIME ON CLINICAL CARE. E.G. Poon[1]; C.A. Keohane[1]; E. Featherstone[1]; B.S. Hays[1]; A. Dervan[1]; S. Woolf[1]; J. Hayes[2]; A. Bane[1]; L.P. Newmark[3]; T.K. Gandhi[1]. [1]Brigham and Women's Hospital, Boston, MA; [2]Faulkner Hospital, Jamaica Plain, MA; [3]Partners Information Systems, Wellesley, MA. *(Tracking ID # 151653)*

BACKGROUND: A significant number of hospitals are deploying barcode medication administration (BCMA) technology to improve inpatient medication safety. However, implementation of this technology requires significant changes in workflow for nurses, potentially causing them to spend more of their professional time on administering medications rather delivering other forms of direct patient care. We therefore conducted a time-motion study of BCMA technology to address this concern.
METHODS: We conducted our study in a 735-bed tertiary care hospital that was methodically rolling out, with extensive training and support, a locally-developed version of BCMA technology in its medical, surgical and intensive care units. Trained observers conducted 2-hour observation sessions in which the observer recorded the activities of a single nurse using a validated nursing activity task list. Observers conducted these sessions before the deployment of BCMA technology and resumed them within 9 weeks of BCMA deployment. Nursing activities were divided into 3 major groups: i) medication administration related activities, ii) direct care of patients unrelated to medication administration, and iii) other non-medication administration, non-direct physical care activities. We compared the proportion of time spent on each major activity group between the pre and post observations. As a secondary analysis, we classified all activities into those that were either sensitive to BCMA deployment (e.g. documentation of medication administration) or insensitive to BCMA (e.g. looking for patient equipment). To account for possible confounding, we measured the type of patient care unit, time-of-day, and the number of patients the nurse was caring for during each observation. We built multi-variable repeated-measures linear regression models to adjust for potential confounders and repeated observations on the same nurses during the study.
RESULTS: We conducted a total of 232 2-hour observations sessions between 2/2005 and 10/2005, evenly split between pre-BCMA and post-BCMA units, giving us 85% power to detect an absolute difference of 4% in the proportion of time spent, or 5 minutes per 2-hour observation. Overall, the proportion of time nurses spent on the major activity groups remained stable. Before BCMA implementation, nurses spent 26.5% of their time on medication administration. After BCMA implementation, this proportion remained statistically unchanged at 24.5% (Wilcoxon Ranked-sum test, $p=0.22$). The proportion of time nurses spent on direct care activities unrelated to medication administration remained statistically unchanged (pre-BCMA 20.1%, post-BCMA 23.7%; Wilcoxon, $p=0.15$). The secondary analysis showed that the proportion of time spent on all BCMA-sensitive activities decreased significantly from 38.3% to 33.4% (Wilcoxon, $p<0.001$). After adjusting for confounders and repeated observations on the same nurses, the conclusions of the bivariate analyses remained unchanged.
CONCLUSIONS: A well-designed, thoughtfully-implemented and fully-supported BCMA system did not increase the amount of time nurses spend on medication administration activities, and did not compromise the amount of time nurses spent on direct care of patients. Activities related to the use of BCMA may also have become more efficient, allowing nurses to spend more time on other professional activities. Our results should help to allay concerns regarding the impact of BCMA on nursing workflow and quantity of direct nurse-patient interaction.

IMPACT OF FA'ASAMOA ON USE OF CANCER SCREENING SERVICES. S. Puaina[1]; F.A. Hubbell[2]. [1]California State University, Fullerton, Fullerton, CA; [2]University of California, Irvine, Orange, CA. *(Tracking ID # 152513)*

BACKGROUND: The fa'aSamoa, or "Samoan way of life", is a revered collection of practices by which Samoans conduct their lives. It revolves around ideologies such as the matai (chief) system, the nu'u (village), the aiga (family), faalavelave's (familial interruptions such as marriage and death), Samoa mo le Atua (religious beliefs), and mea'ai (dietary habits). This study evaluated the potential impact of fa'aSamoa on cancer screening rates among American Samoans, which are among the lowest of any ethnic group, and the possibility of incorporating aspects of fa'aSamoa into cancer prevention programs to improve these rates.
METHODS: The investigators conducted 6 focus groups (3 in Carson, California and 3 in Pago Pago, American Samoa) with Samoan matais, pastors, and male community members over 50 years of age. Focus group participants were selected from comprehensive lists kept by organizations that work closely with Samoan communities. Each focus group contained from 8–12 members. Two bilingual male Samoans served as moderator and co-moderator of the sessions that were conducted primarily in the Samoan language. The sessions lasted approximately 2 hour each. The moderator first obtained socio-demographic data. Next, using a discussion guide, he asked general questions about fa'aSamoa followed by questions regarding the influence of fa'aSamoa on cancer screening and the potential use of fa'aSamoa to improve screening rates. The audio-taped transcriptions were translated into English and analyzed using qualitative content analysis. The investigators independently identified themes and then came to consensus about them.
RESULTS: Among the themes, two were particularly important. First, participants confirmed that disease prevention is not an integral part of fa'aSamoa. Indeed, Samoans view prevention as the ability to maintain good health without consulting a doctor. Moreover, Samoans are traditionally modest and reluctant to discuss personal issues even with family members. The idea of seeing a doctor for examination of the rectum for prostate cancer, for example, would not be considered in the traditional culture. As one man said "Samoans have to be on the death bed before they will go to a doctor. " Despite these a beliefs, a second theme emerged. Because of the influence of the matais and pastors in fa'aSamoa, participants stressed that incorporating these leaders into cancer prevention programs could improve them. Traditionally, matais seek to ensure that everyone in the aiga participates productively within the greater nu'u. In many ways the pastor substitutes for the matai and the church for the nu'u for Samoans living in the mainland US. Regarding cancer prevention, one pastor said "There is not a problem with our Samoan culture that will hinder a health care program. There are only helpful methods from our Samoan culture and Church that will make a cancer program successful."
CONCLUSIONS: The results suggest that the lack of emphasis on disease prevention in fa'aSamoa may contribute to low cancer screening rates. However, other aspects of the culture, such as the respect of matais and pastors, could be incorporated into cancer prevention programs aimed at improving cancer control among Samoans.

IMPACT OF HORMONE THERAPY DISCONTINUATION ON WEIGHT LOSS AND CARDIOVASCULAR RISK FACTORS IN OVERWEIGHT POSTMENOPAUSAL WOMEN. M.B. Conroy[1]; A.M. Kriska[1]; K.K. Pettee[1]; A.M. Buhari[1]; L.H. Kuller[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 153377)*

BACKGROUND: Little is known about how discontinuing hormone therapy (HT) may impact weight loss and cardiovascular risk factors (CVRF). Understanding relationships between HT, weight loss and CVRF remains relevant in the post-Women's Health Initiative era as patients continue to use HT for symptom relief over briefer periods and providers look for alternate means for lowering cardiovascular disease risk in women.
METHODS: Subjects for this analysis included 454 women from the Woman on the Move through Activity and Nutrition (WOMAN) Study, an ongoing lifestyle intervention clinical trial designed to reduce weight in overweight postmenopausal women. At basline, women were free from cardiovascular disease and diabetes and not taking lipid lowering medications. Weight loss between baseline and 18 months was divided into quartiles (-98.5 to -18 lbs; -17.9 to -8.5 lbs; -8.4 to 0 lbs; $+0.1$ to $+38.0$). Women were classified as continuous HT users (n=126), continuous HT non-users (n=175) or women who discontinued HT during the 18 months of follow up (n=146). 7 women starting HT between baseline and 18 months were excluded, as were 27 women starting lipid lowering medication. CVRF included waist circumference, systolic/diastolic blood pressure, LDL/HDL cholesterol, triglycerides, glucose, and insulin. Interaction terms tested whether HT group modified the effect of weight loss on change in CVRF. Multivariable models included weight change, HT group, age, tobacco use, intervention group, and physical activity.
RESULTS: Mean age was 56.9 years; 88% of women were white. Mean weight loss over 18 months was -10.9 lbs. Weight loss amongst women who discontinued HT was not significantly different than that amongst continuous HT users or non-users ($p=0.22$). Mean weight loss was higher amongst women in the lifestyle intervention group than controls (-17.3 lbs vs. -4.0 lbs; $p<0.0001$) and women with greater increases in physical activity ($r=0.33$; $p<0.0001$). With the exception of HDL cholesterol, there was significant improvement in all CVRF across categories of weight loss (p for all trends <0.01), with women in the highest weight loss category showing best results. Continuous HT users had more significant decreases in waist circumference than continuous HT non-users ($p=0.02$) but were not significantly different from HT discontinuers. HT discontinuers had more significant increases in glucose and LDL cholesterol ($p<0.0001$ and 0.004, respectively) than continuous HT non-users. There were no significant associations between HT group and other CVRF. HT group did not modify the effect of weight loss on CVRF improvement (p for all interactions >0.05). Improvement in CVRF (except HDL) across categories of weight loss remained consistent and significant in multivariable models. There were also no changes in the relationship between waist circumference, glucose and LDL cholesterol changes and HT group in multivariable models.
CONCLUSIONS: Discontinuing HT does not adversely affect efforts at weight loss in early postmenopausal women. Weight loss is an effective strategy for improving cardiovascular risk profiles in overweight early postmenopausal women regardless of HT status and may be particularly important for women who discontinue HT and lose the protective effects of estrogen on LDL cholesterol.

IMPACT OF MANAGED CARE PLAN IMPLIMENTATION IN MEDICAID FOR PERSONS WITH AIDS. D.S. Zingmond[1]; R. Hector[1]; T. Rice[1]; W.E. Cunningham[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 156711)*

BACKGROUND: The introduction of managed care plans (MCPs) into state Medicaid programs is promoted as a superior to fee-for-service (FFS) Medicaid for controlling costs and improving care for enrollees with chronic disease, such as AIDS. However, the impact of MCP for persons with AIDS on mortality, hospitalization, change in enrollment, and cost is unknown.
METHODS: We studied Medicaid beneficiaries with AIDS in California, enrolled in January 1st, 2000 and followed through December 31st, 2003. Medicaid enrollment data were linked to claims, hospital discharge abstracts, death records, and the AIDS Registry. Multivariate logistic and proportional hazard analyses were performed to estimate the impact of MCP (vs. FFS) enrollment on mortality, hospitalization, and change in enrollment (e.g. from MCP to FFS). Regression predicted costs for MCP enrollees were compared to capitation rates (2003 only).
RESULTS: Among 12,941 individuals with verified AIDS enrolled in Medicaid, 14.5% were in MCPs. Enrollees were 83% male and 41.5 years old (mean). During follow-up, MCP and FFS were clinically similar: 63% of enrollees were hospitalized and 23% died. However, MCP enrollees were more likely than FFS enrollees to change enrollment (24.5% vs. 5.6%, $p<0.01$). In multivariate regression models, there was no significant relationship between MCP enrollment and mortality. MCP enrollment was somewhat associated with lower odds of hospitalization or death (Odds Ratio 0.88, Confidence Interval: 0.79 to 0.997). MCP enrollment was associated with changing plans (Hazard Ratio: 3.28, 95% CI: 2.13 to 5.06). Predicted MCP costs were 10% lower than monthly MCP capitation rates ($p<0.01$).
CONCLUSIONS: MCPs do not appear to offer cost or satisfaction advantages for AIDS enrollees. Before wholesale changes are made in the delivery of care, policy makers should address whether cost, satisfaction, care coordination, and outcomes favor Medicaid MCPs over traditional FFS for HIV-infected and other chronically ill beneficiaries

IMPACT OF MEDICAID PRIOR AUTHORIZATION POLICIES ON USE OF ANGIOTENSIN RECEPTOR BLOCKERS. M.A. Fischer[1]; N.K. Choudhry[1]; W.C. Winkelmayer[1]. [1]Brigham and Women's Hospital, Boston, MA. *(Tracking ID # 153251)*

BACKGROUND: Concerned about rising drug costs, many state Medicaid programs have adopted prior authorization (PA) policies to limit the use of high-cost medications. Angiotensin-receptor blockers (ARBs) are expensive medications for which a less costly alternative - angiotensin-converting enzyme (ACE) inhibitors–is available, making them a logical target for PA policies. The variability in how state Medicaid programs regulate ARBs using PA creates a natural experiment that offers insight into the impact of these programs.
METHODS: We contacted 50 state Medicaid agencies to obtain the details of their PA policies regarding ARBs. We determined whether a trial of ACE inhibitors was required before ARBs would be covered and whether any specific ARBs were classified as preferred agents. We obtained quarterly data on drug utilization and spending by Medicaid programs from the Center for Medicare and Medicaid Services (CMS). We calculated the percentage of renal-angiotensin axis (RAA) blocking agents (i.e. either ACE inhibitors or ARBs) accounted for by ARBs in each state in each quarter, using defined daily doses (DDDs) as our primary measure. We performed interrupted time-series analyses to estimate the impact of implementation of a PA policy on ARB prescribing, using as control states those that did not require PA for ARBs.
RESULTS: Total Medicaid spending on antihypertensive medications in 2004 was $2.4 billion, over $1 billion of which was accounted for by RAA blocking agents. As a percentage of RAA blocking agent prescriptions and DDDs, ARBs have grown from 3% in 1996 to 29% in 2005; by the second quarter of 2005 ARBs accounted for over 50% of spending on RAA blocking agents. We found considerable variation across states in the proportion of ARB prescribing, ranging from over 45% of RAA blocking prescriptions in Hawaii to less than 15% in Massachusetts. As of September 2005, 32 states had PA programs for ARBs either in place or scheduled to begin. Of these states, 19 had implemented PA by mid-2004, allowing at least three quarters of post-initiation data. All states included a sub-set of ARBs on a preferred drug list, with non-preferred ARBs requiring PA; four states required trials of ACE inhibitors before any ARBs could be approved. Interrupted time series analysis showed that after PA implementation there was a small decrease in ARB prescribing (<1% reduction in RAA DDDs relative to control) that was not statistically significant. States that chose a preferred ARB had increased spending on that drug but no change in the overall rates of ARB prescribing or expenditure. The four states that required a prior trial of ACE inhibitors had decreased ARB prescribing relative to controls ranging between 4% and 11%, no other state had a decrease relative to controls of more than 2.3%.
CONCLUSIONS: Although many states implemented PA requirements for ARBs in their Medicaid programs, we found that most of these programs were not effective at reducing ARB use but merely shifted use to the preferred ARB. It is possible that manufacturer rebates or other factors not captured in our data may have affected these strategies. The small number of states with more stringent clinical requirements for a trial of ACE inhibitors did achieve large reductions in ARB use. Future research should explore the clinical appropriateness of these changes in prescribing patterns, especially with regard to the ongoing implementation of the Medicare part D prescription drug benefit.

IMPACT OF THE EIGHTY-HOUR WORK WEEK: VIEWS OF KEY CLINICAL FACULTY. D.A. Reed[1]; R. Levine[2]; R.G. Miller[2]; B.H. Ashar[3]; E.B. Bass[2]; T. Rice[2]; J. Cofrancesco[2]. [1]Mayo Clinic College of Medicine, Rochester, MN; [2]Johns Hopkins University, Baltimore, MD; [3]Johns Hopkins University, Lutherville, MD. *(Tracking ID # 153534)*

BACKGROUND: To determine the effects of limiting medical residents to an 80-hour work week, it is wise to consider the views of faculty who have the greatest contact with residents. We therefore conducted a survey of key clinical faculty (defined by ACGME as having at least 15 hours/week of contact with residents) to obtain their views regarding the impact of the 80-hour work week on patient care, resident and medical student education, and faculty members' job satisfaction.
METHODS: In May 2005 we mailed a survey to key clinical faculty (KCF) at 39 ACGME accredited categorical internal medicine residency programs affiliated with medical schools in the U.S. We randomly selected schools after stratifying by NIH funding and program size. For each school, we targeted 4 randomly selected KCF. The survey asked for information about selected characteristics of faculty such as total years teaching residents and hours per week spent teaching residents, and asked them to rate on an ordinal scale their opinions regarding the impact of the 80-hour work week on aspects of patient care, resident and medical student education, and faculty members' job satisfaction. We used multiple logistic regression to identify faculty characteristics that were independently associated with views of the impact of the 80-hour work week.
RESULTS: Of 154 KCF targeted, 111 responded (72.1%). At least 2 KCF from 34 of 39 programs (87.2%) completed the survey. Sixty percent of KCF reported that the overall quality of patient care had worsened with the implementation of the 80-hour work week. Faculty noted a worsening in continuity of care (87%) and no improvement in frequency of medical errors by residents (93%); 66% felt that the quality of resident education had worsened and 55% reported a decline in resident professionalism. More than half of KCF reported decreased satisfaction teaching residents and one-third reported decreased ability to develop mentoring relationships with residents and decreased overall job satisfaction as a result of the 80-hour work week. Faculty members with more than 5 years experience supervising residents were more likely to believe that the 80-hour work week had a negative impact on residents' education (odds ratio (OR) 3.3; 95% confidence interval (CI) 1.3, 8.4) compared to those with less than 5 years teaching experience. In multivariate analysis after adjusting for gender, academic rank, specialty, and years of experience teaching residents, faculty who

Table

Screening recommendation	Annual	Biennial	Annual	Biennial	None
Adherence	100%	100%	Variable	Variable	N/A
Deaths from all causes	253 (225–280)	254 (228–280)	255 (227–283)	256 (229–282)	260 (233–289)
Breast cancer deaths	18.1 (10–29)	19.2 (10–29)	20.6 (12–31)	20.9 (12–31)	26.8 (16–39)
Advanced cancers	23.8 (13–38)	25.7 (14–38)	29.6 (17–44)	30.4 (18–46)	44.1 (27–63)
Early cancers	76.4 (58–95)	75.4 (57–97)	70.1 (50–91)	67.5 (48–88)	47.9 (31–68)
False positives	2349 (2250–2448)	1499 (1429–1571)	1279 (827–1714)	1013 (735–1237)	N/A
Screening mammograms	33,223 (32,786– 33,615)	17,243 (16,990– 17,500)	17,522 (9990– 24,974)	11,845 (8020– 14,815)	N/A

devoted more than 15 hours per week to teaching were more likely than other faculty to believe that medical students' educational experience had declined (OR 3.67, CI 1.60, 8.38), and were more likely to report a decreased ability for students to follow patients throughout the hospitalization (OR 3.07, CI 1.26, 7.46) and less opportunities to develop working relationships with residents (OR 2.30, CI 1.01, 5.25).
CONCLUSIONS: According to clinical faculty who have the greatest contact and experience with residents, the 80-hour work week has adversely impacted important aspects of patient care, resident and student education, and their own teaching experience. Residency programs should continue to look for ways to optimize patient care, resident and student education, and faculty experience within the confines of the 80-hour work week.

IMPACT OF VA/PRIVATE SECTOR CO-MANAGEMENT ON BLOOD PRESSURE CONTROL AND GUIDELINE CONCORDANT THERAPY. P. Kaboli[1]; D. Shivapour[2]; M. Henderson[3]; A. Ishani[4]. [1]Iowa City VAMC and University of Iowa, Iowa City, IA; [2]University of Iowa College of Medicine, Iowa City, IA; [3]Iowa City VAMC, Iowa City, IA; [4]Minneapolis VAMC, Minneapolis, MN. *(Tracking ID # 153418)*

BACKGROUND: VA primary care patients frequently receive care from providers outside VHA. The effects of "co-management" on patient outcomes are unknown. This study evaluated the impact of co-management on quality of care for veterans with hypertension.
METHODS: The study included a convenience-sample of patients with hypertension in primary care clinics at two VA Medical Centers and four community-based outpatient clinics. Consenting patients were interviewed before scheduled primary care visits and implicit review of medical records was performed by study physicians. The two primary outcomes of interest, based on VA hypertension guidelines, were achievement of blood pressure (BP) goal (<140/90 or <130/90 for patient with diabetes) and use of guideline-concordant hypertension therapy.
RESULTS: 191 patients with hypertension were approached and 189 (99%) agreed to participate. Mean age of patients was 66 years, 97% male, and 92% white. 36% of patients identified a non-VA provider who co-managed their care. Co-managed patients had similar rates of comorbid illnesses compared to VA-managed patients, including hyperlipidemia (58% vs. 50%; p=.28) and diabetes (36% vs. 35%; p=.94), the two most common. Overall, 51% of patients were at BP goal, 58% were on guideline-concordant therapy, and 32% had both. Co-managed patients were as likely to attain their BP goal as VA-managed patients (51% vs. 51%, respectively; P=.99) and be on guideline-concordant therapy (63% vs. 56%, respectively; P=.35); mean number of BP medications was also similar (2.5 vs. 2.4; p=.85). Co-managed patients were more likely to be using thiazide diuretics (43% vs. 29%; p=.03) and less likely to use ACE inhibitors (43% vs. 61%; p=.02). No differences were observed between co-managed and VA-managed patients for use of beta blockers, (54% vs. 52%; p=.78) and calcium channel blockers (36% vs. 34%; p=.85).
CONCLUSIONS: In a primary care cohort with hypertension, co-managed patients had similar rates of BP control and guideline-concordant therapy, with some differences in anti-hypertensive use. Although co-management may make transfer of records and information more complex between providers and decrease continuity, it had no impact on quality in this one domain of care. Given the prevalence of co-management, future work should evaluate its impact on quality in other domains of care.

IMPLICATIONS OF ALTERING THE MAMMOGRAPHY SCREENING INTERVAL. A. Goel[1]; R.C. Burack[1]. [1]Wayne State University, Detroit, MI. *(Tracking ID # 151433)*

BACKGROUND: We performed a cost-benefit analysis to estimate the effects of annual versus biennial mammography. We also estimated the effects of changes in patient adherence to the recommended mammography interval and follow-up after abnormal mammography.
METHODS: We built a model of mammography and breast cancer for Caucasian women between 40 and 76 using published information about life tables, cancer incidence, mammography use and operating characteristics, incomplete follow-up after an abnormal mammogram, stage distributions of cancers detected by screening and interval findings, and mortality after a cancer diagnosis. Women exited the model by completing the 36 years of screening, dying from breast cancer or dying from other causes. We created five scenarios: 1) complete adherence to annual mammography (CAM), 2) complete adherence to biennial mammography (CBM), 3) variable adherence to annual mammography (VAM), 4) variable adherence to biennial mammography (VBM) and 5) no screening mammography (NSM). Women in all five scenarios were followed with complete adherence to annual mammography after a cancer diagnosis. We used Markov Monte Carlo microsimulation to track early cancers, advanced cancers, screening mammograms and false positives for each woman. We modeled parameter uncertainty by sampling each parameter's distribution 1000 times. Each sample included 1000 women, so each scenario's estimates were based on cohorts of one million women.
RESULTS: The Table lists the mean (95% CI) number of six outcomes for 1000 women in each scenario. All scenarios using mammography reduce overall mortality and breast cancer mortality compared to NSM (p<0.01). Incomplete adherence increased breast cancer mortality in the annual (2.5 extra deaths, CAM vs VAM, p<0.01) and biennial (1.7 extra deaths, CBM vs VBM, p<0.01) scenarios. However, given incomplete adherence, there was no difference in breast cancer mortality comparing annual to biennial mammography (0.3 extra deaths, VAM vs VBM, p=0.25). VBM was associated with more advanced cancers (0.8 more advanced cancers, p=0.01), but required fewer mammograms than VAM (5677 fewer mammograms, p<0.01).
CONCLUSIONS: Mammography's current effectiveness appears more limited by incomplete adherence than by biennial versus annual screening. At current adherence rates, biennial instead of annual mammography could reduce mammography use by 32% at a cost of less than 1 woman in 1000 being diagnosed with advanced breast cancer over her screening lifetime.

IMPROVING ACCESS TO PRIMARY CARE FOR THE UNINSURED: THE FREE CLINICS OF VIRGINIA. E. Scott[1]; M. Nadkarni[1]; M. Cruise[2]; J. Voss[1]; J.T. Philbrick[1]. [1]University of Virginia, Charlottesville, VA; [2]Virginia Association of Free Clnics, Glen Allen, VA. *(Tracking ID # 151396)*

BACKGROUND: Despite recent governmental initiatives, traditional safety net providers of care to the uninsured such as academic medical centers and Community Health Centers (CHCs) have been unable to meet the increasing need for primary care services. Virginia has one of the most developed systems of free clinics of any state, but the role of free clinics as part of the state's health care safety net has not been well defined. We examined the growth in the number of free clinics, the services they provided and total number of patients they served over a six-year period. We then compared the number of uninsured patients seen by free clinics to the number served by two other more traditional safety net providers in the state of Virginia.
METHODS: We compiled results of end-of-year surveys administered by the Virginia Association of Free Clinics for 1998, 2001 and 2004. Data included total number of patients seen, number of visits, services provided, number of prescriptions dispensed and operating budgets. We collected archival data regarding the total number of uninsured patients seen in Virginia CHCs for the same years. Finally, we retrieved computerized tracking data of the total number of uninsured patients seen collectively in outpatient general medicine, pediatric and ob/gyn clinics of a large academic medical center (University of Virginia Health System) in 1998, 2001 and 2004.
RESULTS: The number of free clinics in Virginia grew from 32 to 47 in the six-year study period. The number of unique patients seen in free clinics grew by 18% from 1998 to 2001 and 42% from 2001 to 2004. The total number of primary care visits per year increased from 78,000 in 1998 to 92,000 in 2001 and 121,000 in 2004. In this same period, dental visits increased from 7,000 to 8,000 and 22,000; prescriptions dispensed increased from 248,000 to 398,000 and 567,000; and total operating budgets increased from 6 million dollars to 11 million and 16 million. Total number of patients served by free clinics in years 1998, 2001 and 2004 compared to the number of uninsured patients served by two other safety net providers in Virginia is shown in the table.
CONCLUSIONS: Free clinics in Virginia have shown remarkable growth and now contribute a substantial portion of safety net primary care to the uninsured. In 2004, more uninsured Virginians were served by free clinics than by two more traditional safety net providers. It is unclear to what degree this trend represents inherent strength of the free clinic system vs. external pressures on free clinics as a result of inadequate access to primary care from other safety net providers. Despite this impressive growth, free clinics provided care to only 6% of Virginia's approximately one million uninsured in 2004 and clearly cannot solve their overiding problem of health care access.

Uninsured Patients Seen by Safety Net Providers

	1998	2001	2004	% change, 1998–2004
Free clinics	37,760	44,720	63,625	68
CHCs	43,521	49,406	62,406	43
University of VA clinics	11,428	13,406	11,637	2

IMPROVING CHRONIC DISEASE MANAGEMENT FOR UNDERSERVED POPULATIONS: A NATIONAL EVALUATION OF THE HRSA HEALTH DISPARITIES COLLABORATIVES. B.E. Landon[1]; L.S. Hicks[1]; A.J. O'Malley[1]; T. Keegan[2]; T. Lieu[3]; B.J. McNeil[1]; E. Guadagnoli[1]. [1]Harvard University, Boston, MA; [2]Harvard Medical School, Boston, MA; [3]Harvard Pilgrim Health Care, Boston, MA. *(Tracking ID # 151855)*

BACKGROUND: Significant differences in quality according to race and socioeconomic status are problematic in the US health care system today. While many studies have documented these problems, few have evaluated interventions designed to improve upon current performance. In 1998, the Bureau of Primary Health Care of the Health Services and Rescources Administration (HRSA) initiated the Health Disparities Collaboratives to reduce health disparities and improve the quality of care in Community Health Centers (CHCs) that collectively serve 15 Million poor and underserved patients. Over 700 CHCs have participated in at least one Health Disparities Collaborative to date.
METHODS: We performed a controlled pre/post intervention study of CHCs participating in a quality improvement collaborative for Diabetes, Asthma, or Cardiovascular disease (with our assessment focused on hypertension) that were conducted during 2000–2002 by HRSA and the Institute for Health Care Improvement. The collaboratives use rapid cycle improvement techniques based on "plan, do, study, act" cycles and the Chronic Care Model. We enrolled 44 CHCs participating in a collaborative (13 for asthma, 17 for diabetes, and 14 for hypertension) and 20 non-participating centers ("external" controls) that had not participated in a collaborative after matching on region, size, and location. Each participating clinic also served as a control ("internal" control) for one of the other targeted conditions. Quality of care measures involving processes and intermediate outcomes of care (e.g., control of hypertension) were abstracted from medical records, and an overall composite measure was created for each condition by taking the mean of all of the measures (including both process and outcomes measures) after normalization of each of the individauls scores. Changes in quality were evaluated using hierarchical logistic regression models that controlled for patient characteristics.
RESULTS: We studied 11,153 patients with one of the three target conditions in the experimental and control groups (3,887 with asthma, 2,904 with diabetes, and 3,362 with hypertension). Intervention clinics showed significant improvement in the overall composite measure of quality when compared to both external and internal controls for asthma and diabetes, but not for hypertension. For instance, participating asthma centers improved the overall percentage met for the composite quality measure by 15% as compared to 5% for internal controls and 1% for external controls ($p<.001$ for both comparisons). Individual measures in the areas of screening, treatment, and self-management such as asthma severity assessment, hemoglobin A1C assessment, and diabetic foot exams showed significant improvement. There was no improvement, however, in intermediate outcomes such as control of diabetes (measured by hemoglobin A1C), hypertension, or cholesterol, or the number of urgent care, emergency room, or hospital visits for asthma patients.
CONCLUSIONS: We found that the Heatlh Disparities Collaboratives significantly improved the extent to which several processes of care were followed for two of the three conditions studied, without any improvement in intermediate outcomes. Our findings suggest that while the collaboratives have successfully improved the processes of care, improved methods are required to achieve more significant improvements in intermediate outcomes that are the most important determinants of long term chronic disease outcomes.

IMPROVING DIABETES CARE WITH NURSE PRACTITIONER-LED GROUP VISITS AND SIMPLE CASE MANAGEMENT. L.M. Vinci[1]; J. Clark[1]; N. Buchholz[1]; M. Quinn[1]; A.M. Davis[1]. [1]University of Chicago, Chicago, IL. *(Tracking ID # 153258)*

BACKGROUND: Excellent diabetes (DM) management in primary care has many elements and is often inconsistently delivered, despite well established standards. Clinical inertia, missed tests, and patient adherence are difficult to address in 4 brief primary care visits a year. Innovative approaches such as promoting self-care practices, delivery system redesign, nurse case management, and disease specific group visits are being explored, but these can be complicated to implement, and their general feasibility is unclear. In this study we evaluated the value of a simple supplemental nurse practitioner-led intervention to improve DM care in a busy urban academic primary care practice.
METHODS: All adult patients with DM followed regularly in the faculty practice received a mailed offer to participate, signed by their primary care physician (PCP). Of these 2200 patients, 180 left messages of interest on a dedicated voicemail, and 137 consented to the study. Subjects were randomized by permuted blocks to usual care (UC), defined as care with their PCP alone, or to a nurse practitioner (NP) group, in which PCP usual care was supplemented by two 90 minute group visits led by an experienced NP, with limited follow-up by phone. Pre and 6-month post phone surveys assessed general DM knowledge, immunization, aspirin use, self-efficacy, and self care. At the group visits with 4-8 attendees, patients received nationally available education modules on self care in an interactive setting, and a chart of how they met ADA guidelines. During the group visit, the NP gave vaccinations, adjusted medicine, and made referrals. Lab results and medicine changes were discussed by phone. The NP had 4 hours a week protected for this study, but otherwise carried her usual clinical load. Time involved in case management activity was recorded. Electronic charts were reviewed for data on blood pressure, LDL cholesterol, and A1c levels.
RESULTS: Of the 137 participants completing the consent and initial questionnaire, 68 were assigned to usual care, and 69 to the NP group. Mean age was 64 years, 80% were self-identified as black, and 75% were female. Baseline demographics were well-matched, with mean duration of DM 8.5 years. Using intention-to-treat comparisons, mean systolic BP in regular PCP clinic visits improved significantly in the 6 months following the intervention in the NP (139.8 pre, 129.3 post, $p<.001$), but not the UC group (138.3, and 135.7; NS); as did LDL (NP group 99.4 pre, 85.1 post, $p=.001$; UC 100.1 pre, 94.77 post; NS). In the 41 NP patients attending both classes, control of A1c $<7\%$ trended up from 40.5% to 52.8%, with mean A1c falling from 7.4 to 7.2% (both NS). In the NP group, pneumococcal vaccination rose from 44% to 78% ($p<.001$), and aspirin use from 55% to 76% ($p<.05$). NP group class and case management time averaged, in total, under 2 hours per week over the 8 month intervention phase.
CONCLUSIONS: A focused NP-led group class and case management program can produce significant improvements in DM quality of care, even in patients regularly attending an academic primary care practice. The program was well-received by physicians and patients, and was implemented using existing staff. While patients who agree to participate in such a program are likely more interested and motivated than the average clinic patient, the modest incremental effort involved may make this an attractive intervention to reduce cardiovascular risk in a subset of general internal medicine patients with DM.

IMPROVING END-OF-LIFE DECISION-MAKING BY FACTORING IN THE SURROGATE. E.K. Vig[1]; H. Starks[1]; J. Taylor[1]; E. Hopley[1]; K. Fryer-Edwards[1]. [1]University of Washington, Seattle, WA. *(Tracking ID # 152255)*

BACKGROUND: Surrogates make up to 75% of decisions for patients hospitalized with life-threatening illness and up to 69% of decisions for nursing home residents. Most clinicians are not trained to help surrogates make decisions, and may find aspects of surrogate decision-making challenging. Aiming to identify ways to help clinicians and surrogates improve the process of surrogate decision-making, we undertook a qualitative study to better understand the surrogate's perspectives on making decisions for others.
METHODS: We conducted semi-structured telephone interviews with experienced surrogate decision-makers who were identified to make decisions for a group of older, chronically ill veterans. Participants were identified because their patient loved ones had previously participated in a randomized trial to promote advance care planning. We asked surrogates to: describe their preparation for decision-making; tell us about their experience making medical decisions for others; and reflect on that experience. We reviewed transcripts to develop and to refine a coding scheme. Next, two investigators independently coded each transcript and reconciled their coding differences. We conducted a content analysis to identify and categorize surrogate-identified factors that hampered decision-making.
RESULTS: The 50 surrogate participants had a mean age of 63 years. 90% were white; 90% were female; and 68% were the patients' spouses. Decisions they described ranged from deciding to take loved ones to seek acute medical care to disconnecting loved ones from ventilator support. Surrogates identified four groups of factors which hampered their decision-making: (1) Surrogates' own issues (such as competing caregiving responsibilities and poor surrogate health); (2) Surrogate-patient communication and relationships (such as surrogate unfamiliarity with patient preferences or difficulties with honoring known preferences); (3) Challenges within surrogates' own family and social networks (such as intra-family discord about the "right" decision and unavailability of friends with whom to debrief); and (4) Surrogate-clinician interactions (such as perceptions that clinicians are unavailable when questions arise, that too many clinicians are involved, and receipt of insufficient or falsely hopeful patient information from clinicians).
CONCLUSIONS: These data provide insights into the difficulties that surrogates encounter when making decisions for loved ones, and indicate areas where clinicians could facilitate the process of surrogate decision-making. First, identifying and addressing surrogate stressors during decision-making may improve surrogate decision-making. Second, including surrogates in advance care planning interventions prior to decision-making (for example by motivating surrogates and their loved ones to discuss care preferences prior to acute illnesses) may address surrogate-patient factors and surrogate-network factors. Third, the descriptions of surrogate-clinician factors provide opportunities for intervention at the individual and systems level. For example, nurses could inform surrogates of hospitalized patients that they always are on duty and are able to contact physicians should questions arise. In addition, in-hospital teams could designate one physician on the primary treatment team to (1) decipher and relay medical information from involved specialists, and (2) assess whether the surrogate was receiving the preferred amount of medical information.

IMPROVING SENIOR MEDICAL STUDENTS' KNOWLEDGE OF APPROPRIATE SCREENING STRATEGIES FOR OLDER PATIENTS USING A PROBABALISTIC APPROACH TO DECISION-MAKING. V. Sikka[1]; P.A. Boling[2]; W. Smith[2]. [1]Virginia Commonwealth University, Chester, VA; [2]Virginia Commonwealth University, Richmond, VA. *(Tracking ID # 154226)*

BACKGROUND: Medical students are taught early in medical school about cancer screening strategies, but receive inconsistent reinforcement in later

years. We assessed senior medical students' knowledge of cancer screening in the elderly one month before graduation, and evaluated an educational intervention to improve students' estimates of life expectancy and cancer screening strategies.
METHODS: In April 2005, prior to a lecture on cancer screening in the elderly, senior medical students (n=56) were shown 7 case scenarios that reflected increasing age and co-morbidity. For each scenario, students estimated the patient's life expectancy in years and indicated (yes or no) whether they would screen for cancer of the prostate, lung, colon, breast, ovary, and cervix. The lecturer (PAB) then presented population-level data on life expectancy stratified by age and health status, plus data on operating characteristics, benefits and burdens of common screening tests. He did not discuss the cases. After the lecture, students again scored the same 7 cases. Individual students' responses before and after the lecture were paired using randomly assigned code numbers, allowing analysis of the effect of perceived life expectancy on screening choices.
RESULTS: Before the lecture, students tended to screen aggressively even when the patient's age, diagnoses, and general condition suggested a short life expectancy or high burden-benefit ratio. After the lecture, screening declined significantly but usually not to zero in many low-yield or high-burden scenarios (example: case 5 with advanced dementia), while aggressive screening persisted where there was greatest chance of benefit (example: colon cancer screening in cases 1, 2, and 6). (Figs. 18, 19)To evaluate the effect of estimated life expectancy on screening strategy, we compared conservative, optimal, and liberal screening strategies, as determined by expert opinion, and found no correlation with life expectancy in 6 of 7 cases.
CONCLUSIONS: In 2005 a sample of graduating medical students were insufficiently prepared for cancer screening decisions in elderly patients. Decision-making improved after an educational intervention for many but not all situations.

Age	Health	Sex	Pre/Post	Prostate	Lung	Colon	Breast	Ovary	Cervix
70	Good	M	Pre	48	4	48	1	------	------
			Post	44	0*	49	0	------	------
70	Good	F	Pre	--------	1	45	46	29	17
			Post	--------	0	46	45	21*	2*
75	Fair/poor	M	Pre	34	19	42	2	------	------
	(smoker)		Post	14*	5*	40	0	------	------
75	Fair/poor	F	Pre	--------	1	33	30	14	30
			Post	--------	0	29	21*	5*	16*
80	Very poor	F	Pre	--------	1	26	25	6	12
	(demented)		Post	--------	0	19*	14*	2	0*
80	Very good	F	Pre	--------	1	43	40	11	20
			Post	--------	0	43	33*	6	3*
80	Good	M	Pre	43	12	43	4	------	------
	(smoker)		Post	28*	5*	36*	0*	------	------

Case	Pre	Post
1	13.79	14.95
2	12.50	14.15
3	4.74	5.26
4	4.33	5.98
5	4.20	5.27
6	12.12	13.24
7	7.77	7.39

*$p < 0.05$ Mean estimated life expectancy both pre and post lecture varied between cases and changed relatively little after the lecture.

INCREASING EVIDENCE USE IN MORNING REPORT. D.A. Feldstein[1]; M.H. Pak[1]; B.S. Vogelman[1]; R. Gangnon1. [1]University of Wisconsin-Madison, Madison, WI. *(Tracking ID # 152180)*

BACKGROUND: Morning report has long been an important educational component of Internal Medicine Residency Programs. Morning report's high profile makes it an excellent vehicle for role modeling evidence use in clinical care. The objectives of this study are to: 1) evaluate the effect of a Chief Resident evidence-based medicine (EBM) curriculum on increasing the use of explicit evidence in morning report; 2) evaluate the effect of the EBM curriculum on Chief Residents' self-assessed ability to present and teach evidence.
METHODS: Morning report at our University residency program consists of a single case-based presentation with interactive discussion of diagnostic, prognostic and therapeutic implications led by one of three Chief Residents. The Chief Resident EBM curriculum consisted of 2 interactive EBM workshops approximately 1 month apart and individual instruction and feedback following morning report sessions. The workshops provided a review of evidence resources and searching techniques as well as critical appraisal of trials of therapy, diagnosis, prognosis and differential diagnosis. Methods for concisely presenting evidence were also reviewed. Explicit evidence use was defined as the specific mention of a trial, systematic review or clinical guideline. A checklist was developed to record explicit evidence use, type of study mentioned, and whether study methodology, quality or specific results were mentioned. Three faculty members attended morning reports and participated in data collection. Chief Resident self-assessment of EBM skills and ability to incorporate primary literature into morning report was assessed by survey prior to the first workshop and at the end of the academic year. Statements were rated on a 5-point Likert scale (1=strongly disagree, 5=strongly agree). Pre- and post-intervention means were calculated for number of times explicit evidence was used, study type mentioned and mention of study methodology, quality and specific results. Changes in evidence use over time were modeled using repeated measures Poisson regression models that accounted for multiple assessments of the same Chief Resident. Means were calculated for Chief Resident self-assessment scores and compared using a paired T-test.
RESULTS: Six Chief Residents were evaluated over a 2-year period for a total of 44 pre-intervention and 52 post-intervention sessions. The average use of explicit evidence per morning report did not significantly change after the intervention (1.04 versus 1.33; p=0.18). There was an increase in the average mention of study methodology: 0.33 versus 0.77 with a ratio of means of 2.34 (95% CI, 1.09 to 5.05). Therapy studies were used more often after the intervention: 0.54 versus 1.01 (ratio of means 1.88; 1.02 to 3.48). Diagnosis studies were used less often: 0.54 versus 0.21 (ratio of means 0.38). No other study type use changed significantly. Chief Residents felt that they were more "able to use primary literature during morning report" mean pre- and post-scores 3.33 versus 4.8 (p=0.05).
CONCLUSIONS: Morning report provides an excellent opportunity to model the importance of using evidence in patient care. An intensive intervention increased Chief Residents' mention of study methodology and their self-assessed ability to use evidence in morning report, but did not significantly increase the overall use of evidence. Other methods of reinforcing and increasing evidence use during teaching sessions needs to be explored.

INCREMENTAL VALUE OF ADDING PERFUSION IMAGING TO EXERCISE STRESS TEST IN LOW TO INTERMEDIATE RISK VETERANS: ANALYSIS OF COST EFFECTIVENESS AND PRACTICE PATTERNS. A.R. Kottam[1]; M. Reddy[1]; P. Vaitkevicius[1]; M. Patwardhan[2]; D. Thatai[1]. [1]Wayne State University/Detroit Medical Center/VA Medical Center, Detroit, MI; [2]Duke University, Durham, NC. *(Tracking ID # 157112)*

BACKGROUND: Studies have shown that in patients with a low to intermediate risk of Coronary Artery Disease (CAD) and with a normal resting electrocardiogram (ECG), performing a Myocardial Perfusion Imaging (MPI) with a routine Exercise Stress Test (ETT) adds little prognostic information. Our objective is to assess the appropriate use of MPI for veterans with low to intermediate risk for CAD, to hypothesize that a step-wise diagnostic approach in test selection would limit inappropriate use of MPI and result in cost savings, and also to analyze the practice patterns at a VA Medical Center.
METHODS: A retrospective study of the 469 consecutive patients referred for an exercise MPI during the years 2001 and 2002 was conducted at the VA Medical Center, Detroit. A total of 207 patients with a mean age of 56.2 ± 9.4 yrs were found to have a low to intermediate pre-test likelihood of CAD and a normal resting ECG, who comprised the study group.
RESULTS: Of the 207, 167 (81%) had a normal ETT, 126 (75%) of which had a normal MPI and 41 (25%) had an abnormal MPI. Both the groups did not differ with each other with respect to parameters such as Framingham score, number of medications for HTN, duration of exercise, peak heart rate or the double product (chi-square, t-test). During a mean follow-up of 2.89 ± 1.01 yrs, one cardiovascular event (NSTEMI) was noted in the group with a normal ETT with a normal MPI and no events in the group with an abnormal MPI. Among the 207, 40 had an abnormal ETT and 23 (57.5%) of these had an abnormal MPI. A mean follow-up of 2.6 years showed 8 revascularizations (7 CABG, 1 PCI) in this group. Those with an abnormal ETT were older (55.4 ± 9.4 yrs vs. 59.5 ± 8.8 yrs, p=0.13) and had lower HDL levels (51.5 ± 14.6 vs. 46.9 ± 9.8 mg/dl, p=0.0187) when compared to those with a normal ETT. The addition of MPI to the results of an ETT added little predictive value. Using a step-wise strategy by performing an MPI only in those patients with an abnormal ETT would have resulted in a potential cost saving of $158, 453 (59.8%). It was found that non-cardiology primary care providers ordered 174 (84.1%) of the 207 tests.
CONCLUSIONS: In veterans with low-intermediate pretest likelihood of CAD with normal resting ECG, the potential benefit of adding MPI to routine exercise ECG is significantly small, as shown by the fact that 166 of the 167 subjects did not have any cardiovascular event during the follow-up period. A step-wise diagnostic approach would have resulted in significant cost savings and would likely not have compromised the diagnostic yield or prognostic information. A majority of these tests were ordered by non-cardiology primary care providers. Our study emphasizes the need for an educational intervention for all the primary care providers to increase the awareness of the step-wise strategy for appropriate test selection.

INFLAMMATORY MARKERS MAY AFFORD ADJUNCTIVE VALUE TO FRAMINGHAM RISK SCORE. S.H. Orakzai[1]; R.H. Orakzai[1]; K. Nasir[1]; J.M. Carvalho[2]; R. Meneghello[3]; R.D. Santos[3]; R.S. Blumenthal[4]. [1]University of Pittsburgh, Pittsburgh, PA; [2]Hospital Albert Einstein, São Pailo, ; [3]University of Sao Paulo, Sao Paulo, ; [4]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 152738)*

BACKGROUND: Cardiovascular disease (CVD) is the leading cause of death in the western world. The Framingham Risk Score (FRS) is widely recommended to estimate global risk for coronary heart disease (CHD) events. FRS takes into account major CHD risk factors such as sex, age, blood pressure, total choles-

terol (TC), high density lipoprotein cholesterol (HDL-C), diabetes and smoking behavior. However, classic risk factors do not account for all incident coronary events. Half of all myocardial infarctions occur in persons with normal plasma lipid levels. Thus, the search is underway for additional biologic markers, especially inflammatory markers as inflammation is implicated in the pathogenesis of atherosclerosis and acute coronary syndromes. There is a strong and independent association between white blood cell (WBC) count and CHD risk. However, the relationship between WBC count and FRS remains unclear.
METHODS: This is a cross-sectional study on a consecutive sample of 520 asymptomatic white men (mean age: 46 ± 7 years) without history of CHD who presented for cardiac risk assessment in Sao Paulo, Brazil. The study population was divided into WBC (-10^9 cells/L) quartiles: 1st quartile: 3.1–5.3, 2nd quartile: 5.4–6.1, 3rd quartile: 6.2–7.1, 4th quartile: ≥7.2. Subjects were also divided into tertiles according to the 10 year FRS: 1st tertile (low risk < 5%, n = 180, 35%), 2nd tertile (intermediate risk 5–12%, n = 210, 40%), 3rd tertile (high risk ≥13%, n = 130, 25%). WBC count ≥75th percentile (7.24×10^9cells/L) was considered as cutoff for an elevated WBC.
RESULTS: The mean calculated 10-year CHD risk was 9.4 ± 7.9%. Those with higher FRS were more likely to be older, have higher blood pressures, worse lipid profiles and more likely to be smokers. The mean WBC count ($\times 10^9$ cells/L) was 6.34 ± 1.58. The correlation coefficient (r) between FRS and WBC count was 0.18 (p = 0.02). Among individual components of the FRS, WBC correlated minimally with smoking status (r = 0.12, p = 0.003), systolic blood pressure (r = 0.07, p = 0.1) and high density lipoprotein cholesterol (r = −0.06, p = 0.1). However, no correlation was observed with age (p = 0.3) and total cholesterol (p = 0.5). Nearly one third (31%) of men with FRS < 5% had a WBC count in the first quartile compared to 20% of those classified as high risk (FRS ≥ 13%). On the other hand, the prevalence of elevated WBC count (4th quartile) increased across higher FRS categories (18%, 23%, 32%), with the difference in overall distribution demonstrating a trend towards significance (p = 0.09).
CONCLUSIONS: Thus, WBC correlates weakly with FRS in asymptomatic men. Since WBC count is strongly related to CHD, our results reinforce that inflammatory biomarkers afford adjunctive value to FRS and maybe used to improve CHD risk stratification. C-reactive protein has emerged as a strong independent marker for further cardiovascular events. However, WBC is inexpensive, universally available and most commonly used in clinical practice. The WBC count has been shown to be as good a predictor of myocardial infarction as is the total serum cholesterol level. WBC count may reflect different aspects of the CHD risk, which might not be captured by the traditional cardiovascular risk factors used in calculating FRS. Further studies are needed to better define the value of this common marker of inflammation as a predictor rather than merely an indicator of disease.

INSURANCE INSTABILITY AND USUAL SOURCE OF CARE AMONG CHRONICALLY ILL MEDICAID PATIENTS. R. Solotaroff[1]; B. Wright[2]; M. Carlson[3]; T. Edlund[4]; J. Smith[4]. [1]Portland VA Medical Center, Portland, OR; [2]Providence Health System, Portland, OR; [3]Portland State University, Portland, OR; [4]Oregon Health Policy and Research, Portland, OR. *(Tracking ID # 153682)*

BACKGROUND: Insurance instability has been shown to have a negative effect on access to and utilization of needed health care services, yet little is known about the extent to which these effects are mitigated by having a usual source of care (USOC), particularly among the chronically ill. We examine the relative effects of insurance instability and a USOC on health care access and utilization among chronically ill, low income patients enrolled in the Oregon Health Plan (OHP), Oregon's Medicaid program.
METHODS: A two-wave prospective cohort survey conducted in October 2003 and November 2004 assessed health care access and utilization of 1113 chronically ill (including diabetes, asthma, CHF, and COPD) adults who were enrolled in the OHP as of February 2003. Respondents were stratified into 4 groups based on OHP coverage over an 18-month period: continuously enrolled; 1–6 month insurance gap, 7–12 month gap, and 13–18 month gap. Multivariable logistic regression models, adjusted for age, sex, income, education, concurrent depression and presence of USOC, were used to determine the association between length of insurance gaps and differences in health care access and utilization.
RESULTS: Of the 1113 respondents, 674 reported having a USOC other than the ED over the study period, and 329 had diabetes. Even when controlling for the presence of a USOC, insurance instability was a significant predictor of unmet health need, restriction of medications, fewer PCP visits, and less frequent home glucose testing (see Table). These increased odds were nearly exclusive to those with gaps of 7 months or longer. Having a USOC decreased the odds of unmet health need and increased the odds of receipt of a PCP visit and testing of HbA1c. USOC had no effect on the odds of unmet prescription need or daily glucose testing.
CONCLUSIONS: These results reveal the potential negative impact of insurance gaps, particularly those 7 months or longer, on health care access and utilization among the low income and chronically ill. These results also suggest that a USOC mitigates, but does not eliminate some of these negative effects. Policymakers debating "care versus coverage" strategies may consider that a USOC may be less likely to assist in attainment of medications and appropriate home glucose monitoring, though it does increase odds of access to other clinical services, such as PCP visits. However, as the length of coverage gaps increases, this access to health care services declines, even in the presence of a USOC.

Predictors of Health Care Access and Utilization *Indicates Significant OR p < .05

	Unmet Health Need	Unmet Medication Need	At Least One PCP Visit in 12 mo.	Checks Glucose at Least Daily	At Least One HbA1c in 12 mo.
Continuous OHP Coverage (referent)	—	—	—	—	—
Left OHP 1-6 mo. gap	1.83* (1.17–2.86)	1.47 (.92–2.35)	.84 (.42–1.69)	.69 (.27–1.75)	1.18 (.35–3.94)
Left OHP 7-12 mo. gap	8.60* (4.80–15.42)	3.74* (2.01–6.97)	.47* (.24–.91)	.28* (.12–.69)	.66 (.24–1.80)
Left OHP 13+mo. gap	6.16* (3.78–10.06)	4.61* (2.62–8.11)	.20* (.12–.34)	.47* (.22–.998)	.514 (.22–1.21)
Has USOC	.60* (.42–.87)	1.19 (.82–1.70)	3.21* (2.06–4.99)	1.19 (.66–2.14)	2.44* (1.25–4.78)

INTEGRATING END-OF-LIFE CARE EDUCATION INTO AN EXISTING MEDICAL SCHOOL CURRICULUM IMPROVES KNOWLEDGE AND ATTITUDES. W.G. Evans[1]; D. Barnard[1]; J.E. Williams[1]; J.E. Bost[1]; R.M. Arnold[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 151229)*

BACKGROUND: End-of-life care education is valued nationally by educators, students, and accrediting bodies, but is largely inadequate. At the University of Pittsburgh SOM we integrated end-of-life care education throughout the existing curriculum rather than adding a required course or rotation. To evaluate this approach, we surveyed first and fourth year students from 2002 to 2005 about their end-of-life care attitudes and knowledge.
METHODS: We integrated didactic education into problem based learning sessions (yrs 1–2) and noon resident-student conferences (yrs 3–4). Palliative care faculty on hospital consult services provided clinical education by involving medical students from consulting services in their evaluations. Resident and faculty supervisors attended communication skills conferences and were sent educational emails. Our survey contained 8 validated 4 point Likert scale attitude items and 24 knowledge items about pain and symptom management, ethics, treatment appropriateness, and hospice, 8 of which had been used in a national sample of internal medicine residents and faculty. Attitude responses were collapsed into agree-disagree and compared with Fisher's exact test. Percent correct for knowledge items was compared with t-tests.
RESULTS: Response rate was 42% to 78% per class per year. Complete attitude data was available for 433 first and 379 fourth year students and complete knowledge data for 412 first and 241 fourth years. All students had generally positive attitudes. Fourth years' attitudes were more positive than first years' on items 1, 4, and 5 (Table 1). The mean percent correct for knowledge items was 48+/−11 for first and 72+/−12 for fourth year students, p < 0.001. Both classes scored highest on ethics and lowest on pain items. Compared to the national sample of internal medicine residents and faculty, our fourth years scored the same or higher. Negative attitudes toward end-of-life care were associated with lower knowledge: knowledge scores were 5-15% lower in fourth years who agreed with attitudes 4 or 5 or disagreed with attitudes 1, 2, or 3, p < 0.05.
CONCLUSIONS: Fourth year students had more positive attitudes and higher knowledge than first years and comparable knowledge to a national sample of internal medicine residents and faculty. Integrating end-of-life care instruction into pre-existing medical school curricula is feasible and effective. Negative attitudes correlate with lower knowledge; educational interventions must target both attitudes and knowledge.

SELECTED ATTITUDES

Item	Attitude	% Who Agree MS1	% Who Agree MS4
1	I dread having to deal with the emotional distress of family members of a patient at the end of life.	44	24*
2	I feel guilty after a patient's death.	34	34
3	Caring for dying patients is depressing.	58	54
4	Depression is treatable among patients with terminal illness.	91	96*
5	Physicians have a responsibility to help patients at the end of life prepare for death.	93	98*

*p < 0.005 vs. MS1

INTEGRATING RESIDENCY TRAINING AND DIABETES SHARED MEDICAL APPOINTMENTS. S. Kirsh[1]; S. Watts[1]; D. Aron[2]; E. Fine[2]. [1]Cleveland VAMC, Cleveland, OH; [2]Louis Stokes Cleveland VA Medical Center, Cleveland, OH. *(Tracking ID # 152999)*

BACKGROUND: Shared Medical Appointments (SMAs) for patients with diabetes have been associated with improved patient outcomes and self-manage-

ment skills and improved provider satisfaction. Although trainee performance in meeting recommended targets for glycemic control lag behind that of faculty physicians, involvement in SMAs may offer resident physicians valuable opportunities for managing diabetic patients. Our purpose was to evaluate the impact and educational value of resident participation in SMAs.
METHODS: Patients identified in a diabetes registry with A1c>9, and/or systolic blood pressure (SBP) >160, and/or LDL-c>130 were invited to participate in diabetes SMAs designed by a multidisciplinary team. The goals of each session were to improve diabetes A1c, SBP, LDL-c, aspirin use, self-management skills and teach goal setting. Patients were informed of their A1c, LDL-c, SBP, serum creatinine and results of foot and eye examinations. After reviewing these results in a group setting, patients identified a single behavior changing self-management goal. Junior and senior Internal Medicine residents were integrated into SMAs and encouraged to contribute to collaborative patient medication management, teach self-management goal setting and facilitate each patient group. Nine residents each participated in between 1–6 SMA group sessions. We used a pre/post test study design and paired *t*-tests to assess change in A1c, SBP, and LDL-c; statistical process control was used to assess stability of the outcomes before and after integration of residents into SMAs. In-depth interviews with resident physicians were conducted to determine which aspects of their experience provided the greatest educational benefit.
RESULTS: Of 112 patients approached, 54 agreed to participate (48%). 54 patients (94% male; mean age 59.93) participated in 90-minute visits with up to 12 (mean 8) patients per group. Prior to resident participation, mean patient SBP and A1c improved from 147 to 132.5 ($P<0.01$) and from 10.4 to 8.9 ($p<0.01$), respectively (paired *t*-test). LDLc fell from 121.6 to 99.3 ($p=.11$). 100% of patients documented a behavior changing self-management goal. All eligible were administered aspirin and had a completed foot examination. Patients actively participated in the groups. No diminution of A1c reduction was observed before and after residents (1.1 and 1.0, $p=0.9$), respectively. We note that residents reported greater interest in providing patient-centered care for their continuity clinic patients and found SMAs important for developing skills in teaching self-management, facilitating a patient group and promoting interdisciplinary provider communication.
CONCLUSIONS: SMAs offer resident physicians with an important educational opportunity to develop skills in fostering patient self-management and in working as part of a multidisciplinary team. Our results suggest that resident integration into SMAs also offer an important and valued educational experience for learning how to provide patient-centered care.

INTENSIVE TOBACCO DEPENDENCE TREATMENT CAN SAFELY OVERCOME HIGH DEPENDENCE AMONG SMOKERS WITH MEDICAL AND PSYCHIATRIC ILLNESSES. M. Koganti[1]; M.B. Steinberg[2]. [1]University of Medicine and Dentistry of New Jersey, Robert Wood Johnson Medical School, New Brunswick, NJ; [2]University of Medicine and Dentistry of New Jersey, Robert Wood Johnson Medical School and School of Public Health, New Brunswick, NJ. *(Tracking ID # 154845)*

BACKGROUND: More than 400,000 Americans die from cigarette smoking annually. Smoking cessation effectively decreases overall mortality and morbidity, especially in patients with cardiovascular and pulmonary diseases. However, smokers with these illnesses often have the most difficulty in quitting, yet are under-prescribed cessation medications for fear of adverse reactions. We evaluated cessation outcomes and rates of adverse medication events among patients with various medical and psychiatric illnesses treated in a tobacco treatment clinic.
METHODS: This study is retrospective cohort analysis of 326 smokers treated at a tobacco specialty clinic from 2001–2003. Data regarding demographic characteristics, smoking behavior, medical & psychiatric illnesses, treatments utilized, and adverse events were obtained. Tobacco dependence treatment included cessation medications, behavioral counseling, and group interventions. Primary outcomes included abstinence over the previous 7 days at 4 weeks and 6 months. Patients lost to follow up were considered still smoking.
RESULTS: Subjects in the study had a mean age of 46 (range 18–79), and were predominantly female and caucasians. 42% of patients had some cardiovascular disease or risk factors, 22% pulmonary disease, 55% had psychiatric diseases and 5% had cancer. About 80% of the patients with cardiovascular and pulmonary risk factors smoked 20 or more cigarettes per day and 55% smoked within 5 minutes of waking in the morning. The overall abstinence rate at 6 months was 46%. There were no differences in the abstinence rates between patients who had the medical illnesses and those without these illnesses, except in patients diagnosed with depression (39% abstinent vs. 50% without depression; $p<0.05$). Patients age 65 and above had higher odds of abstinence (adjusted odds ratio (OR) =5.0; 95% confidence interval (CI) 1.1–23.0) compared with the patients in the younger age group, and patients with 7 or more clinical contacts had higher odds (OR=2.9; 95% CI 1.4–6.2) than those with less than 7 contacts. Patients using combination medications had 2.9–4.1 times the odds of abstinence compared to those using no medications. Patients with medical illnesses did not have a higher incidence of adverse reaction to the cessation medications including those with cardiovascular diseases or risk factors.
CONCLUSIONS: Abstinence rates for smokers with various medical and psychiatric diseases treated in a specialty clinic are similar to those of smokers without these diseases, despite having higher markers of dependence. Appropriately intensive interventions can effectively and safely treat this group of smokers

INTERACTIVE CME PROGRAM IMPROVES COMMUNICATION SKILLS OF PRACTICING PROVIDERS AND THEIR PERFORMANCE OF RISK BEHAVIOR ASSESSMENT. S. Zabar[1]; K. Hanley[1]; D.L. Stevens[1]; C. Ciotoli[2]; C. Griesser[2]; A.L. Kalet[1]. [1]New York University, New York, NY; [2]NYU School of Medicine, New York, NY. *(Tracking ID # 153521)*

BACKGROUND: Communication skills are of paramount importance in screening for high risk behavior and behavior change counseling, yet there are limited effective opportunities for practicing clinicians to improve their communication skills post- training. We designed a continuing medical education (CME) program to improve provider-patient communication skills, assess impact of screening practices of common high risk behaviors and measure patient satisfaction.
METHODS: We developed and evaluated a CME program for NYU's Student Health Center clinicians (12 MDs, 1 PA and 6 NPs). The program consisted of five 2-hour workshops at 4–6 week intervals focusing on communication skills in the context of the following topics:managing a difficult patient encounter, screening and assessment for depression and alcohol abuse, taking a sexual history and counseling for behavior change (smoking cessation). Each workshop included a didactic component and skills practice with simulated patients. Pre and post-program evaluation included a medical record review to assess screening and counseling practices, a validated patient satisfaction survey (ABIM 10), a participant satisfaction survey and a five- station standardized patient rated objective structured clinical exam (OSCE) one week before and 4 weeks after the workshops. Data was analyzed using paired t-tests and ranked sum tests.
RESULTS: Of the 19 participants in the program 15 completed the pre and post OSCE. In the OSCE, global communication skills improved ($p=0.004$). In addition, gains were detected in the specific domains of information gathering ($p=0.003$), relationship building ($p=0.01$) education and counseling ($p=0.02$). There was no change in case specific knowledge ($p=0.1$). Internal reliability of the OSCE was: communication skills ($r=.66$), case specific skills ($r=.61$), relationship development ($r=.81$), educational counseling ($r=.60$) and information gathering ($r=.64$). 66% of the participants felt the OSCE cases resembled real life encounters and 50% reported that the OSCE identified their strengths and weaknesses. Patients ($n=689$ pre and $n=383$ post) from all providers were surveyed with the ABIM 10. Greater then 85% of patients ranked clinicians as either very good or excellent in specific areas of communication pre and post-workshops and OSCEs. On a scale of 1 to 5 (1=strongly disagree and 5=strongly agree), participants ($n=14$) reported high satisfaction with the methods (4.6) and content (4.7) of the program and a 70% likelihood of changing their clinical practice. The chart audit (pre=96 charts, post=106 charts) revealed increases in detection of smoking, depressed mood, sexual activity of 8%, 5% and 14% respectively. Further analysis of the impact on clinical practice is ongoing.
CONCLUSIONS: An interactive skills-based continuing medical education program can improve clinicians' objectively-measured communication skills and their performance of risk behavior assessment with no detected impact on patient satisfaction.

INTERNAL MEDICINE AND GENERAL SURGERY RESIDENTS' ATTITUDES ABOUT THE ACGME DUTY HOUR REGULATIONS: A MULTICENTER STUDY. J.S. Myers[1]; L.M. Bellini[1]; J.B. Morris[1]; D. Graham[2]; J. Katz[3]; J.R. Potts[4]; C.M. Wiener[5]; K.G. Volpp[6]. [1]University of Pennsylvania, Philadelphia, PA; [2]Louis Stokes Cleveland VA Medical Center, Cleveland, OH; [3]Brigham and Women's Hospital, Boston, MA; [4]University of Texas Health Science Center at Houston, Houston, TX; [5]Johns Hopkins University, Baltimore, MD; [6]Philadelphia VA Medical Center, Philadelphia, PA. *(Tracking ID # 154301)*

BACKGROUND: The ACGME duty hour regulations represent the largest effort to reduce errors in teaching hospitals. Little is known about residents' perspectives on the effects of these regulations on medical errors, quality of care, or residency experiences.
METHODS: In 2005, a survey of 200 residents who trained both before and after work hour reform was conducted at six residency programs (three internal medicine, three general surgery) at five academic medical centers in the United States. Residents' attitudes about the effects of the ACGME duty hour regulations on the quality of patient care, residency education, and quality of life were measured using a survey instrument containing nineteen Likert scale questions graded on a scale of 1 to 5, where 1='decreased a lot' or 'strongly disagree' and 5='increased a lot' or 'strongly agree'.
RESULTS: The survey response rate was 80%. Residents report that while fatigue-related errors decreased slightly (mean score 2.6 surgery, 2.5 medicine), errors relating to reduced continuity of care significantly increased (mean score 3.5 surgery, 3.7 medicine). Residents reported that duty hour regulations decreased opportunities for formal education, bedside learning, and procedures to a small degree, but there was no consensus that graduates of programs post-duty hour reform would be less well trained. Residents, particularly surgical trainees, reported improvements in quality of life and reductions in burnout (mean score surgery 4.2, mean medicine 3.4).
CONCLUSIONS: Duty hour regulations have improved quality of life for residents. However, the quality of patient care and residency education has decreased according to many residents who trained both before and after work hour reform. Residents in medicine and surgery had similar opinions about the effects of duty hour reform.

INTERNAL MEDICINE RESIDENTS' CLINICAL AND DIDACTIC EXPERIENCES AFTER WORK HOUR REGULATION. L. Horwitz[1]; H.M. Krumholz[2]; S.J. Huot[2]; M.L. Green[3]. [1]VA Connecticut Healthcare System, West Haven, CT; [2]Yale University, New Haven, CT; [3]Yale University, Waterbury, CT. *(Tracking ID # 151563)*

BACKGROUND: Work hour limits for house staff were intended in part to improve resident clinical and educational performance. However, the effect of regulation on internal medicine inpatient clinical experience and didactic education nationally is unknown.

METHODS: We conducted a mail survey of chief residents at all accredited internal medicine residency programs outside New York State, which was previously subject to regulation. Outcomes included changes in weekly inpatient clinical experience (average patient load, admissions on call days, and admissions on other days); yearly inpatient experience (ward, float and elective time; inpatient obligations during outpatient rotations); and hours allotted to and attendance at didactic educational activities. We used descriptive statistics to analyze changes in weekly clinical experience and paired t-tests to analyze changes in yearly clinical and didactic experiences.
RESULTS: Response rate was 62% (202/324). Most programs (72%) reported no change in average patient load per intern after work hour regulation, but 48% redistributed house staff admissions through the call cycle. Of these, 64% decreased the number of admissions per intern on long call (the day interns have the most admitting responsibility), and 45% increased admissions on other days. Residents on outpatient rotations were given new ward responsibilities in 36% of programs. Mean third-year ward and float time (time spent caring for a different physician's patients) increased by 0.4 months (95% CI, 0.3 to 0.5; $p<.0001$), while mean third-year elective time decreased by 0.2 months (95% CI, -0.3 to -0.1; $p=.0008$). Mean weekly hours allotted to didactic educational activities did not change significantly after work hour regulation (12.7 before vs. 12.4 after, $p=.12$), but 56% of programs reported a decrease in intern attendance. Programs that added a float rotation after work hour regulation had greater changes than those that did not. They were more likely to have increased ward coverage during call-free rotations (53% vs. 27%, $p=.004$), had a greater increase in third-year ward and float time (0.8 months vs. 0.02, $p<.0001$), and had a greater decrease in resident attendance at educational activities (-6% vs. -2%, $p=.02$).
CONCLUSIONS: In response to work hour limits, many internal medicine programs redistributed inpatient clinical experience and reduced third-year elective time. Hours allotted to educational activities did not change but most programs saw a decrease in intern attendance at conferences. Programs that instituted a float rotation after work hour regulation were most affected.

INTERNATIONAL MEDICAL GRADUATES REPORT MORE DIFFICULTIES DELIVERING PATIENT-CENTERED CARE THAN US MEDICAL GRADUATES. S.L. Laird[1]; M.C. Beach[2]; L.A. Cooper[2]. [1]Johns Hopkins Bloomberg School of Public Health, Baltimore, MD; [2]Johns Hopkins University School of Medicine, Baltimore, MD. *(Tracking ID # 153842)*

BACKGROUND: International Medical Graduates (IMGs) comprise 25% of the U.S. physician workforce and are more likely to provide care for ethnic minorities and poor persons. Little is known, however, about their interpersonal competency relative to graduates of medical schools within the United States (USMGs). Patient-centered care, an important indicator of interpersonal healthcare quality, is characterized by good communication, trust, and partnership between patient and physician. This study examines whether IMGs are more likely than USMGs to perceive difficulties in their ability to perform patient centered care.
METHODS: The Maryland Study on Physician Experience with Managed Care was a cross-sectional statewide assessment of the experience of physicians with managed care conducted from July through November 2000. A total of 1225 physicians participated in a mailed survey that included measures of physician demographics, practice characteristics and experiences, and the patient-physician relationship. Underrepresented racial/ethnic groups were oversampled to ensure a broad representation of physicians. We performed a secondary analysis of these data and used logistic regression to assess the associations between physician IMG status and self-report of their ability to achieve good communication, trust, and partnership with their patients. We present estimated probabilities (Pr) of these outcomes among IMGs and USMGs.
RESULTS: Our sample included 1,192 physicians with data regarding IMG/USMG status; 71% were men, and 36% were IMGs. On average, IMGs were older than USMGs (55 yrs. vs. 49 yrs., $p<.001$). While IMGs were more likely than USMGs to be located in solo practices (50% vs. 26%), they were less likely to be located in group practices (33% vs. 48%, $p<.001$). The racial distribution among IMGs and USMGs differed; the majority of IMG physicians were Asian (61%), while the majority of USMG physicians were either White (47%) or African-American (35%) ($p<.001$). In unadjusted models, IMGs were less likely than USMGs to report they were able to communicate effectively with their patients (Pr 0.88 vs. Pr 0.92, $p=.008$), less likely to report they were able to form partnerships with their patients (Pr 0.74 vs. Pr 0.80, $p=.013$), and less likely to report they were able to engender trust from their patients (Pr 0.60 vs. Pr 0.77, $p<.001$). After adjusting for physician race, age, and practice type (solo, group, etc.), IMGs were 4% less likely than USMGs to report the ability to communicate effectively ($p=.140$), 4% less likely to report the ability to form partnerships ($p=.639$) with their patients, and 15% less likely to report the ability to engender trust ($p=.001$).
CONCLUSIONS: IMGs are less likely than USMGs to be confident in their ability to communicate effectively, form partnerships with their patients, and engender trust from their patients. While differences in perceptions of communication and partnership with patients are explained by physician demographic and practice variables, differences in perceived ability to engender trust from patients remain unexplained. Future research should explore whether patient ratings of trust in their physicians differ among patients of IMGs and USMGs and whether other differences in the interpersonal quality of care delivered by IMGs and USMGs exist. Because IMGs often care for underserved populations, this study suggests that interventions targeting IMG's patient-centered skills may be an important strategy for overcoming healthcare disparities.

INTERRELATIONSHIPS OF PSYCHIATRIC SYMPTOM SEVERITY, MEDICAL COMORBIDITY AND FUNCTIONAL STATUS IN PATIENTS WITH SCHIZOPHRENIA. L.A. Chwastiak[1]; R.A. Rosenheck[2]; J.P. McEvoy[3]; R.S. Keefe[3]; M.S. Swartz[3]; J.A. Lieberman[4]. [1]Yale University, New Haven, CT; [2]VA-NEPEC, West Haven, CT; [3]Duke University School of Medicine, Durham, NC; [4]Columbia University School of Medicine, New York, NY. *(Tracking ID # 155808)*

BACKGROUND: Patients with schizophrenia have increased rates of several chronic medical conditions, including diabetes mellitus, coronary artery disease and chronic obstructive pulmonary disease. It has been proposed that greater levels of psychiatric symptoms might lead to greater medical comorbidity because poor attention and poor insight might create an inability to self-monitor and follow medical regimens. This cross-sectional study aims to evaluate the interrelationships of psychiatric symptom severity, medical comorbidity and psychosocial functioning in a sample of patients with schizophrenia, utilizing the baseline data from the Clinical Antipsychotic Trials of Intervention Effectiveness (CATIE) trial.
METHODS: This cross-sectional study utilizes baseline data from a multi-site trial of antipsychotic pharmacotherapy, which collected data from more than 1400 patients with schizophrenia at over 50 sites in the US between 2001–2003. Bivariate correlations and multivariate regression models were used to determine associations between schizophrenia symptoms, depressive symptoms, neurocognitive impairment and two measures of medical comorbidity: the count of medical conditions and physical health status as measured by the physical component scale of the SF-12. The independent association between medical comorbidity and several measures of psychosocial functioning was also examined.
RESULTS: Overall, 58.4% of subjects had at least one medical condition: 20.2% had hypertension, 10.7% diabetes mellitus, and 9% of the sample had four or more medical conditions. Bivariate correlation analyses revealed highly significant moderate associations between the count of medical conditions and age (older patients had greater burden of medical illness) and gender (women had a significantly greater number of medical conditions). Increased medical comorbidity was associated with poorer neurocognitive functioning and greater depressive symptoms. An increased number of medical conditions was not, however, associated with more severe schizophrenia symptoms. Both the number of medical conditions and physical health status were statistically significant correlates of psychosocial functioning, but these effects were of small magnitude .
CONCLUSIONS: The findings of this study are consistent with the extensive literature describing the association between depression and chronic medical illness in primary care samples, and suggest that these relationships also exist for patients with schizophrenia. In this sample of persons with schizophrenia, medical comorbidity was a weaker correlate of psychosocial functioning and employment status than either psychotic symptoms, depression or neurocognitive impairment. Treatment of chronic medical conditions in this population might best be achieved by integrating medical illness management into a broader psychosocial treatment plan which comprehensively addresses all of these complex comorbidities.

INTIMATE PARTNER VIOLENCE: HOW DOES IT IMPACT DEPRESSION AND PTSD AMONG IMMIGRANT LATINAS?. K. Fedovskiy[1]; S. Higgins[2]; A. Paranjape[2]. [1]Emory University, Atlanta, GA; [2]Emory University, Department of Medicine, Atlanta, GA. *(Tracking ID # 154586)*

BACKGROUND: Intimate Partner Violence (IPV) is an important public health problem with significant mental health sequelae. Several studies have shown a high prevalence of IPV among underserved and underrepresented populations like the Latino community. Depression and post-traumatic stress disorder (PTSD) are the most common mental health problems experienced by survivors of IPV, yet there are little known about the specific mental health sequelae in Latino survivors of IPV. In this study, we sought to investigate the association between a history of IPV, depression and PTSD in a population of immigrant Latina women.
METHODS: Design: Cross sectional study. Participants: Latina women ages 18–64 seeking care at a primary care clinic that serves predominantly immigrant, Latino patients within a large, public hospital. Measures: Predictor variable: IPV, measured by the Index of Spouse Abuse (ISA). Outcome variables: 1) Depression, measured by the Center for Epidemiologic Studies Depression Scale and 2) PTSD, measured by the Post-traumatic Stress Diagnostic Scale. All measures were professionally translated into Spanish through the hospital's language service department. The measures were read to each subject by a trained research assistant, due to low literacy rates in this population. Odds ratios (ORs) were calculated to assess the effect of the predictor variable (IPV) on the outcome variables (Depression and PTSD). 95% confidence intervals (CI) were estimated for all ORs; a p value of 0.05 was used for all tests of significance.
RESULTS: 105 women participated in this study. The mean age was 38.5 years (SD 11.4). Almost all (89.5%) were uninsured and 33% reported IPV. The four-week incidence of depression was 45.7% while the prevalence of PTSD was 19%.There were no statistically significant differences in the demographic characteristics of abused and non-abused women. Abused women had almost 3 times the odds (OR 2.97; 95% CI, 0.97–9.1) of meeting PTSD criteria than non-abused women. No difference was found in the incidence of depression between women who reported IPV and those that did not (OR: 1.68; 95% CI 0.73, 3.85). Women meeting PTSD criteria were 10 times likelier than those not meeting PTSD criteria to also report depression (OR: 10.21, CI 2.17, 48.02).
CONCLUSIONS: In this study we have demonstrated that abused Latina women are more likely to experience PTSD, but not depression, than Latina women who are not abused. Depression and PTSD are co-morbid in this population irrespective of IPV status. Given that Latino immigrants can experience multiple

barriers to healthcare including language, immigration status and health insurance, this finding is of concern because abused and non-abused Latinas may not be receiving the mental health services they need. Our findings demonstrate a need for primary care clinic-based programs that provide mental health services for victims of IPV. Given the high co-occurrence of PTSD and depression in this population, primary care physicians should consider screening for PTSD in patients who are depressed

INTRAPERSONAL, FAMILY, SCHOOL AND COMMUNITY FACTORS PROTECTIVE AGAINST NEW ONSET DEPRESSION IN THE NATIONAL LONGITUDINAL STUDY OF ADOLESCENT HEALTH. B.W. Van Voorhees[1]; J. Ellis[1]; J. Gollan[1]; A. Basu[1]. [1]University of Chicago, Chicago, IL. *(Tracking ID # 154477)*

BACKGROUND: Twenty five percent of adolescents will experience an episode of depression before age 24. Despite the high prevalence and burden of the disorder, there are no public health or primary care level recomendations for adolescents and parents with regard to behaviors that may reduce the risk of onset. Few studies have identified protective factors for depression in a longitudinal, probability sample of United States adolescents. We used the National Longitudinal Study of Adolescent Health (AddHealth) public use data set to identify baseline factors that are associated with reduced risk of new onset major depression (MDD) at 1 year follow-up.
METHODS: This is a representative sample of United States adolescents (grades 7–12) that included a baseline survey (1995) and a 1 year follow-up survey (N=4,791 completed both surveys). Based on the Centers for Epidemiologic Studies Depression Scale (CES-D), we constructed a proxy measure for new onset MDD (follow-up survey) as our outcome (we excluded those who met MDD criteria at baseline). We conducted a logistic regression analysis with new onset MDD at 1-year follow-up as the outcome and baseline candidate protective factor in four major spheres of activity in adolescent life (intrapersonal, family, school, and community) adjusting for gender, ethnicity and socioeconomic status (results from multivariate model).
RESULTS: The sample was 48% male (mean age of 15.7 years) and 57% white, 23% African American, 11% Hispanic, 1% American Indian, 3% Asian, and 5% multiracial. Intrapersonal protective factors included "getting enough sleep" (OR 0.45 95% CI 0.33, 0.68 versus 1.0 for no), excellent self-rated health (OR 0.10 95% CI 0.19, 0.49 versus 1.00 for "poor"), and agreeing (I am) "doing everything just right," (e.g. self-esteem, OR 0.19, 95% CI 0.05, 0.75 versus 1.00 for strongly disagree). With regard to family, believing that "my family" very much/quite a bit "has fun together" (OR 0.15, 95% CI 0.07, O.33), "understands me" (OR 0.27, 95% 0.10, 0.86), and "pays attention to me" (OR 0.07, 95% CI 0.02, 0.23) predicted low risk of MDD (versus not at all, OR=1.0). In the school setting, protective factors included strongly agreeing (versus strongly disagree, OR 1.00) with the statements "I feel socially accepted" (OR 0.04, 0.01, 0.18),"close to classmates" (OR 0.20, 95% CI 0.08, 0.55), "happy at school" (OR 0.10, 95% CI 0.04, 0.19). In the community, believing adults "very much care about you" predicted reduced risk (OR 0.14 95% CI 0.06, 0.43).
CONCLUSIONS: Intrapersonal, family, school and community factors measured at baseline predict reduced incidence of new onset MDD at one year follow-up. These data provide targets for interventions at the community and primary care level in each of these spheres of adolescent life and reinforce the importance of preventive interventions to enhance protective factors. Multicomponent behavioral interventions that enhance adolescent physical well-being, family function, engagement with school and connect adolescents with adults and other youth may be most effective.

IS HEALTH LITERACY LEVEL PREDICTIVE OF PRESCRIPTION FILLING BEHAVIOR OR MEDICATION ADHERENCE?. A.M. Arozullah[1]; S.D. Lee[2]; J. Kim[3]; T.A. Lee[4]. [1]Jesse Brown VA Medical Center, Chicago, IL; [2]University of North Carolina at Chapel Hill, Chapel Hill, NC; [3]University of Illinois at Chicago, Chicago, IL; [4]Northwestern University, Chicago, IL. *(Tracking ID # 153387)*

BACKGROUND: The relationship between health literacy level and medication adherence in general medical populations is unknown. This study examined whether health literacy level predicts medication adherence or prescription filling behavior.
METHODS: We enrolled medical inpatients at a VA Hospital between 8/1/01–4/1/03. We assessed health literacy (REALM), social support, health status (SF-12), socio-demographics, and previous utilization through inpatient interviews. We also asked how often participants forgot or remembered to take medications and forgot or remembered to refill prescriptions on time. Reviewers blinded to interview results, queried VA pharmacy records to calculate medication possession ratios (MPRs) for the prior year. Each prescription was classified as 'adherent' if MPR >80%. We used multivariable logistic regression models to determine predictors of self-reported measures (unit of analysis=participant) and 'adherent' MPR (unit=prescription). The MPR model included a random effect for clustering by participant.
RESULTS: There were 400 participants with 58% having<9th grade and 7% having<4th grade health literacy. Fifty-three percent reported forgetting and 78% reported always taking medications. Literacy level was not predictive of self-reported medication adherence. Lower positive-interaction support (OR 0.94, 0.91–0.97) and higher informational support (OR 1.06, 1.02–1.09) were predictive of forgetting medications. Greater outpatient visits (OR 1.08, 1.04–1.13) were predictive of taking medications. For self-reported prescription filling behavior, 28% forgot and 74% always refilled prescriptions on time. Compared to >8th grade, those with <4th grade literacy were more likely to forget (OR 3.0, 95% CI, 1.2–7.4) and less likely to refill (OR 0.37, 0.14–1.02) prescriptions. Higher mental health status (OR 1.03, 1.01–1.04) was predictive of refilling prescriptions. Pharmacy records revealed 792 prescriptions for 239 participants with 42% 'adherence' (MPR>80%). Self-reported forgetting to refill prescriptions was negatively associated (OR 0.54, 0.30–0.98) with 'adherent' MPR. Literacy level was not predictive of 'adherent' MPR.
CONCLUSIONS: Health literacy level was not predictive of self-reported medication adherence. However,<4th grade health literacy was predictive of forgetting to refill prescriptions, and this self-reported measure was negatively predictive of 'adherent' MPR. Future research should assess prescription refill acquisition processes as potential barriers to medication adherence among patients with lower health literacy. The frequency of forgetting to refill prescriptions may be a valid self-reported measure of actual refill behavior. Assessing the social support available to non-adherent patients may detect conditions affecting medication adherence.

IS LOWER HOSPITAL MORTALITY AMONG BLACKS UNIQUE TO THE VETERANS ADMINISTRATION?. D. Polsky[1]; J.R. Lave[2]; A. Jha[3]; M.V. Pauly[4]; Z. Chen[5]; L. Cen[1]; H. Klusaritz[6]; K. Volpp[7]. [1]Philadelphia VAMC/CHERP, Philadelphia, PA; [2]University of Pittsburgh, Pittsburgh, PA; [3]Harvard University, Boston, MA; [4]The Wharton School, University of Pennsylvania, Philadelphia, PA; [5]Center for Clinical Epidemiology and Biostatistics, University of Pennsylvania, Philadelphia, PA; [6]CHERP - Philadelphia VA Medical Center, Philadelphia, PA; [7]Philadelphia VAMC/CHERP/University of Pennsylvania, Philadelphia, PA. *(Tracking ID # 153759)*

BACKGROUND: 30-day mortality following hospital admission within VA is lower for black patients relative to white patients; a finding that contrasts sharply with the lower treatment levels and life expectancy for U.S. blacks. This differential finding may be a result of VA's integrated health care system which reduces barriers to care through subsidized comprehensive health care services. Our objective was to examine the role of systems of care in racial health disparities by comparing 30-day mortality following hospital admissions to VA and non-VA hospitals.
METHODS: We examined 30-day mortality rates for blacks and whites following hospital admissions for six medical conditions between 1996 and 2001 in all acute care VA hospitals, and in acute care non-VA hospitals in Pennsylvania and California. We chose conditions that are part of the AHRQ Inpatient Quality Indicators: acute myocardial infarction (AMI), congestive heart failure (CHF), gastrointestinal bleeding, hip fracture, pneumonia, and stroke. We used logistic regression to adjust for differences in demographic factors, comorbidities, and race within VA and non-VA hospitals. Further, we assessed interactions involving race, hospital system, and age.
RESULTS: There were 346,301 VA patients and 2,935,543 non VA patients in our dataset. Among those under 65, blacks and whites had similar 30-day mortality for 5 of 6 conditions in both VA and non-VA hospitals. For example, odds ratios for AMI: VA:1.13 [95% CI: 0.94–1.37] and non-VA:0.95 [0.86–1.04]. Among those over age 65, blacks were less likely to die than whites in both VA and non-VA hospitals (Odds ratio AMI: VA:0.81 [0.72–0.91]; non-VA:0.84 [0.79–0.88]). The gap in mortality between blacks and whites was comparable between VA and non-VA hospitals in 4 of the 6 conditions. In the other two conditions, CHF and pneumonia, this gap in mortality favored blacks more in non-VA hospitals compared to VA hospitals.
CONCLUSIONS: These findings suggest that factors associated with better short-term outcomes for blacks are not unique to VA. These results suggest that interventions aimed at reducing health disparities and improving the well-being and life expectancy of blacks may need to focus on settings besides hospital care.

IS PATIENTS' PREFERRED INVOLVEMENT IN HEALTH DECISIONS RELATED TO OUTCOMES FOR PATIENTS WITH HIV?. M.C. Beach[1]; J. Keruly[1]; R.D. Moore[1]. [1]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 157061)*

BACKGROUND: Previous studies have suggested that patients who are more involved in their medical care have better outcomes. The purpose of this study is to compare healthcare processes and outcomes for patients with HIV based on their preferred level of involvement in health decisions.
METHODS: We interviewed 569 patients who were awaiting appointment with their primary care provider at an urban HIV clinic using a computer-based survey. We asked patients to indicate how they preferred to be involved in medical decisions using the categories: 'the doctor takes initiative and decides what is best for me,' 'the doctor considers some of my ideas but still makes most final decisions,' 'the doctor and I make final decisions together' or 'I make all final decisions.' We also asked patients to rate the quality of communication with their HIV provider (whether the HIV provider listens and explains things such that the patient can understand) and to report their receipt of and adherence to antiretroviral therapy (HAART).
RESULTS: Patients had a mean age of 38.9 years, and were mostly male (66%) and African American (84%). Most patients preferred to share decisions with their provider (54%), but some preferred that their physician make most or all decisions (36%) or that they make all final decisions alone (10%). Older patients were less likely to prefer an active role than younger patients, but there was no significant difference in patient preference for decision making based on gender or race. Patients who prefer that their provider make all or most decisions are equally likely to report that their HIV provider listens to them and to be on HAART than those who prefer to share decisions, but are not as likely to report that their provider explains things in a way they can understand or to adhere to HAART. Patients who prefer to make all decisions alone are least likely to report

being listened to, to have things explained well, to be on HAART, and to adhere to HAART. In multivariate models adjusting for patient age, gender, and race, patients who prefer to make all decisions and those who prefer their doctors make decisions are less likely than those who prefer to share decisions to be adherent to HAART. Further adjustment for communication quality did not change this association.
CONCLUSIONS: Although previous research suggests that more patient involvement in health care decisions is better, this benefit may be reduced when the patient does not want the provider to be involved as well. Future research should explore the extent to which patient preferences for involvement in decisions are influenced by, or a result of, their physician's communication style. The extent to which this preference is modifiable so as to improve outcomes is unknown.

	Pt prefers. . .		
	MD Decides	Decides Together	Pt Decides
% listened to	81.2	85.1	70.7
% explained well	75.7	82.9	72.4
% on HAART	79.7	81.2	72.4
% adherent to HAART	75.2	84.9	73.8

IS PAY FOR PERFORMANCE EFFECTIVE IN IMPROVING THE QUALITY OF HEALTH CARE?. L.A. Petersen[1]; L. Woodard[1]; T. Urech[2]; C. Daw[3]; S. Sookanan[2]. [1]Baylor College of Medicine, Houston, TX; [2]VA Medical Center, Houston, TX; [3]Houston VAMC, Houston, TX. *(Tracking ID # 153986)*

BACKGROUND: Most physicians and hospitals are paid the same regardless of the quality of the health care they provide, producing no financial incentives for quality, and, in some cases, disincentives for quality. There are increasing numbers of programs that provide explicit financial rewards for performance on measures of quality. The goal was to systematically review empirical studies assessing the effect of explicit financial incentives for improved performance on measures of health care quality.
METHODS: We searched the English-language literature in PubMed from January 1, 1980, to November 14, 2005, and reference lists of retrieved articles. We selected empirical studies of the relationship between explicit financial incentives designed to improve a measure of health care quality and a quantitative measure of health care quality. We categorized studies based upon the level of the incentive (whether directed at the individual physician, the provider group, or the health care payment system), and the type of quality measure that was rewarded. Positive studies were those for which all measures of quality demonstrated a statistically significant improvement with the financial incentive. Studies with partial effects showed improved performance on some measures of quality but not others. Negative studies were those for which all measures of quality demonstrated a statistically significant decrease in quality with the financial incentive.
RESULTS: Thirty-three articles met the inclusion criteria and were reviewed by at least two reviewers. Sixteen articles that met the eligibility criteria were subsequently excluded for at least one of the following reasons: 1) there was no analysis of a concurrent comparison group; and 2) there was no comparison of groups at baseline on the quality indicator. Thirteen of the seventeen remaining studies examined process-of-care quality measures, and most of these were for preventive services. Five of the six studies of physician-level financial incentives and seven of nine studies of provider group-level financial incentives found partial or positive effects of financial incentives on measures of quality. One of the two studies of incentives at the payment system level found a positive effect on access to care, and one showed evidence of a negative effect on access to care for the sickest patients. In all, four studies suggested unintended effects of incentives. We found no studies examining the optimal duration of financial incentives for quality or the persistence of their effects after termination of the incentive. We only found one study that addressed cost-effectiveness.
CONCLUSIONS: Despite widespread implementation, there are few empirical studies of explicit financial incentives for quality. This literature review suggests some positive effects of financial incentives for quality at the physician level, the provider group level, and the health care payment system level. Ongoing monitoring of incentive programs is critical to determine the effectiveness of financial incentives for quality and whether incentives are producing unintended effects on quality of care. Further research is needed to guide implementation of financial incentives for health care quality and to assess their cost-effectiveness.

IS RESIDENT STRESS ASSOCIATED WITH SUBOPTIMAL CARE?. C.A. Feddock[1]; A.R. Hoellein[1]; J.F. Wilson[1]; C.H. Griffith[1]. [1]University of Kentucky, Lexington, KY. *(Tracking ID # 153321)*

BACKGROUND: A proposed reason for the unacceptably high rate of medical errors in today's hospitals is that fatigued resident physicians working long hours make more mental mistakes. In part because of this concern, the ACGME has imposed duty hour restrictions for all residents. Global resident surveys have also implicated heavy workload and burnout as contributing to medical errors. Given that stress may increase with the new duty hour restrictions (greater workload and time pressure), the impact of stress on patient care is a critical issue. We hypothesized that residents reporting higher levels of stress would more frequently report suboptimal patient care practices.
METHODS: For two consecutive years (2004 and 2005), research assistants surveyed residents working on our internal medicine inpatient teams following morning attending rounds. Both residents and interns were asked to complete a brief questionnaire, which included four statements to rate their current stress level (e.g. this has been a stressful day, 1=strongly disagree and 5=strongly agree) and three questions to assess the impact of that stress on their life and work (e.g. indicate how fatigue has interfered with your work, 0=does not interfere and 10=completely interferes). Further, residents were asked if they had omitted any patient care duties (e.g. care discussions with patient, ordering of a consult, etc), whether any medical errors affected a patient (e.g. Diagnostic–problem or delay in determining the correct diagnosis) and whether any of those resulted in suboptimal care (medical complication, prolonged stay, etc). Data was analyzed using descriptive statistics and simple correlations to assess the association of stress ratings with the patient care variables.
RESULTS: A total of 271 resident surveys were returned from 163 inpatient team days. Overall, residents reported moderate levels of stress and how that stress impacted their life. The mean stress level across all four stress statements was 2.6 ± 1.1 and the mean impact of that stress was 5.2 ± 2.2 across the three impact of stress on life and work statements. Overall, 21% reported that they had omitted some aspect of patient care, 20% reported a medical error affected a patient on their team, and 10% reported resultant suboptimal care. Resident stress level correlated highly with medical errors affecting patient care ($p=.007$) and marginally with suboptimal care ($p=.09$). Stress impacting life and work correlated highly with omitting certain patient care duties ($p=.03$), medical errors affecting patient care ($p=.04$) and suboptimal care ($p=.04$).
CONCLUSIONS: Stress is negatively associated with important patient care variables (omissions in patient care, medical errors and suboptimal care). Perhaps even more important than the reported level of stress is the impact of that stress on an individual's life. With current ACGME regulations, some have suggested that resident stress and workload will increase given similar work duties but less available time. The impact of duty hour regulations must be closely monitored in our teaching hospitals in order to ensure a high level of patient care.

IS THE RISK OF CORONARY HEART DISEASE ASSOCIATED WITH OBESITY MODIFIABLE BY TREATMENT OF OBESITY-RELATED RISK FACTORS?. K. Bibbins-Domingo[1]; P.G. Coxson[1]; J.M. Lightwood[1]; L.W. Williams[2]; L. Goldman[1]. [1]University of California, San Francisco, San Francisco, CA; [2]Brigham and Women's Hospital, Boston, MA. *(Tracking ID # 152912)*

BACKGROUND: The current obesity epidemic in the US may increase rates of coronary heart disease (CHD) events. Whether the obesity-related risk of CHD can be reduced by treating associated CHD risk factors is not known.
METHODS: The CHD Policy Model is a state-transition, computer simulation of the US population, age 35 and over. Inputs to the Model include national survey data on the joint distribution of risk factors, rates of CHD events, and case fatality rates, β coefficients for risk factors based on Framingham and other studies, and cost estimates from Medicare, state surveys, published studies, and the Blue Book. The Model is calibrated to reproduce, in its baseline year of 2000, all key outcomes in the US to within $<1\%$ and the results of relevant clinical trials. Based on the latest epidemiologic data, we assumed that higher body mass index (BMI) was not independently associated with CHD, but was linked to higher diastolic blood pressure (DBP), higher low density lipoprotein (LDL) concentration, lower high density lipoprotein (HDL) concentration, and an increased risk of diabetes. We simulated four scenarios from 2000–2030 among the US population without pre-existing CHD: 1)no increase in BMI; 2)annual BMI increases of $0.08\,kg/m^2$ in men and $0.1\,kg/m2$ in women (based on National Health and Nutrition Examination Survey trends from 1976–2000); 3) BMI increase, plus treatment of hypertension and dyslipidemia among individuals with BMI $>25\,kg/m^2$ in 2006 (10% lower DBP and LDL, 10% higher HDL); 4)BMI increase, plus treatment of hypertension and dyslipidemia, plus no assumption of increased diabetes risk associated with elevated BMI. We evaluated annual rates of new CHD events, excess CHD events compared with no BMI increase, and cumulative life-years.
RESULTS: In 2000 the new CHD event rate was 939 per 100,000 persons without pre-existing CHD. Increases in BMI were projected to increase the annual CHD event rate (Table). Although treatment of modifiable risk factors in individuals with BMI $>25\,kg/m^2$ resulted in an immediate reduction in CHD events, the effect was not sustained over time. Only the additional assumption of no increased diabetes risk further lowered the CHD event rate to just above the 2030 base rate. From 2000–2030, BMI increases resulted in the cumulative loss of 2,690,128 life-years. BMI increases plus risk factor reduction still resulted in 1,140,208 lost life-years, and the additional assumption of no diabetes risk also resulted in 938,112 lost life-years compared with no BMI increase.
CONCLUSIONS: Treatment of hypertension and dyslipidemia in overweight and obese individuals may reduce CHD events, but population event rates and mortality remain high because of the continued risk of diabetes and the adverse effects of increasing BMI among those who do not meet thresholds for risk factor reduction. Targeted interventions aimed at high risk individuals are unlikely to reverse the high rates of CHD morbidity and mortality associated with increasing BMI.

Annual new CHD events per 100,000 persons (excess rate vs. no BMI increase)

	2006	2015	2030
Annual BMI increase	1,005 (40)	1,129 (105)	1,320 (238)
Annual BMI increase, plus modifiable risk factor reduction	836 (−129)	959 (−65)	1,163 (81)
Annual BMI increase, plus modifiable risk factor reduction, plus no increased risk of diabetes	834 (−131)	944 (−80)	1,098 (16)

KNOWLEDGE ABOUT THE HARMS OF ACTIVE AND PASSIVE SMOKING AMONG CHINESE PHYSICIANS. M.K. Ong[1]; E.K. Tong[2]; Y. Jiang[3]; T. Hu[4]. [1]University of California, Los Angeles, Los Angeles, CA; [2]University of California, San Francisco, San Francisco, CA; [3]China Centers for Disease Control, Beijing; [4]University of California, Berkeley, Berkeley, CA. *(Tracking ID # 154095)*

BACKGROUND: China has the world's largest number of smokers and half of its population is exposed to secondhand smoke. Chinese physicians need to understand the health harms of active and passive smoking when advising smokers to quit. Our objective was to assess the status of Chinese physicians' knowledge and beliefs about these health harms.
METHODS: We surveyed 3552 hospital-based physicians from six Chinese cities in 2004. Physicians were surveyed on their knowledge, attitudes, and practices towards smoking, and we analyzed physician knowledge of active and passive smoking harms regarding lung cancer, asthma, chronic obstructive pulmonary disease, ischemic heart disease, and sudden infant death syndrome. Chi-square statistical analyses accounted for clustering at the city and hospital level.
RESULTS: For lung cancer, 95% of Chinese physicians believe active smoking and 89% believe passive smoking is related to lung cancer, with 88% believing in both. For heart disease, 67% of Chinese physicians believe active smoking and 53% believe passive smoking is related to ischemic heart disease, with 49% believing in both. For asthma, 82% believe passive smoking causes asthma in children and 83% believe passive smoking causes asthma in adults, with 76% believing in both. Only 21% thought passive smoking was related to sudden infant death syndrome. When stratified by smoking status, never smokers ($n=2642$) were significantly ($p<0.05$) more likely than current smokers ($n=813$) to believe that active and passive smoking was related to lung cancer (96% vs. 93%, 91% vs. 84%), passive smoking was related to asthma in children and adults (83% vs. 75%, 85% vs. 79%), and active smoking was related to chronic obstructive pulmonary disease (89% vs. 86%). However, there were no significant differences between never and current smokers on knowledge of ischemic heart disease active or passive smoking harms (66% vs. 67%, 52% vs. 54%), nor knowledge of sudden infant death syndrome and passive smoking (21% vs. 19%).
CONCLUSIONS: Chinese physicians are aware that active and passive smoking risks for pulmonary diseases, but are less aware than expected regarding active and passive smoking risks for ischemic heart disease and sudden infant death syndrome. Chinese physician smokers need education on health risks from active and passive smoking, but Chinese physician never smokers also need education on ischemic heart disease risks from active and passive smoking and sudden infant death syndrome risk from passive smoking. (Funding: 1 R01 TW05938. Tobacco Research Framework Program, Fogarty International Center, U.S. National Institutes of Health)

KNOWLEDGE OF BLOOD PRESSURE TARGETS AND BLOOD PRESSURE SELF-MONITORING AMONG PATIENTS WITH DIABETES. U. Subramanian[1]; M. Klamerus[2]; T.P. Hofer[3]; B. Zikmund-Fisher[3]; M. Heisler[3]; E.A. Kerr[3]. [1]VA HSRD Center of Excellence on Implementing Evidence based Practice, Indianapolis, IN; [2]Veterans Affairs Health Services Research & Development Center of Excellence, Ann Arbor, MI; [3]Veterans Affairs Health Services Research & Development Center of Excellence, Ann Arbor, MI. *(Tracking ID # 153617)*

BACKGROUND: Tight blood pressure (BP) control is the single most important intervention to prevent cardiovascular mortality among patients with diabetes. Achieving BP control relies on effective clinical management and patient self-management. Patients who monitor BP at home are more likely to achieve BP control. We sought to understand how often patients view BP control as a priority and report having specific blood pressure targets or goals, and whether having targets is associated with BP self-monitoring. We further examined whether patient sociodemographic characteristics were associated with having BP targets.
METHODS: We conducted an anonymous survey of 500 randomly selected patients with diabetes and hypertension who used any VA facility in FY 2003. We queried patients regarding their general health care concerns, targets for BP control and BP self-monitoring. We examined associations between having BP targets, BP self-monitoring and patient characteristics using bivariate statistics and multivariate logistic regression.
RESULTS: 378 (76%) patients responded, of whom 90% were taking antihypertensive medications. Of the 378, 236 (62%) reported that glycemic control was among their three most important health concerns, while 151 (40%) reported that blood pressure control was among their three most important concerns. 60% of respondents reported having a target level for BP and those with a target were more likely that those without a target to monitor their BP at home (72% vs. 35%; $p<.001$) and to endorse medication treatment for a BP level of 145/85 (42% vs. 29%, $p=0.02$). In multivariate regression, college education, but not race, age or insulin use, was positively associated with reporting a target BP (OR 2.07 [95% CI 1.3–3.4]).
CONCLUSIONS: Less than half of patients with diabetes viewed BP control as a top concern, and a substantial proportion did not have target levels for BP control. Those with BP targets were more likely to self-monitor BP and to indicate that modest BP elevations should be treated. Higher education was associated with having targets. Impacts: Having a target BP may be an important component in promoting hypertension self-management in this high-risk patient population. Less educated patients may particularly benefit from interventions to increase awareness of BP targets.

LACK OF ETHNIC DISPARITIES IN IMMUNIZATION RATES AMONG UNDERSERVED OLDER PATIENTS IN AN URBAN PUBLIC HEALTH SYSTEM. A.L. Appel[1]; T.D. MacKenzie[1]; M. Philip[1]; R.M. Everhart[1]. [1]Denver Health and Hospital Authority, Denver, CO. *(Tracking ID # 152896)*

BACKGROUND: Influenza and pneumococcal infections are major causes of mortality among our nation's seniors, accounting for approximately 36,000 and 3,400 deaths per year, respectively. Significant variations in vaccination rates are seen across racial/ethnic groups. Even when controlling for multiple factors, adjusted rates of vaccination for minority groups remain substantially lower than whites nationwide. It is projected that 32% of the United States population will soon be a member of one of the four major ethnic minority groups and that the number of uninsured Americans will increase by eleven million in the coming decade. How we provide preventive health services to minority groups, especially those with poor access to care, has great cost and public health implications. This study examines demographic differences in the rate of pneumococcal and influenza immunization in an ethnically diverse older patient population seeking care at an urban primary care clinic system.
METHODS: Denver Health is an integrated system of 11 federally qualified community health centers serving approximately 100,000 unduplicated patients annually. We linked data from chart audits performed in 2001–2003 for quality assurance purposes with patient registration data to evaluate vaccination rates in 740 patients age 66 years and older who had at least 3 primary care visits in the previous 2 years.
RESULTS: Rates of vaccination differed significantly by ethnicity for pneumococcal vaccination (chi square $p=0.0002$). Assuming the odds ratio approximation of relative risk, Blacks were 71% more likely to be vaccinated than Whites ($p=0.032$) and English and Spanish speaking Hispanics were 104% and 109% more likely to be vaccinated respectively than Whites ($p=0.002$ for both groups). Rates of influenza vaccination, however, did not vary by ethnicity (chi-square $p=0.0545$). After adjustment for potential confounding variables, factors significantly associated with receipt of pneumococcal vaccination were Hispanic ethnicity (OR 1.66–1.77, $P=0.01$), medical comorbidities (OR 1.48, $P=0.03$), psychiatric comorbidities (OR 2.0, $P=0.001$), use of Family Medicine versus Internal Medicine clinic (OR 2.3, $P<0.001$), and age (OR 1.04 for 1 year increase, $P=0.004$). Factors significantly associated with influenza vaccination were having insurance (OR 2.25, $P=0.014$), medical comorbidities (OR 1.71, $P=0.036$), age (OR 1.03 for 1 year increase, $P=0.045$), later year of audit (OR 1.68–1.73, $P=0.015$), and a greater number of clinic visits (OR 1.69, $P=0.006$).
CONCLUSIONS: Among older regular users of our public community health centers, minority populations have equal or higher immunization rates compared to non-Hispanic whites. Provider and system characteristics that may explain this lack of disparity will be discussed.

LANGUAGE PROFICIENCY AND REFERRAL FOR SCREENING COLONOSCOPY IN AN URBAN IMMIGRANT POPULATION. N.R. Shah[1]; A. Aragones[1]; F. Gany[1]. [1]New York University, New York, NY. *(Tracking ID # 153035)*

BACKGROUND: Colorectal cancer (CRC) screening saves lives. Immigrants with limited English proficiency (LEP) often do not receive screening, in part due to language barriers. In this study, we determined the magnitude of the association between language, interpreting services, immigration variables, and referral for colonoscopy screening.
METHODS: We conducted a nested cohort study within a large randomized trial of remote simultaneous medical interpreting (RSMI) versus routine interpreting (ad hoc solutions, e.g. untrained staff, 'innocent bystanders' and family members, or over-the-telephone commercial interpreting) in a large New York City municipal hospital's outpatient primary care clinic. All patients were new to the clinic. Those selected for this study were eligible to be referred for screening colonoscopy.
RESULTS: We identified 153 patients who met all inclusion criteria. Results of the bivariate analyses of variables considered are presented in Table 1. Patients were more likely to be referred for screening colonoscopy if they were uninsured, lived with someone who helped read their medical or hospital materials, were relatively more educated, were seen in an interpreted medical encounter or immigrated to the United sates more than 5 years prior to the study.
CONCLUSIONS: Overcoming the language barrier through trained interpreters could improve referral for preventive cancer screening among patients with limited English proficiency. Despite ever-increasing evidence of the importance of trained interpreters, a large gap still exists between need and practice.

Table 1. Bivariate analyses: Odds Ratios for referral for screening colonoscopy

Comparison	Comparison group	Referred Yes / No	Reference group	Referred Yes / No	OR	(95% CI)
Primary Language	Spanish	17 / 55	English	2 / 20	3.09	(0.65 - 14.59)
	Chinese	10 / 49	English	2 / 20	2.04	(0.41 - 10.16)
Type of Encounter*	LD - Spanish	14 / 31	LC - English	4 / 27	3.05	(0.9 - 10.38)
	LD - Chinese	7 / 41	LC - English	4 / 27	1.15	(0.31 - 4.32)
	LC - Spanish	2 / 18	LC - English	4 / 27	0.75	(0.12 - 4.53)
	LC - Chinese	2 / 7	LC - English	4 / 27	1.93	(0.29 - 12.77)
	LD - any	21 / 72	LC - any	8 / 52	1.9	(0.78 - 4.61)
Mode of Interpretation Used	RSMI	11 / 29	No interpreter	8 / 52	2.47	(0.89 - 6.82)
	UC	10 / 36	No interpreter	8 / 52	1.81	(0.65 - 5.02)
	RSMI	11 / 29	UC	10 / 36	1.37	(0.51 - 3.66)
	Trained interpreter †	15 / 47	Not Trained	2 / 18	2.87	(0.60 - 13.84)
Level of Education	Below 3rd grade	0 / 15	Above 3rd grade	29 / 137	0.15	(0.01 - 2.61)
	3rd to 8th grade	16 / 51	Above 8th grade	13 / 70	1.69	(0.75 - 3.82)
	High School	11 / 35	Above High School	2 / 22	3.46	(0.70 - 17.09)
Have a regular source of care	Yes	17 / 53	No	9 / 49	1.75	(0.71 - 4.28)
Health Insurance	Uninsured	22 / 63	Insured	7 / 60	2.99	(1.19 - 7.52)§
Help reading medical material	Healthcare professional	5 / 4	Other	10 / 61	7.63	(1.74 - 33.33)§
Years since moving to US	0 to 5 Years	9 / 14	More than 5 years	20 / 91	2.93	(1.11 - 7.69)§

* LC = Language concordant (patient and provider speak same language), LD = Language discordant (interpretation used).

§ Significant ($p < 0.05$) bivariate associations.

† Trained interpreter = RSMI or language line, but not family member or volunteer (Trained interpreter refers to professionally trained)

LEARNER PERFORMANCE AND RELIABILITY OF A CROSS-DISCIPLINARY GERIATRICS STANDARDIZED PATIENT AMONG MEDICAL STUDENTS AND HOUSE OFFICERS. B.C. Williams[1]; K.E. Hall[1]; M.A. Supiano[2]; J.T. Fitzgerald[1]; J.B. Halter[1]. [1]University of Michigan, Ann Arbor, MI; [2]University of Utah, Salt Lake City, UT. *(Tracking ID # 152439)*

BACKGROUND: Professional societies have called for increased geriatrics training for all medical students and physicians. Current geriatrics Standardized Patients (SPs) focus on single diseases (eg., dementia, falls) or learner groups (eg., medical students or house officers), and primary care-oriented disciplines. The purpose of our study was to developa a Geriatrics Standardized Patient Instructor (GSPI) to teach and assess medical students and all types of house officers in the care of older adults.
METHODS: In the GSPI encounter, learners assess the functional status of a patient preparing for hospital discharge. SPs rate learners on functional assessment and communication skills, and provide feedback. The patient scenario was essentially identical for medical students and house officers; only the reason for hospitalization was changed to be appropriate for the house officers' discipline. A total of 138 house officers in 9 surgical specialties and medical subspecialties experienced the GSPI as formative evaluation during implementation of new geriatrics curricula. 171 first-year medical students (M1s) encountered the GSPI as part of a multi-modality educational intervention that combined lectures, demonstrations, and immediate application of skills and resource materials in the patient encounter. Reliability was measured via videotape review of 18 encounters by three geriatricians among the first five trained SPs.
RESULTS: Seventeen SPs were trained. Mean (SD) scores among house officers (on a 100-point scale) for functional assessment and communication skills were 78 (16) and 86 (11), respectively. House officers rated the overall experience positively (mean (SD) rating (1 = poor, 5 = excellent) 3.9 (0.8)). Among M1s, mean (SD) scores on functional assessment and communication skills were 93 (10) and 93 (7), respectively. Mean (SD) overall rating of the experience by M1s was 4.1 (0.8). Correlations of ratings by SPs with ratings by geriatricians indicated good reliability (r = 0.69 and 0.70 for functional assessment and communication skills, respectively).
CONCLUSIONS: The Geriatrics Standardized Patient Instructor provides a reliable, feasible method for measuring geriatrics clinical skills among physician learners across training levels and disciplines, including early medical students and house officers in surgical and related specialties and medical subspecialties. Specifically, house officer scores demonstrated adequate variation and absence of ceiling or floor effects, and relatively high medical student scores demonstrated the short-term effectiveness of an intense, multi-modal educational intervention. Potential applications include comparing geriatrics skills performance among groups of physician learners and over time, and meeting Residency Review Committee (RRC) requirements for measuring proficiency in Patient Care and Interpersonal and Communication Skills among house officers.

LEISURE-TIME WALKING IN A MULTIETHNIC POPULATION: WHAT DIFFERENCE DOES THE NEIGHBORHOOD MAKE?. M. Wen[1]; N. Kandula[2]; E. Jacobs[3]; D. Lauderdale[4]. [1]University of Utah, Salt Lake City, UT; [2]Northwestern University, Chicago, IL; [3]Rush University Medical Center, Chicago, IL; [4]University of Chicago, Chicago, IL. *(Tracking ID # 154506)*

BACKGROUND: There is growing recognition that a neighborhood's social and physical environment impacts the health and health behaviors of its residents. A resident's perception of the neighborhood's "walkability" is associated with levels of physical activity. Little has been done to simultaneously assess the relationship between the physical and social dimensions of neighborhood environment and physical activity. We examined the relationship between neighborhood SES, social cohesion, physical environment, neighborhood safety, and leisure time physical activity, independent of individual level factors. In addition, we examined racial/ethnic variation in the relationship between neighborhood factors and physical activity.
METHODS: We used data from the 2003 California Health Interview Survey (CHIS), a cross-sectional, population-based telephone survey of 42,000 civilian households. Our sample included 26,506 non-Hispanic White (NHW), 7135 Latino, 3875 Asian, and 2691 Black adults. Our main dependent variable, leisure-time walking, was measured by the item "Sometimes you may walk for fun, relaxation, exercise, or to walk the dog. During the past 7 days, did you walk for at least 10 minutes for any of these reasons? {Please do not include walking for transportation.}" Individual-level data, including leisure-time walking, BMI, age, gender, socioeconomic status, percent of life in the US, neighborhood physical environment, neighborhood safety, and perceived neighborhood social cohesion (a scale tapping the extent of connectedness, trust, and solidarity among neighbors; coefficient of alpha = 0.73), were obtained or constructed from CHIS 2003. Neighborhood was defined as the US census tract; participants' census tracts were linked to Census 2000 data. Neighborhood-level SES was constructed using principal component factor analysis with orthogonal rotation from four dimensions of SES that are highly correlated: concentrated affluence, concentrated poverty, the percent of college educated residents, and the percent of house ownership (reliability coefficient was 0.83). We performed a series of multiple regression models with robust variance estimates.
RESULTS: 59% of NHW, 54% of Asians, 52% of Latinos, and 49% of Blacks reported at least 10 minutes of leisure time walking ($P < 0.05$). Neighborhood SES (OR = 1.06, 95% CI = 1.02, 1.10), social cohesion (OR = 1.11, 95% CI = 1.07, 1.15), physical environment (OR = 1.24, 95% CI = 1.17, 1.32), and safety (OR = 1.12, 95% CI = 1.02–1.20) were all significantly associated with leisure time walking, after controlling for individual socio-demographics. Neighborhood factors did not explain why NHW are more likely to participate in leisure-time physical activity than Blacks and Asians. After stratifying by race/ethnicity, neighborhood environment was particularly salient for NHW, but not for Blacks, and weaker for Latinos and Asians. Individual socio-demographics also did not explain the lower physical activity of Blacks and Asians.
CONCLUSIONS: A neighborhood's social and physical environment exerts significant contextual effects on individual leisure time walking. However, neighborhood effects are not consistent across racial/ethnic groups and do not explain the lower rates of physical activity among Blacks and Asians. Physical activity interventions should consider how to address neighborhood factors that impact physical activity, while recognizing that such interventions may have differential effects across racial/ethnic groups.

LEVERAGING SOCIAL NETWORKS FOR PROTECTING VULNERABLE COMMUNITIES' HEALTH DURING DISASTERS. D. Eisenman[1]; K. Cordasco[2]; S.M. Asch[3]; J. Golden[4]; D. Glik[2]. [1]University of California, Los Angeles, Los Angeles, CA; [2]University of California, Los Angeles, LA, CA; [3]West Los Angeles VA/RAND, Los Angeles, CA; [4]West Los Angeles VA, LA, CA. *(Tracking ID # 153024)*

BACKGROUND: Hurricane Katrina demonstrated that impoverished communities are less likely to evacuate and are more affected by disasters. While poverty, lack of transportation to or shelter in safe areas, and experiences riding out hurricanes safely were certainly factors in delaying evacuation, social networks (the web of relationships that surround individuals) may also have played a role. We interviewed evacuees from Hurricane Katrina to give voice to those issues influencing evacuation in impoverished, minority communities.
METHODS: From September 9 (11 days post-hurricane) to September 12, 2005 we performed qualitative interviews with 58 adult evacuees randomly sampled from Houston's three major evacuation centers. Interviews focused on factors influencing evacuation behavior prior to the hurricane's landfall. We analyzed the transcribed interviews using grounded theory methodology. Three investigators independently coded and resolved disagreements by consensus.
RESULTS: Participants were mainly African American, low income, and from New Orleans Parish. We identified 1194 statements coded into the following domains: 1) Instrumental: the resources and practicalities related to evacuation; 2) Cognitive/Affective: the receipt, understanding, and processing of evacuation messages; 3) Social/Cultural: the influence of social networks and attitudes about hurricanes. Participants affirmed the importance of the widely reported instrumental and cognitive reasons for non-evacuation, including income, transportation, jobs/property, health, and risk perceptions. However, these factors were mediated by the influence of social networks (a Social/Cultural sub-domain) that facilitated or hindered evacuation decisions. For some the extended family was a resource: "My sister, she had called me. So I went to pick her and her children up, and grand children, and we just started driving ." For others, church members encouraged evacuation: "So our clinical manager called back. She says, 'Stella, the Lord said get out of that house.' I said, 'We're on our way out now if you would hang up.'" Participants described networks outside of New Orleans that provided "an open invitation" as facilitating evacuation or noted the absence of networks outside of New Orleans as hindering evacuation: "Really truly, we had cars, but we didn't know anybody to go to." Obligations to the elderly influenced evacuations: " We had to come back home. My mother-in-law had called for us to come back . You know when they get a certain age they get confused." Participants who sheltered extended family members in their homes were subsequently unable to evacuate: "I could have made it on my own, but it was just my aunt and my uncle. Every few steps he made she forgot his walker every few steps he made he was falling down."
CONCLUSIONS: Improving disaster plans for impoverished, minority communities requires more than remedying access to shelter and transportation. The influence of social networks demands better community-based disaster programs. Programs should address social units (households, extended families, neighborhoods) and risk communications must account for social networks if they are going to sway those whose norms, risk perceptions, and decision-making are highly influenced by their social networks. Public health and disaster planners should leverage these networks by teaming with indigenous helpers, civic, and community organizations when devising their communications and plans.

LITERACY AFFECTS COMPREHENSION OF EVEN SIMPLIFIED INFORMED CONSENT. S. Kripalani[1]; R. Bengtzen[1]; L.E. Henderson[2]; R.S. Robertson[1]; T.A. Jacobson[1]. [1]Emory University, Atlanta, GA; [2]Atlanta VA Medical Center, Atlanta, GA. *(Tracking ID # 152412)*

BACKGROUND: Ensuring fully informed consent of participants in clinical research is challenging, with only 30–70% of subjects comprehending consent documents. To enhance the consent process, experts recommend simplifying documents, providing verbal information, and confirming understanding by asking patients to "teach-back" the main points. We applied these guidelines in a randomized controlled trial and examined the effect of patient literacy on comprehension of the simplified information.
METHODS: We used documents with simple language (8th grade reading level), visual aids to clarify enrollment procedures, and scripted verbal counseling to emphasize key points. A research interviewer prompted patients to teach-back eight key points of the consent and HIPAA information–the study purpose, follow-up requirements, randomization to one of four study groups, risks, benefits, type of information collected, steps to maintain confidentiality, and procedures for study withdrawal. The interviewer recorded whether patients adequately taught-back each item on the first, second, or third attempt. Demographic data, cognitive function (Mini Mental State Exam, MMSE), and literacy (Rapid Estimate of Adult Literacy in Medicine, REALM) were subsequently collected. Logistic regression was used to determine unadjusted and adjusted odds ratios relating each factor to the correct teach-back of all items on the first attempt.
RESULTS: Participants had a mean age of 64.0 years, 90.3% were African American, and 54.7% were female. Literacy was distributed widely (3rd grade: 20.9%, 4th–6th grade: 24.7%, 7th–8th grade: 30.6%, and 9th grade: 23.9%). The rate of correctly teaching-back individual items on the first attempt ranged from 57.1% to 92.5%. Overall, 38.9% of patients correctly taught-back all eight items on their first try. This percentage increased with increasing literacy level (16.7%, 34.8%, 40.4%, and 60.7%, respectively). In unadjusted analyses, age, black race, years of education, cognitive function, and literacy were associated with consent and HIPAA comprehension. In multivariable analyses, age and literacy were significantly associated with comprehension; cognitive function was marginally significant ($p=0.055$).

	Unadjusted		Final Model	
Variable	**OR**	**95% CI**	**OR**	**95% CI**
Age (yrs)	0.960	0.940-0.981	0.974	0.951-0.997
Female	1.131	0.744-1.719		
Black race	0.472	0.236-0.944		
Yrs school	1.193	1.105-1.288		
MMSE	1.229	1.143-1.322	1.098	0.998-1.207
REALM*				
4^{th}-6^{th} grade	2.667	1.280-5.555	2.259	1.048-4.869
7^{th}-8^{th} grade	3.382	1.674-6.834	2.275	1.049-4.935
$\geq 9^{th}$ grade	7.714	3.711-16.036	4.344	1.814-10.404

*Referent group: $\leq 3^{rd}$ grade reading level

Unadjusted and adjusted odds ratios relating patient characteristics to consent and HIPAA comprehension

CONCLUSIONS: Despite the use of simplified consent and HIPAA documents, verbal counseling, and visual aids, most patients were unable to correctly teach-back consent and HIPAA information on their first attempt. Literacy was independently associated with comprehension. Additional measures are needed to promote fully informed consent and protection of research subjects' interests, particularly among those with limited literacy skills.

LITERACY AND MORTALITY AMONG MEDICARE ENROLLEES. M.S. Wolf[1]; J.M. Feinglass[1]; V. Carrion[1]; J. Gazmararian[2]; D. Baker[1]. [1]Northwestern University, Chicago, IL; [2]Emory University, Atlanta, GA. *(Tracking ID # 154577)*

BACKGROUND: Low literacy has been linked to less knowledge of medical conditions, lower use of preventive services, higher hospitalization rates, and poorer physical and mental health. However, it is not known whether literacy independently predicts mortality.
METHODS: We analyzed data from the Literacy and Health of Medicare Managed Care Enrollees (LHMMCE) study, which enrolled 3,260 new Medicare managed care enrollees in four U.S. metropolitan areas (Cleveland, OH; Houston, TX; Tampa, FL; Fort Lauderdale-Miami, FL). In-home interviews were conducted in 1997 to determine participants' demographics, health status, health behaviors, and literacy. Literacy was measured using the shortened version of the Test of Functional Health Literacy in Adults (TOFHLA), and patients were categorized as having adequate, marginal, or inadequate literacy. The LHMMCE database was merged with all-cause mortality data from the National Death Index through 2003. Kaplan-Meier analyses were used to estimate cumulative survival probabilities by literacy category. To determine whether inadequate or marginal literacy were independent predictors of mortality, we used multivariate Cox proportional hazards models and sequentially controlled for demographics (age, gender, race/ethnicity, language spoken, site), socioeconomic status (annual income, years of school completed, former occupation), and baseline health status, including physical and mental health (SF-36 summary scales), limitations in instrumental activities of daily living and activities of daily living, and chronic conditions (hypertension, heart failure, diabetes, coronary artery disease, arthritis, chronic lung disease, and cancer). In addition, we compared the bivariate and multivariate relationship between years of school completed and mortality. Finally, we added health risk behaviors (smoking status, alcohol use, physical activity, body mass index, seatbelt use) to the model to determine whether these mediated the relationship between literacy and mortality.
RESULTS: The crude mortality rates for participants with adequate ($N=2,094$), marginal ($N=366$), and inadequate ($N=880$) literacy were 18.9%, 28.7%, and 39.4%, respectively; $p<0.001$. After adjusting for demographics, the hazard ratios (HR) for inadequate and marginal literacy were 1.88 (95% CI 1.60–2.22) and 1.33 (95% CI 1.07–1.66), respectively. After adding socioeconomic variables, the HRs decreased to 1.74 (95% CI 1.44–2.09) and 1.27 (95% CI 1.02–1.60) respectively. In the final model that included baseline health variables, the HRs were 1.61 (95% CI 1.32–1.95) and 1.20 (95% CI 0.95–1.51). The addition of health risk behaviors to the model did not substantially change these results. In contrast to literacy, years of school completed was not significantly associated with mortality in multivariate models that included literacy the HRs for 0–8, 9–11, some college, and college graduate (12 years of education as reference group) were 0.83 (95% CI 0.66–1.06), 0.95 (95% CI 0.77–1.17), 0.94 (95% CI 0.74–1.17), and 1.23 (95% CI 0.93–1.60) respectively.
CONCLUSIONS: Among community-dwelling elderly, inadequate health literacy is a strong, independent predictor of mortality. In contrast, education alone was not predictive. Differences in health behaviors do not explain the higher mortality for individuals with inadequate literacy.

LONG TERM IMPACT OF A LONGITUDINAL FACULTY PROGRAM IN CURRICULUM DEVELOPMENT: A CASE CONTROL STUDY. A. Gozu[1]; D.M. Windish[2]; A.M. Knight[1]; P.A. Thomas[3]; E.B. Bass[1]; D.E. Kern[1]. [1]Johns Hopkins University, Baltimore, MD; [2]Yale University, Waterbury, CT; [3]Johns Hopkins University, Glen Arm, MD. *(Tracking ID # 152966)*

BACKGROUND: The need to impart new competencies to medical learners underlies a growing need for training in curriculum development (CD). A minority of medical institutions provide faculty development in educational skills; fewer provide training in curriculum development. We evaluated the long term impact of the Johns Hopkins Faculty Development Program in Curriculum Development (JHFDP/CD).
METHODS: JHFDP/CD is a 9 month, 1 half-day per week program offered annually since 1987. Goals are for participants to develop proficiency in designing, implementing, evaluating, and disseminating curricula. Educational methods include didactics, workshops, a mentored project, a final paper and presentation. Study subjects included all 64 participants who completed the program from 1988 through 1996 and 64 professionally similar nonparticipants who were selected by the participants at the beginning of the program. All subjects were surveyed in 2002 regarding self-assessed CD skills, enjoyment in CD, number of curricula developed, and, for participants, impact of JHFDP. Baseline characteristics were compared using *t*-test, Wilcoxon rank sum or chi-squared analyses. Logistic regression was used for outcome analyses.
RESULTS: 58 participants (91%) and 50 nonparticipants (74%) returned completed surveys. Participants and nonparticipants were similar in 14 of 17 baseline characteristics. After adjustment for 3 dissimilar baseline characteristics (professional training, academic appointment and medical specialty), participants were more likely to report developing and implementing a curriculum within the past 5 years, enjoying CD work, and using selected CD skills (Table 1). Responses by 43 participants (74%) to the open-ended question about impact of the program revealed 10 themes. Six related directly to retention of CD proficiency, continued involvement in CD, and external recognition for CD efforts. Four reflected a broader impact: applicability beyond CD, time management, relationships, and professional growth.
CONCLUSIONS: Participation in the JHFDP/CD was associated with continued involvement, self-assessed proficiency, and enjoyment in CD activities 6–13 years later. Faculty should consider rigorous training in CD to improve skills and promote professional growth.

Table 1

	Participants N=58 (%)	Non-Participants N=50 (%)	Adjusted* OR (95% CI)
Developed/implemented one or more curricula in the last 5 years	65	44	4.9 (1.6–14.8)
Proficiency "good" "very good" or "excellent" in:			
Developing curricula	79	50	4.7 (1.7–12.9)
Implementing/administering curricula	79	52	4.0 (1.4–11.0)
Evaluating curricula	68	44	3.4 (1.3–8.8)
Lots of enjoyment in CD	70	45	3.6 (1.1–11.3)
Conducts needs assessments	64	24	6.0 (1.4–25.7)
Uses different educational methods based on learner needs	84	56	3.8 (0.8–17.3)

LONGITUDINAL STUDY OF THE PREFERRED ROLE OF FAMILY IN MEDICAL DECISION-MAKING AMONG TERMINALLY ILL PATIENTS ANTICIPATING DECISIONAL INCAPACITY. M. Hughes[1]; M.T. Nolan[1]; A. Astrow[2]; P.B. Terry[1]; J. Kub[1]; R.E. Thompson[1]; K. Texeira[2]; D.P. Sulmasy[2]. [1]Johns Hopkins University, Baltimore, MD; [2]St. Vincent's Hospital, New York, NY. *(Tracking ID # 154497)*

BACKGROUND: In advance care planning, patients are asked how they want medical decisions to be made when they cannot speak for themselves. This longitudinal study examines the role that terminally ill patients prefer that their family play in making health care decisions when the patients are too ill to speak for themselves.
METHODS: Prospective serial interviews at two academic medical centers for 147 adult terminally ill patients with advanced cancer (CA), amyotrophic lateral sclerosis (ALS), or advanced congestive heart failure (CHF), at diagnosis (or first hospitalization for CHF), and at three months and six months thereafter. Patients were asked about their preferences for control over a health care decision envisioning they were unconscious using a modification of the method of Degner. Patients rated their preferences on a five point scale ranging from (1) independent (i.e. substituted judgment standard) to (5) reliant on the family (i.e. best interests standard). Descriptive statistics and a Generalized Estimating Equations (GEE) model are presented.
RESULTS: Sixty patients (41%) had CA, 55 (37%) CHF, and 32 (22%) ALS. Average age was 62 ± 12.5; 63% were male; 48% were married; and 65% had less than a college education. The majority (65%) were Caucasian; 23% African American. Most were Protestant (39%) or Catholic (36%). At baseline, patients' decision control preferences when envisioning unconsciousness showed wide variability, but most wanted shared decision-making (Unadjusted mean [95% CI] =3.26 [3.08, 3.45]). At 3 months, however, the overall mean moved significanly toward independence by −.43 points ($p<0.01$) to 2.78 [2.54, 3.01], but did not change significantly from month 3 to month 6. We estimated a multivariable GEE regression model adjusted for diagnosis, edcation, gender, age, and time. This model indicated that ALS patients wanted more independence relative to CA and CHF patients (β=−.37, p=.049). Women tended to be more independent than men (β=−.37, p=.02). Older patients tended to be more reliant (β=+.31, p=.06). Race, marital status, religious affiliation, and measures of religiosity had no effect on control preferences. In interaction analysis, college educated patients tended to prefer more independence over time (i.e. weighing patient wishes more heavily than family wishes should the patient become unconscious; β=−.64, p=.03), while less educated patients remained stable in their preference for shared decision making.A statistically significant education by time interaction (p=0.03) indicated that college educated patients tended to prefer more independence over time, while less educated patients remained stable in their preferences (adjusted mean [95% CI] at baseline: At least some college =3.17 [2.88, 3.46]; HS or less =3.32 [3.10, 3.54], and at six months: At least some college =2.37 [1.94, 2.79], HS or less =3.16 [2.85, 3.48]).
CONCLUSIONS: Terminally ill patients vary in their preferences for control over decisions made by their family on their behalf, but most want shared decision making. ALS diagnosis, female gender, and greater education are associated with a preference for decisions to be made by substituted judgment, rather than by what the family member thinks is best. Older patients would rely more upon their families. College educated patients tend to want more substituted judgment the longer they live with their terminal illness.

LOW LITERACY PATIENTS' KNOWLEDGE, BELIEFS, AND ATTITUDES ABOUT COLORECTAL CANCER SCREENING. D.P. Miller[1]; K.L. Foley[1]; P.R. Lichstein[1]; J.G. Spangler[1]; M.P. Pignone[2]. [1]Wake Forest University, Winston-Salem, NC; [2]University of North Carolina at Chapel Hill, Chapel Hill, NC. *(Tracking ID # 154106)*

BACKGROUND: Approximately one-third of Americans have low health literacy skills, which interferes with their ability to learn about and utilize preventive health services. Prior studies have shown that low literacy patients have a poor understanding of commonly recommended cancer screening tests. The goal of this study is to determine how low literacy patients' knowledge, beliefs, and attitudes affect colorectal cancer (CRC) screening behavior.
METHODS: We conducted four focus groups of low literacy patients aged 50–79 years who had not been recently screened for CRC. English-speaking patients presenting for a scheduled visit at a large community-based university-affiliated internal medicine practice were surveyed to determine their potential eligibility. Patients who had not been recently screened for CRC and who read below the 9th grade level as determined by the Rapid Estimate of Adult Literacy in Medicine instrument were invited to participate. A trained moderator facilitated each group using a moderator's guide based on the Health Belief Model. Each focus group lasted 90 minutes. Transcripts of the focus groups were qualitatively analyzed to identify common themes.
RESULTS: 23 people (19 women, 4 men) participated. Approximately half had not graduated from high school, and all but one reported an annual household income below $25,000. Basic misunderstanding of CRC screening was apparent. Participants had a poor understanding of the words "screening" and "colon," preferring terminology such as "testing," "large bowel," or "large intestine." The majority also failed to recognize the terms "colonoscopy" or "fecal occult blood test" (FOBT), but immediately recognized them when presented with props and illustrations. However, few people realized these tests were used to screen for CRC. All groups endorsed the value of early diagnosis and believed most people should be screened, but one group expressed the belief that cancer can rarely be cured: "most cancers will come back anywhere." Barriers to CRC screening that arose repeatedly were fear of receiving bad news ("it would kill me knowing that I had cancer"), belief that screening tests are painful ("it pains"; "a whole lot of people . . . they fear the light"), belief that tests are messy ("it's real disgusting"), embarrassment ("that is taboo"), and financial cost ("if you ain't got no insurance, money is a big, big drawback.") When presented with the option of FOBT versus colonoscopy, the majority preferred FOBT believing it was less painful and "don't doctor or nobody have to mess with you to do them."
CONCLUSIONS: Patients with limited literacy skills have a poor understanding of terms commonly used to discuss CRC screening. Future interventions targeting low literacy patients should use easily understood words and seek to overcome patients' fears of bad news, discomfort, and embarrassment.

LOWER EXTREMITY ISCHEMIA, CALF SKELETAL MUSCLE CHARACTERISTICS, AND FUNCTIONAL IMPAIRMENT IN PERIPHERAL ARTERIAL DISEASE. M.M. McDermott[1]; F.L. Hoff[1]; M. Criqui[2]; L. Ferrucci[3]; W. Pearce[1]; J.M. Guralnik[3]; L. Tian[1]; K. Liu[1]; J. Schneider[4]; L. Sharma[1]; T. Jin[1]. [1]Northwestern University, Chicago, IL; [2]University of California, San Diego, San Diego, CA; [3]National Institute on Aging, Bethesda, MD; [4]Evanston Northwestern Hospital, Chicago, IL. *(Tracking ID # 153944)*

BACKGROUND: We studied associations between the ankle brachial index (ABI) and calf skeletal muscle area and between the ABI and calf muscle percent fat in persons with and without lower extremity peripheral arterial disease (PAD). We also studied associations between calf muscle characteristics and functional impairment in PAD.
METHODS: Participants were 478 persons with PAD (ABI<0.90) and 292 without PAD (ABI 0.90 to 1.30). Calf muscle cross-sectional area and percent of fat in calf muscle were measured with Computed Tomography at 66.6% of the distance between the distal and proximal tibia. Physical activity levels were measured continuously over seven days with a vertical accelerometer and a pedometer. Functional measures included the six-minute walk test, four-meter walking speed (usual and fastest pace) and the summary performance score.
RESULTS: Results in the table below are adjusted for age, race, sex, comorbidities, tibia length, smoking, and other potential confounders. Associations shown for calf muscle area remained statistically significant after additional adjustment for physical activity and calf percent fat. Among PAD participants with ABI differences of 0.20 or more between their right and left legs, legs with lower ABI had lower muscle area (5,283 ± 1403 vs. ± 1,230, p=0.001) and higher calf percent fat (11.4% ± 15.07 vs. 9.5% ± 10.1, p=0.035). Among PAD participants, lower calf muscle area was associated with significantly poorer performance in usual and fast paced four-meter walking speed and in the summary performance score, adjusting for ABI, physical activity, comorbidities, and other confounders.
CONCLUSIONS: These data support the hypothesis that lower extremity ischemia has a direct, adverse effect on calf skeletal muscle area and the proportion of fat in calf muscle. These adverse associations may mediate previously established relationships between PAD and functional impairment.

Adjusted Associations between the ABI and Calf Muscle Characteristics

	ABI <0.50	ABI 0.50 to <0.90	ABI 0.90 to <1.30	P trend
Calf muscle area (mm2)	5,193	5,536	5,941	<0.001
Calf muscle percent fat	12.8%	11.4%	9.2%	<0.001

LOWER HEALTH LITERACY AND SOCIAL SUPPORT ARE ASSOCIATED WITH LOWER MAMMOGRAM USE. S.C. Scheiderich[1]; S.D. Lee[2]; Y. Cho[1]; K.S. Crittenden[1]; D. Vicencio[3]; A.M. Arozullah[4]. [1]University of Illinois at Chicago, Chicago, IL; [2]University of North Carolina at Chapel Hill, Chapel Hill, NC; [3]Mercy Hospital and Medical Center, Chicago, IL; [4]Jesse Brown VA Medical Center, Chicago, IL. *(Tracking ID # 154689)*

BACKGROUND: Prior studies found lower mammogram use among older women from racial/ethnic minorities with lower socioeconomic status. Lower health literacy and social support are prevalent among elderly women from racial/ethnic minorities and may have independent associations with lower mammogram use. We determined the independent and interactive relationships of health literacy and social support on mammogram use.
METHODS: We enrolled subjects between March 2003 and February 2004. Eligible subjects were: age >65 years; Medicare recipients; mentally competent; had good vision and hearing; were currently living at home in Illinois; were able to complete the interview in English; and had one or more outpatient visits to a Mercy Medical Center facility between 1999 and 2003. We queried subjects about prior mammogram use by asking 'How long has it been since you had your last mammogram?' Participants were classified as having a mammogram if they reported their last mammogram occurred within the prior 12 months. We also assessed health literacy (REALM), social support for medical care ('How often did someone accompany you to doctor visits?'), socio-demographics, health status (SF-12), medical co-morbidities, self-efficacy, attitude towards healthcare, risky behaviors, medication compliance, and prior healthcare utilization and access. We used logistic regression models to evaluate the independent associations of health literacy and social support on mammogram use (<=12 months ago vs. >12 months ago or never). Control variables included in these models were age, race/ethnicity, general medicine visits in prior 12 months, physical health status, and depression (Geriatric Depression Scale).
RESULTS: We enrolled 389 women with mean age 78.3 years (SD 6.9), of whom 54% were African-American and 38% were Caucasian. Overall, 67% reported having a mammogram within the prior 12 months. Subjects with <=6th grade health literacy had significantly lower mammogram use compared to those with >8th grade health literacy (47% vs. 63%, p<0.03). In multivariate analysis,

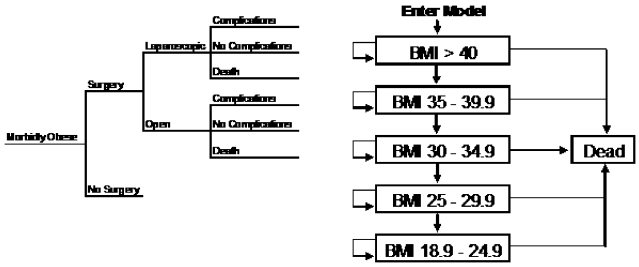
subjects with < =6th grade health literacy were significantly less likely than those >8th grade health literacy to receive mammograms (OR=0.31, 95% CI=0.12–0.76). Conversely, subjects who reported sometimes having social support for medical care had significantly higher mammogram use compared to those without social support for medical care (78% vs. 66%, $p<0.004$). In multivariate analysis, subjects who reported sometimes having social support for medical care were significantly more likely to receive mammograms than those without support (OR=2.7; 95% CI=1.3–5.6). Literacy/social support interaction terms were not statistically significant. Routinely reading nutritional facts (OR=2.2; 1.2–4.2) and higher self-efficacy (OR 2.9; 1.3–6.5) were significant predictors of higher mammogram use. Not receiving a Pap smear test within the prior 12 months (OR=0.25; 0.10–0.62) and always having communication difficulties with doctors (OR=0.32; 0.15–0.72) were significant predictors of lower mammogram use.
CONCLUSIONS: Lower health literacy, < =6th grade level, was independently associated with lower self-reported mammogram use. Conversely, higher social support for medical care was associated with higher mammogram use. Lower self-efficacy, lower Pap smear use, and patient-physician communication difficulties may represent other potential barriers to mammogram use.

MARKETING STRATEGIES BY THE TOBACCO INDUSTRY IN ARGENTINA: HERE WE GO AGAIN. S.N. Braun[1]; R. Mejia[1]; E.J. Perez-Stable[2]; J. Barnoya[2]. [1]Universidad de Buenos Aires, Buenos Aires, ; [2]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 153754)*

BACKGROUND: Argentina has the highest smoking prevalence in Latin America. Transnational tobacco companies have expanded their market targeting adolescents and women and taking advantage of countries such as Argentina with minimal regulation of tobacco advertising. The objective of this study was to determine whether and how the tobacco industry (TI) targeted adolescents and women in Argentina and to evaluate the length and content of tobacco images in the largest Argentinean newspapers and magazines from 1995 to 2004.
METHODS: We conducted a systematic search of Philip Morris (PM) and British American Tobacco (BAT) documents available through the Internet dated between 1995 and 2004. We used standard search terms (e.g., "Argentina" combined with "marketing strategies", "advertising", "young adult", "female", and "women") to identify TI marketing strategies in Argentina. We completed a selected review of the four newspapers and nine magazines with the leading national circulation in Argentina between 1995 and 2004. Magazines reported a readership of women and youth of at least 50%. We analyzed all newspaper issues during the same four months in order to avoid seasonal variation (systematic sample) and reviewed all magazine issues in the designated years. We searched for tobacco images and these were classified as advertisement if associated with a commercial product or as a story if not associated with a specific commercial product.
RESULTS: TI used market segmentation as a strategy to target Argentineans. PM and BAT developed different plans for each segment, especially for the "light" and "premium" segments. More than 78% of the advertisements founded in women's magazines were for lights brands consistent with the TI documents that "light" brands were targeted to women. Marketing strategies showed "light" brands were promoted as a means of reducing the perceived health risks associated with smoking. Marketing research disclosed that Argentine women consumers, like Europeans, were resistant to being singled out for being female. Accordingly, less than 1% of the tobacco advertising found in newspapers and magazines showed women only and instead women were usually presented in some social activity with men. The consumer profile for premium brands was biased towards young men. Marlboro by PMI was the most important brand for smoking initiators and the market leader. PMI has in fact developed a ten-cigarettes box as a successful "initiation vehicle" for this brand. Marlboro was the most advertised brand in newspapers and magazines and the most identifiable logo in tobacco stories that included sport images during 1995-2004. TI documents revealed that BAT undertook a consumer psychographic study and classified smokers into marketing categories labeled: progressives, jurassic or conservatives and crudos or spoiled brats. Thus, BAT marketed their national brands to the conservatives and linked these brands with nationalistic values in advertising campaigns. National brands were the most frequently found (70%) in sports magazines, and associated with popular sports.
CONCLUSIONS: The TI used targeted marketing strategies in Argentina by focusing on women, youth and psychographic categories with specific methods. Tobacco control researchers and advocates may be able to adapt these strategies in reverse marketing interventions.

MARKOV ECONOMIC MODEL FOR SURGERY IN THE MORBIDLY OBESE. D. Garrow[1]; K. Simpson[1]; J. Romagnuolo[1]. [1]Medical University of South Carolina, Charleston, SC. *(Tracking ID # 153248)*

BACKGROUND: Gastric bypass surgery appears to be an effective tool for weight loss in the morbidly obese, but is expensive. Some insurance companies and government payers have been reluctant to fully fund this procedure. We sought to determine the cost-effectiveness of gastric bypass surgery in the morbidly obese.
METHODS: We used a Markov process to model progression of weight loss and associated costs for both surgical and non-surgical interventions. The base-case was a 50 year-old patient with a body mass index (BMI) > 40. A third-party payer perspective was used, using direct health care costs and indirect costs related to recovery from surgery. We included literature-derived data concerning BMI-specific direct costs (including physician visits, medication costs, hospitalizations, etc), transition probabilities, and quality of life (utilities), as well as competing age-specific death rates, for both laparoscopic and open gastric bypass surgeries versus diet and exercise with a decision tree. Indirect costs related to time lost recovering from surgery were considered. Transitions between BMI states were modeled in 1-year transitions, over a lifelong time horizon. Downstream health care costs and utilities were discounted at 3% per year. Incremental cost-effectiveness ratio (ICER) calculations were planned for non-dominant strategies.
RESULTS: Surgical therapy for obesity was dominant (less costly and higher quality of life), therefore an ICER is not calculable (no tradeoff). The discounted health care cost savings per patient over an expected lifetime for surgery vs. non-surgical therapy was $21,248. After incorporating the most optimistic estimates for weight loss into the model for the non-surgical treatment group, the total procedure cost, ancillary services and hospital stay for the initial surgery took 13 years to recoup. Over the expected lifetime, 1.5 years (discounted) quality-adjusted-life-years (QALYs) were gained per patient for surgery vs. non-surgical therapy. Sensitivity analyses revealed the model conclusions to be robust.



Decision Tree and Markov Model for Surgery in the Morbidly Obese

CONCLUSIONS: Surgery for the morbidly obese is a cost-effective (in fact dominant) choice for morbidly obese subjects when lifetime healthcare costs are considered.

MEASURING OUTPATIENT CORONARY ARTERY DISEASE QUALITY OF CARE USING ELECTRONIC HEALTH RECORDS: PITFALLS AND TARGETS FOR IMPROVEMENT. S.D. Persell[1]; J. Wright[1]; J. Thompson[1]; K. Kmetik[2]; D. Baker[1]. [1]Northwestern University, Chicago, IL; [2]American Medical Association, Chicago, IL. *(Tracking ID # 151672)*

BACKGROUND: Electronic Health Records (EHRs) can support quality improvement and the public reporting of quality data. The Centers for Medicare and Medicaid Services (CMS) is evaluating the feasibility of using EHR-based quality indicators for outpatient care through the Doctor's Office Quality-Information Technology (DOQ-IT) project. These indicators, developed and maintained by the American Medical Association-convened Physician Consortium for Performance Improvement (AMA/Consortium), may be used in future pay-for-performance programs. We evaluated how well these measures reflect actual quality for coronary artery disease (CAD).
METHODS: We performed a retrospective chart review for patients with diagnosis codes for CAD seen at an urban internal medicine practice using a commercial EHR. We compared results of single automated review with a two-step process of automated review supplemented by physician review for apparent quality failures. The outcome measures were seven quality indicators for outpatient CAD patients: 1) antiplatelet drug, 2) lipid lowering drug, 3) beta blocker following myocardial infarction, 4) blood pressure measurement, 5) lipid measurement, 6) low-density lipoprotein cholesterol (LDL-C) control, and 7) angiotensin converting enzyme inhibitor for patients with diabetes or impaired left ventricular systolic function. We calculated the performance rates of the DOQ-IT indicators as follows: number meeting criteria/(number meeting criteria+number not meeting criteria with no exclusion criteria). We repeated these calculations after reclassifying patients based on physician chart review. Fifteen percent of charts were reviewed by two physicians. Inter-rater reliability for determining if misclassification occurred was good (kappa=0.62–0.85 for individual indicators, 0.78 overall). The project was supported by grant 5 U18 HS013690-02 from the Agency for Healthcare Research and Quality.
RESULTS: We identified 1006 patients with CAD diagnosis codes and at least 2 office visits in 2004. By automated review, adherence to the seven quality measures ranged from 73.0% for lipid lowering drug prescribing to 97.6% for blood pressure measurement. However, review of physician notes showed that many of the cases that appeared to fail the quality measures were misclassified. The percentage of apparent quality failures that subsequently satisfied the measure based upon chart review (i.e., had the recommended intervention or met exclusion criteria) was 72, 67, 48, 79, 38, 15, and 33 percent, respectively. Success rates calculated using the two-stage process ranged from 87.1 for LDL-C control to 99.2 for blood pressure measurement. Reasons for misclassification included incorrect use of diagnosis codes, failure to record data meeting indicator criteria in searchable fields, and failure to capture permitted exclusions using automated searches.
CONCLUSIONS: In a setting where quality was generally high, apparent quality problems were frequently due to measurement error rather than poor care. Measuring outpatient CAD care using these indicators derived solely from an EHR may not produce accurate results in their current form. Prevalent classification errors may pose an important obstacle to using these indicators for provider accountability. Improving how clinicians document chronic disease

care, adding standardized codes to explain clinical exceptions, and modifying EHRs to improve chronic disease documentation may make EHR-based CAD quality indicators more accurate.

MEASURING QUALITY OF CARE FOR HOSPITALIZED VULNERABLE ELDERS: USE OF ACOVE QUALITY INDICATORS. V. Arora[1]; M. Johnson[1]; P. Podrazik[1]; S. Levine[1]; G. Sachs[1]; D.O. Meltzer[1]. [1]University of Chicago, Chicago, IL. *(Tracking ID # 151571)*

BACKGROUND: Although many studies have examined quality of care for older patients, few of these studies have used quality of care measures relating to conditions specific to older adults, such as dementia. To address this problem, the Assessing Care of Vulnerable Elders (ACOVE) Project has developed quality indicators (QIs), which may be adopted in pay-for-performance programs, to measure the quality of care for frail elders. Although the ACOVE QIs have been used in community dwelling adults, they have not been used in a cohort of hospitalized patients. This study aims to develop and use ACOVE-based process of care measures to evaluate the quality of care for hospitalized vulnerable elders.
METHODS: All patients age 65 or older hospitalized on the University of Chicago inpatient general medicine services were approached for an interview using the VES-13, a 13 item validated tool based on age, self-reported health, and functional status. Patients scoring 3 or higher were defined as vulnerable and eligible for chart reviews. In choosing which ACOVE QIs to operationalize, those that referred to conditions that were rare on the general medical services (e.g. acute MI), had a low likelihood of meaningful variation (e.g. all vulnerable elders should have a diagnosis), unlikely to be obtained by medical chart review (e.g. continuity with primary care physician), or were too costly to measure on a large scale (e.g. observation every 15 min for restraints) were excluded. Percent adherence was calculated by dividing the number of eligible patients who passed the indicator by the number of patients eligible for that indicator. Adherence for general medical (e.g. pain, etc.) and geriatric-specific conditions (e.g. pressure ulcers, dementia) was compared using two-sample tests of proportions. Adherence by type of care (screening, treatment, and diagnosis) and provider (doctor, nurse) was also calculated.
RESULTS: 834/984 (85%) patients participated. Of these, 423 (51%) were deemed vulnerable. 298 (71%) charts were available for review. 16 QIs were chosen and operationalized into measures for chart review. These QIs measured care in the domains of general medical care, pressure ulcer care, and dementia. QIs for general medical care were met at a rate of 88% (1227/1403), significantly higher than for geriatric-specific conditions [dementia 80% (458/569) and pressure ulcers 65% (344/527)] ($p<0.001$ for both). Screening indicators were performed almost universally [99.6% (467/469)] and more often than diagnostic indicators [51% (183/357)] and therapeutic indicators [71% (314/441)] ($p<0.001$ for both compared to screening). Nurses, through the use of standard nursing assessment forms, outperformed doctors on each of the screening indicators (e.g. cognitive and functional status, pain, nutrition, pressure ulcers, etc.) ($p<0.001$ for all). Yet, screening by nurses was less likely to detect patient functional limitations than screening by doctors (when compared to patient self-report) [RN 233/403 (58%) vs. MD 73/88 (83%), $p<0.001$].
CONCLUSIONS: Quality of geriatric-specific hospital care is worse than for general hospital care. Although QIs for screening of geriatric-specific conditions are met at very high rates by nurses using standard forms, these screenings may either fail to detect patient conditions or to trigger diagnostic and therapeutic follow-up by doctors. This may have implications for the use of these screening QIs in pay-for-performance programs.

MEASURING SYMPTOM EVALUATION FOR BREAST CANCER PATIENTS AND ASSOCIATIONS WITH PROVIDER AND PRACTICE CHARACTERISTICS. D.M. Tisnado[1]; A. Misra[1]; J. Malin[1]; M. Tao[2]; P. Ganz[1]; K.L. Kahn[1]. [1]University of California, Los Angeles, Los Angeles, CA; [2]St John's Health Center, Los Angeles, CA. *(Tracking ID # 156682)*

BACKGROUND: Symptom management is an important component of breast cancer care, and symptom evaluation is necessary for symptom management. We measured physicians' propensity to routinely evaluate symptoms that patients may experience during breast cancer treatment.
METHODS: Cross-sectional, observational study. We surveyed medical oncologists, radiation oncologists and surgeons practicing in Los Angeles County, identified by a population-based cohort of women with breast cancer retrieved from cancer registry (76% response rate, $n=346$). Physicians were queried about the frequency of evaluating seven symptoms pertinent to breast cancer patients during treatment. We asked all physicians about 5 symptoms (depressed mood, fatigue, menopausal symptoms, arm pain, and other bodily pain). We also asked each specialist about 2 additional symptoms: medical oncologists (fever, nausea and vomiting); radiation oncologists (skin irritation, breast or chest wall discomfort); and surgeons (fever, surgical incision drainage). Responses were scored from 0 to 2 for each symptom: one point each was assigned for routine symptom assessment 1) at initial consult (or first post-op visit for surgeon), and 2) during treatment. Symptom evaluation only on an as needed basis received zero points. Scores were also summed across the 7 symptoms. This Symptom Evaluation Summary Score (SESS) ranges from 0–14 points. Analyses were weighted for non-response and adjusted for clustering of physicians within practices. Univariate and bivariate analyses were performed. Covariates included provider and practice characteristics (gender, age, specialty, breast cancer volume, belief regarding which specialty type is responsible for symptom evaluation, and practice type).
RESULTS: Observed symptom evaluation scores varied little across symptoms among medical oncologists, with an overall mean $=1.4$ and range from 1.2 for evaluation of depressed mood ($SE=0.7$) to 1.6 ($SE=0.6$) for both fever and pain. Variation appeared greater across symptoms among radiation oncologists, ranging from 0.08 ($SE=0.8$) for menopausal symptom evaluation to 1.5 ($SE=0.6$) for discomfort in the breast or chest wall, with an overall mean $=1.2$. Surgeon mean scores were lower (mean $=0.7$) and also varied across symptoms evaluated, ranging from 0.4 for depressed mood, fatigue, and menopausal symptoms ($SE=0.6$ for all) to 1.0 for drainage. Bivariate analyses showed that mean SESS varied among cancer specialty types, with a lower mean among surgeons (4.7) versus medical oncologists (9.9) and radiation oncologists (8.6) ($p<0.01$). Positive, significant associations were observed between SESS and female gender ($p=0.03$), breast cancer patient volume ($p<0.0001$) single specialty and university-based group (versus solo) practice type (0.001), visit duration ($p<0.0001$), and belief that one's own specialty type (versus another) is responsible for symptom evaluation ($p<0.0001$).
CONCLUSIONS: Physicians' likelihood of providing routine symptom evaluation to breast cancer patients varies with physician specialty type; in addition, there was variation in the frequency with which physicians reported routinely assessing different symptoms. Additional physician and practice characteristics (female gender, volume, physician beliefs, practice type and visit duration) are associated with more symptom evaluation service delivery. The systems used to optimize symptom evaluation and possible tradeoffs deserve further study.

MECHANISMS FOR RACIAL AND ETHNIC DISPARITIES IN GLYCEMIC CONTROL AMONG MIDDLE-AGED AND OLDER AMERICANS IN THE HEALTH AND RETIREMENT STUDY (HRS). M. Heisler[1]; R.A. Hayward[1]; K.M. Langa[2]; C. Blaum[2]; D.R. Weir[2]. [1]VA Ann Arbor Health System/University of Michigan, Ann Arbor, MI; [2]University of Michigan, Ann Arbor, MI. *(Tracking ID # 155650)*

BACKGROUND: Mechanisms explaining racial and ethnic disparities in glycemic control among American adults with diabetes remain poorly understood. We examined the extent to which differences in a wide array of socio-economic, clinical, health care and behavioral variables contributed to disparities in Hemoglobin A1c values among respondents in a nationally representative study of middle-age and older Americans.
METHODS: 1895 respondents with diabetes participating in the Health and Retirement Study (HRS), a nationally representative longitudinal study of Americans aged 50 and older, completed a mailed survey in 2003 (81% response rate). 1200 respondents (63% of the sample) successfully completed at-home A1c kits. Using data from this survey and prior survey waves, we constructed multivariable regression models to examine racial/ethnic differences in A1c control and to explore the association with A1c levels of multiple factors hypothesized to contribute to disparities in glycemic control, including socio-demographic, economic and clinical factors, access to and quality of diabetes health care services received, and self-management behaviors and attitudes.
RESULTS: There were no racial or ethnic differences in A1c levels among respondents who were not taking glycemic medications for their diabetes. Among respondents on medications ($n=950$), the mean A1c value among black respondents was 7.81 and among Latino respondents was 7.92, compared to a mean A1c level of 7.15 among white respondents ($p<0.01$). Adjusting for hypothesized mechanisms reduced the association of race/ethnicity with higher A1c levels by approximately 25%, with the model explaining 16% of the variance in A1cs. Insulin use, longer diabetes duration, lower diabetes care self-efficacy, lower self-reported medications adherence, and a higher level of diabetes-specific distress were each independently associated with higher A1c levels. Racial disparities in A1c were especially pronounced among respondents younger than 65, with higher rates of lower self-reported medications adherence among African-Americans contributing significantly to the observed disparities in that age group.
CONCLUSIONS: In this national survey of middle-age and older Americans conducted in 2003, Latino and African American adults had significantly worse glycemic control than white adults. Socio-economic, clinical, health care, and self-management measures explained less than a quarter of the A1c differences among adults on medications. Of the factors we assessed, two potentially modifiable factors–medications adherence and diabetes self-management attitudes–were the most significant independent predictors of glycemic control.

MEDICAID COVERAGE AND BENEFICIAL POST-RELEASE OUTCOMES AMONG INCARCERATED WOMEN AND ADOLESCENT MALES. J. Lee[1]; N. Freudenberg[2]. [1]New York University, New York, NY; [2]Hunter College, New York, NY. *(Tracking ID # 153860)*

BACKGROUND: Earlier analysis of data from Health Link, a drug use and HIV risk reduction program enrolling incarcerated women and adolescent males as they leave jail and return to the communities of the South Bronx and Harlem, showed post-release health insurance coverage to be associated with lower rates or re-arrest and higher rates of primary care utilization among women. This follow-up study sought to further measure associations between Medicaid coverage, the predominant form of health insurance in this sample, and other post-release outcomes, including drug treatment and illegal activity, among a combined sample of women ($N=511$) and adolescent males ($N=537$).
METHODS: This analysis examined post-release outcomes associated with Medicaid coverage among a prospective cohort of 1048 women and adolescent males leaving jail in New York City from 1997–2001 and completing a single follow-up interview at one year. The self-reported outcomes of interest included primary care utilization, mental health treatment, alcohol and drug treatment (detox or rehab), 12-step participation, difficulty receiving needed medical care, heavy drug and alcohol use, and illegal activity since release. Independent variables of interest included Medicaid coverage at follow-up and factors hy-

pothesized to effect Medicaid status: age, receipt of public benefits, self-report of HIV, hospitalization, and re-arrest since release. Descriptive and multivariate logistic regression analysis was performed with Stata SE 8.0.
RESULTS: One year after release from jail, 36% (51% women, 22% males) reported Medicaid coverage. Adjusting for re-arrest, age, HIV status, hospitalization, and receipt of public benefits, Medicaid coverage was associated with primary care utilization (Adjusted OR 1.99, 95% CI 1.39–2.85) and drug treatment (AOR 1.59, 1.08–2.33). Medicaid coverage was inversely associated with self-reported difficulty receiving needed medical care (AOR 0.43, 0.23–0.82) and re-arrest (AOR 0.31, 0.22–0.45). There were no associations between Medicaid coverage and 12-step participation (AOR 1.07, 0.72–1.57), heavy drug and alcohol use (AOR 1.26, 0.88–1.79), or illegal activity (AOR 0.91, 0.59–1.38). Among persons reporting mental health disorders (N=243) and HIV (N=96), larger proportions of those with Medicaid received mental health treatment (52% vs. 41%, p=0.29) and HIV care (89% vs. 63%, p<0.005).
CONCLUSIONS: This analysis of the full Health Link sample demonstrated that associations with Medicaid coverage and the outcomes of primary care utilization and avoidance or re-arrest exist in both adolescent males and women. Higher rates of post-release drug treatment and self-reported receipt of needed medical care were also reported in persons with Medicaid, independent of factors thought to effect insurance status. Whether Medicaid coverage prior to incarceration is also associated with beneficial post-release outcomes is unknown. An initiative to improve rates of Medicaid coverage among eligible persons leaving jail is part of a current effort in New York City to positively influence re-entry, recidivism, and access to appropriate healthcare.

MEDICAID REIMBURSEMENT FOR SCREENING MAMMOGRAPHY. A.D. Shah[1]; J. Schuur[2]; H.P. Forman[1]; C.P. Gross[1]. [1]Yale University, New Haven, CT; [2]VA Medical Center, West Haven, CT. *(Tracking ID # 152325)*

BACKGROUND: A large at-risk population relies on Medicaid for access to mammography. In many states, Medicaid is the payer not only for patients with Medicaid insurance but also for uninsured patients who qualify for mammography services through the Breast and Cervical Cancer Mortality Prevention Act. Unlike the relatively stable Medicare fee structure, Medicaid mammography rates are set by individual states and are frequently adjusted due to budgetary pressures. Prior research shows that Medicaid patients are less likely to utilize screening mammography. It is important to understand the degree to which Medicaid mammography rates vary, because radiologists cite low reimbursement rates as a barrier to providing mammography services. We hypothesized that there would be significant variation in Medicaid reimbursement rates for mammography between states and in comparison to local Medicare payments.
METHODS: We obtained Medicaid reimbursement rates for unilateral diagnostic mammography and screening mammography (CPT codes 76090 and 76092) through online physician fee-schedules or by contacting state Medicaid offices. Rates were available for 48 states. We obtained Medicare reimbursement rates from the Medicare Physician Fee Schedule Look-Up. Rates were recorded in a database and a ratio of Medicaid to Medicare reimbursement rates was calculated for each code in each Medicare carrier district. State-level ratios were calculated by collapsing all Medicare carrier districts within a state and weighting by population. We compared reimbursement levels within states with paired T-tests.
RESULTS: Mean reimbursement rates for mammography are shown in the table below. Mean Medicaid-to-Medicare ratios were 0.75 for screening mammograms (range 0.20–1.47, median=0.76, SD=0.25) and 0.69 for unilateral diagnostic mammograms (range 0.27–1.20, median=0.69, SD=0.23). The five states with the highest Medicaid-to-Medicare ratios for screening mammography (KS, WI, NE, AR, IA) ranged from 1.07–1.47. The five states with the lowest ratios for screening mammography (UT, NJ, AZ, OR, RI) ranged from 0.20–0.42. There is a significant difference between Medicaid and Medicare reimbursement for screening and diagnostic mammography (p<.0001). See Figure 1 for Medicaid-to-Medicare ratios for screening mammography by state.

Mean Reimbursement for Mammography

	Medicaid	Medicare	p
Screening Mammography	$63 (range $16–$128)	$85 (range $75–$143)	<.0001
Diagnostic Mammography	$53 (range $20–$117)	$77 (range $69–$131)	<.0001

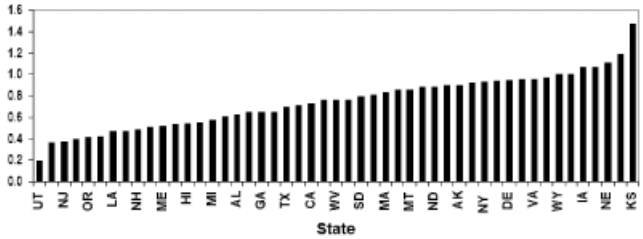


Figure 1. Medicaid-to-Medicare Ratio for Screening Mammography

CONCLUSIONS: These data show substantial variation in Medicaid reimbursement rates for mammography. We are conducting further research to determine whether there is an association between Medicaid reimbursement rates and access to mammography services.

MEDICAL EDUCATION AT A STUDENT-RUN HEALTH CLINIC. S.A. Simpson[1]; E.P. Nacke[1]; J.A. Long[2]. [1]University of Pennsylvania School of Medicine, Philadelphia, PA; [2]Philadelphia VA CHERP, Philadelphia, PA. *(Tracking ID # 152656)*

BACKGROUND: Despite the proliferation of medical student-run health clinics, the impact of these programs on medical education has not been evaluated. Educators have noted these clinics' value for teaching clinical skills, fostering medical humanism, and providing students opportunities for community activism. Notably, the early stage of training during which many medical students volunteer with these programs can magnify the influence of student-run clinics in medical education.
METHODS: To allow broad investigation of an unexplored topic, we used semi-structured interviews with volunteers and patients in one medical student-run clinic. We developed a thematic coding system, and each interview was coded by two independent reviewers. We complemented these findings with a survey of second-year, pre-clinical medical students.
RESULTS: We interviewed 5 faculty, 8 medical students, and 14 patients to achieve thematic saturation. The survey response rate was 91% (141/155). Faculty were motivated to volunteer as a community service and also considered the clinic valuable for teaching clinical and communication skills, clinical pathology, and imparting the philosophy of service on students. Medical students volunteered to learn clinical skills, serve the poor, and spend time with patients before formal rotations. Although prior clinical experience did not predict students' volunteerism, students did learn many new skills. More than one-third of a medical school class first learned to take a patient history and present a patient to an attending physician at a student-run clinic. Learning to take a blood pressure and blood sugar were other frequently learned techniques. Students gained an appreciation of patients' background, but their changes in attitudes towards patients were not always positive: most did not consider themselves more empathetic for having volunteered, for example, and one student questioned patients' motivations for wanting medication. Patients were active, conscious participants in the clinic's educational environment–they recognized clinic workers as students and discussed their personal contributions to students' experiences.
CONCLUSIONS: Student-run health clinics are significant, influential venues for medical students to acquire skills and interact with patients. This work clarifies educators' expectations for a student-run clinic, but also suggests that students' experiences do not always mirror these expectations. Despite being advantageous in other regards, this student-run clinic is not a vehicle for fostering medical humanism among students. This discord between students and faculty does not suggest an educational failure so much as it highlights a need for further consideration of student-run clinics' growing impact in medical education. Ultimately, these programs epitomize a synergistic relationship between academic medicine and the community: patients receive beneficial services that may otherwise be unavailable for them, and students may benefit from unique clinical experiences.

MEDICAL STUDENT-RUN HEALTH CLINICS–A GROWING TREND IN COMMUNITY ACTIVISM AND MEDICAL EDUCATION. S.A. Simpson[1]; J.A. Long[2]. [1]University of Pennsylvania School of Medicine, Philadelphia, PA; [2]Philadelphia VA CHERP, Philadelphia, PA. *(Tracking ID # 152942)*

BACKGROUND: Medical student-run health clinics are popular programs for medical students to serve their community while gaining clinical experience. However, there is no information on how many such clinics exist nationwide, how many patients these clinics see, what services they offer, or how many students are involved with these programs.
METHODS: We disseminated an online survey through email and telephone invitations to the Deans or Directors for student affairs at 124 Association of American Medical Colleges allopathic medical schools in the 50 United States.
RESULTS: A total of 94 schools (76%) responded, of those who responded 52% (49/94) have at least one student-run clinic and 24 schools have more than one. The following results are based on 59 different student-run clinics for which we collected data. Student-run clinics operate in a variety of settings, most frequently homeless shelters/community agencies (32%), hospitals (19%), and churches (14%). Almost all (98%) operate year-round, and most (81%) see patients at least once a week. The average clinic has 16 student volunteers a week, including preclinical-year medical students (93%), clinical-year medical students (77%), and, less frequently, health-related graduate students (37%) and undergraduates (35%). All clinics have at least one faculty physician present while operating, but many also have a professional nurse (26%) or social worker (21%). Respondent clinics report an average of 19 (± 12) patient encounters per week, of which 15 (± 10) are visits with a medical student and faculty physician; about half (48%) of visits are returning patients. Clinics serve predominantly minority populations: 31% Hispanic; 31% Black/African American; 25% White; and 11% Asian. Most clinics (88%) serve uninsured patients, although many (36%) suggested that they do not ask for patients' insurance

status, or that it does not matter. Student-run health clinics provide a variety of services including blood pressure monitoring (98%), acute care (97%), blood glucose readings (86%), standardized patient education (66%), condom distribution (64%), health form completion (64%), and multivitamin distribution (55%). Preclinical medical students routinely perform many of these services. Most clinics (79%) dispense some or all medications on site, including antibiotics (86%), hypertension drugs (84%), non-prescription analgesics (84%), and neurological drugs (45%). If further care is needed, patients are most frequently referred to the emergency room (85% of clinics). Most clinics (81%) have arrangements for laboratory services on- or off-site. Most clinics (78%) never charge patients. Clinics are most often funded by private grants (71%); other income sources include student fundraising (62%) and government grants (25%). Some respondents noted that medical schools and pharmaceutical companies donated medications or supplies. Twenty-seven clinics reported their annual operating budgets, which averaged $18,784.
CONCLUSIONS: Medical student-run health clinics are significant both as educational programs and also as a health service for disadvantaged patients, to whom they offer a variety of medical services, medications, and referrals. Student-run clinics are now established healthcare delivery programs involving thousands of medical students, tens of thousands of patients, and hundreds of thousands of dollars annually. Wider considerations of community health and medical education should not neglect the local role of a student-run health clinic.

MEDICAL STUDENTS WITH LOWEST PERFORMANCE ON A CLINICAL SKILLS EXAM POORLY SELF-ASSESS ABILITY. L.R. Tewksbury[1]; R. Richter[2]; C. Gillespie[3]; A.L. Kalet[1]. [1]New York University School of Medicine, New York, NY; [2]New York University, New York, NY; [3]New York University Robert F. Wagner School of Public Service, New York, NY. *(Tracking ID # 153723)*

BACKGROUND: Clinical skills exams have been shown to be valid and reliable tools for detecting students with poor clinical skills. In order for such students to improve, they need to be able to accurately assess their ability, the basis of lifelong learning. Having a better understanding of how these students self-assess their level of competence would thus be important in developing successful remediation programs. In this study, we aim to explore how students with lowest performance on a comprehensive clinical skills exam (CCSE) self-assess their level of competence.
METHODS: All 4th year medical students completed an 8-station CCSE during which standardized patients (SPs) rated communication skills (CS), history gathering (HG) and physical exam skills (PE). Students were requested to complete a post-exam survey including a self-assessment of competence in CS, HG and PE relative to level of training. Criteria for remediation included failure in 2 or more competencies (CS, HG or PE) or CS alone. Responses to self-assessment (lower, accurate or higher level of competence) relative to SP-rated performance (below, within or above one standard deviation of mean for class) were compared for remediated versus passing students using Pearson chi-square tests.
RESULTS: 145/170(85%) of students who took the exam consented to have their data analyzed anonymously. Eight students required remediation: 2 failed CS only; 1 failed CS, HG and PE; 3 failed CS and HG; and 2 failed HG and PE. All 8(100%) remediated students overestimated level of competence for CS versus 35/137(25%) passing students ($p<.001$). For HG, 6/8(75%) of remediated students overestimated and 2/8(25%) accurately estimated competence versus 18/137(13%) and 105/137(77%) of passing students ($p<.001$). For PE: 4/8(50%) of remediated students overestimated, 3/8(37.5%) accurately and 1/8(12.5%) underestimated competence versus 21/137(15%), 78/137(57%) and 38/137(28%) of passing students ($p=0.04$).
CONCLUSIONS: Medical students with the lowest performance on a clinical skills exam were significantly more likely to overestimate their level of competence compared to their peers, particularly in communication skills. Such findings should be taken into consideration when developing remediation strategies to enable students to more accurately self-assess their abilities.

MEDICATION BELIEFS PREDICT ADHERENCE TO INHALED STEROIDS IN INNER CITY ASTHMATICS. D. Ponieman[1]; J.P. Wisnivesky[1]; H. Leventhal[2]; E.A. Halm[1]. [1]Mount Sinai School of Medicine, New York, NY; [2]Rutgers, The State University of New Jersey, New Brunswick, NJ. *(Tracking ID # 152577)*

BACKGROUND: Asthma morbidity, mortality, and health services utilization is highest among inner-city populations. Adherence to daily inhaled corticosteroids (ICS) therapy is the cornerstone of evidence-based asthma management. However, adherence is often suboptimal. Several domains of medication beliefs may influence adherence with ICS including beliefs about necessity/importance, concerns, self-efficacy, and regimen complexity, among others. This study sought to examine a range of medication beliefs and their association with adherence to ICS.
METHODS: Detailed sociodemographic, clinical, and health belief data were collected in a prospective, observational cohort of inner city adults with persistent asthma in English and Spanish. Medication beliefs were based on Self-Regulation Theory and previously developed instruments. Beliefs about necessity related to importance of using ICS when symptomatic (SX) and when asymptomatic (ASX). Concern items related to worries about side effects and addiction. Other items include: "confidence in ability to use ICS (self-efficacy), and "how hard to follow your medication schedule (regimen complexity). Self-reported adherence to ICS was assessed using: 1) the Medication Adherence Reporting Scale (MARS), a validated, 10 item tool measuring overall adherence to ICS (Cronbach's alpha =.83), and 2) questions about frequency of use of ICS when SX and when ASX. Associations between beliefs and ICS adherence was assessed using Spearman correlations and chi square tests. Multivariate (MV) analyses adjusted for other factors known to influence adherence (age, sex, and asthma severity).
RESULTS: Of the 204 patients (Pts), mean age was 48 yrs, 60% Hispanic, 30% Black, and 20% completed the survey in Spanish. Overall, 10% had prior intubation, 57% prior asthma hospitalizations, and 71% had used oral steroids; 85% were prescribed ICS. Among these Pts, they reported using their ICS all/most of the time more often when having SX v. ASX (74% v. 68%, $p<.0005$). In univariate analyses, medication adherence (MARS score) was associated with beliefs about the importance of using ICS when ASX, worries about addiction and side effects, confidence in using ICS, and regimen complexity ($p<.05$). In MV models that adjusted for age, sex, and asthma severity, beliefs about importance of using ICS when ASX, worries about addiction, and confidence in using ICS remained significant predictors of medication adherence (MARS). In stepwise MV models that considered all beliefs together, beliefs about the importance of using ICS when ASX and confidence in using ICS were independent predictors of overall adherence adjusting for age, sex, and severity ($p<.05$). As predicted by the conceptual model (in univariate and MV models), beliefs about the importance of use of ICS when ASX was correlated with use of ICS when ASX ($p<.0001$), but not ICS use when SX ($p=.3$). Similarly, beliefs about importance of using ICS when SX were associated with adherence when SX ($p<.0001$), but not adherence when ASX ($p=.5$). Greater worries about addiction to ICS were associated with less frequent use of ICS when SX and ASX ($p<.005$).
CONCLUSIONS: Several key positive and negative beliefs about medications were associated with several measures of adherence to ICS. Eliciting and addressing these underlying beliefs may help improve adherence and outcomes. These potentially modifiable beliefs are promising targets for future asthma self-management interventions.

MEDICATION NON-ADHERENCE PREDICTS CARDIOVASCULAR EVENTS IN PATIENTS WITH CORONARY HEART DISEASE: DATA FROM THE HEART AND SOUL STUDY. A. Gehi[1]; S. Ali[2]; M.A. Whooley[2]. [1]Mount Sinai School of Medicine, New York, NY; [2]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 153132)*

BACKGROUND: Adherence to physician treatment recommendations is increasingly being recognized as an important predictor of health outcomes. Whether medication non-adherence predicts adverse cardiovascular (CV) events in patients with stable coronary heart disease (CHD) is unknown.
METHODS: We assessed medication adherence in 1019 outpatients with stable CHD who were enrolled in the Heart and Soul study by asking, "In the past month, how often did you take your medications as the doctor prescribed?" Possible responses were: all of the time (100%), nearly all of the time (90%), most of the time (75%), about half the time (50%), or less than half the time (<50%). We defined non-adherence as taking prescribed medications 75% of the time or less. During 3 (range 2 to 4) years of follow-up, we identified CV events (defined as CHD death, myocardial infarction, or stroke) by reviewing medical records. We examined the association of medication non-adherence with CV events using multivariate logistic regression, adjusted for potential confounding variables, including traditional cardiovascular risk factors and measures of baseline CHD severity.
RESULTS: Although only 8% (84/1019) of our volunteer study participants reported non-adherence to prescribed medications, 20% (17/84) of the non-adherent participants had a CV event, compared with 11% (105/935) of adherent participants ($p=0.02$). Medication non-adherence remained associated with CV events after adjustment for traditional CV risk factors and CHD severity (odds ratio (OR) 2.6, 95% confidence interval (CI) 1.3–5.5; $p=.009$). In a multivariable model, the increased risk of CV events associated with non-adherence appeared greater than that associated with hypertension (OR 1.5, 95% CI 0.9–2.7; $p=.13$) or diabetes (OR 1.8, 95% CI 1.1–2.9; $p=.02$).
CONCLUSIONS: Medication non-adherence independently predicts adverse CV events in patients with stable CHD. Medication adherence may be an important target for improving cardiovascular outcomes.

MEDICINE AND CONVENTIONAL WARFARE: DEVELOPING AN ETHICAL FRAMEWORK TO ASSESS COMBATANT CASUALTY BURDEN IN OPERATION IRAQI FREEDOM. A.P. Mahajan[1]. [1]University of California, Los Angeles Medical Center, Los Angeles, CA. *(Tracking ID # 154485)*

BACKGROUND: In scholarship and activism, physicians have confronted issues such as nuclear disarmament and the prohibition of biological and chemical weapons. With the recent war in Iraq, physicians are focusing on civilian (non-combatant) deaths and physician involvement in torture. However, the number of Iraqi battlefield (combatant) casualties, particularly during the major combat phase of the war, has received little or no attention among physicians, the media, and the wider public. Since the start of Operation Iraqi Freedom (OIF), the US military has maintained a policy of withholding Iraqi casualty statistics from the public. As a result, the full human cost of OIF has been obscured.
OBJECTIVE: To develop, from a medical perspective, a preliminary ethical framework to assess combatant casualty burden in contemporary conventional warfare.
METHODS: Relevant moral, human rights, and public health principles were applied to the major combat phase of OIF. The best available evidence on US and

Iraqi battlefield casualties as well as on the type of conventional arms utilized were reviewed.
RESULTS: From March 19, 2003 through May 1, 2003, the estimated number of Iraqi combatants killed ranged from 7,600 to 10,800 and about 50,000 wounded. During this same period, the US led coalition suffered 201 fatalities and 542 wounded. The attrition exchange ratio (number of Iraqi vs. US troops killed in the theater of combat) for OIF was greater than 60:1. Miles away from the battlefield, US forces deployed thousands of precision guided missiles and artillery shells, enabling annihilation of Iraqi combatants while being almost completely invulnerable to counterattack. The moral permissibility of this type of war begs an update of Michael Walzer's concept of 'The War Convention,' as well his interpretation of 'jus in bello'. While 'jus in bello' does not bar this kind of warfare, the ability to remotely kill off one's adversary without risking one's life is morally ambiguous and may not meet the requisite condition for killing, i.e. partaking in a war fought justly. Additionally, the notion that arms can be delivered so precisely (i.e. minimizing collateral damage) with so little human cost may make conventional warfare a more appealing option for conflict resolution. Physicians may also consider The Geneva Conventions Additional Protocol I and Henry Sidgwick's concept of proportionality when approaching the question of permissible enemy combatant casualties. The Conventions and Sidgwick's concept endorse a stringent standard of military necessity and prohibition of excessive harm to achieve military objectives. While the US military has shifted to 'Effects Based Operations' in an effort to limit unnecessary casualties, the efficacy of this change is unclear given higher civilian casualties in OIF compared to Desert Storm in 1991. From a public health perspective, disproportionate battlefield casualties may lead to an aggravation of asymmetric security risks for armed and civilian U.S. populations such as suicide bombing and terrorism.
CONCLUSIONS: Given the growing asymmetry of conventional arms capabilities, traditional 'jus in bello' concerns such as protection of civilians and collateral damage must be expanded to include a consideration of combatant casualty burden. As an analysis of OIF demonstrates, physicians could employ a set of moral, human rights, and public health principles to advocate for a more humanitarian approach to war.

MEDICINE SUB-INTERNS' ATTITUDES TOWARD EVIDENCE-BASED MEDICINE. D.A. Feldstein[1]; R.E. Gangnon[1]. [1]University of Wisconsin-Madison, Madison, WI. *(Tracking ID # 153172)*

BACKGROUND: The AAMC's Medical School Objectives Project reinforces the importance of teaching Evidence-Based Medicine (EBM) principles in the undergraduate medical curriculum. Medical students' attitudes toward EBM are not fully understood and are important in the development of effective curricula. We evaluated 4th year medical students' attitudes toward EBM and whether medical service assignment or attendance at journal clubs affected these attitudes.
METHODS: We surveyed all 4th year students before and after their Internal Medicine sub-internships at a University Hospital and VA Hospital between January 2003 and February 2004. The survey consisted of the following 6 statements assessing their attitudes toward the use of EBM and the importance of EBM in medical student education: 1) The use of EBM improves patient care; 2) The use of EBM will lower the cost of care; 3) EBM can be effectively used in a busy outpatient practice; 4) Using EBM is impractical in a clinical setting; 5) There is very little evidence available to help with patient care decisions; 6) Overall, it is important for medical students to learn how to effectively practice EBM. Students rated the statements on a 5 point Likert scale (1=strongly disagree; 5=strongly agree). The scores were summed to give an overall attitude score (maximum of 30 points). Subscores were calculated for EBM's effect on patient care (mean score on statements 1, 2 and 5) and EBM's practicality (mean score on statements 3 and 4). Mean scores were calculated and pre and post scores were compared using paired *t*-tests. Sub-group analysis was performed based on students' medical service assignment and self-reported attendance at residency journal club.
RESULTS: 80% (80/100) of the students completed both pre and post surveys. Students' initial overall attitude scores were high (mean 24.5; 95% CI, 24.3–24.8). The statement, "Overall, it is important for medical students to learn how to effectively practice EBM" scored highest with a mean pre survey score of 4.45. Students' attitudes for effect on patient care were higher than those for practicality with a difference of 0.27 ($p < 0.0001$). There was no significant change in any attitude scores between the pre and post surveys. In sub-group analysis, students on the University Cardiology service showed a statistically significant increase in overall attitude (mean 4.06 vs. 4.26, $p = 0.004$) and on 3 out of the 6 individual attitude statements. Journal club attendance was not associated with a change in attitude scores.
CONCLUSIONS: Fourth year medical students have positive attitudes toward EBM, especially about its benefit to improve patient care and the importance of EBM teaching. They feel less strongly about its practicality. Journal club attendance was not associated with a change in EBM attitudes, however, students on the Cardiology service did show improvement in EBM attitudes. Further studies are necessary to evaluate other factors affecting medical students' attitudes toward EBM and how these translate into clinical practice.

MEETING THE NEEDS OF WOMEN WITH BREAST CANCER: THE ROLE OF COMMUNITY PATIENT ASSISTANCE PROGRAMS. A.J. Cohen[1]; J. Gribetz[1]; K.N. Shastri[1]; N.A. Bickell[1]. [1]Mount Sinai School of Medicine, New York, NY. *(Tracking ID # 156734)*

BACKGROUND: Breast cancer treatment requires women to navigate a fragmented and complex medical delivery system during an emotionally and physically challenging time. Community-based patient assistance programs can help women get needed medical information, financial and insurance assistance, transportation as well as psychosocial support. There are a plethora of organizations dedicated to assisting women with breast cancer, yet little is known about whether such organizations are able to identify and meet the needs of these women. To ascertain the ability of such organizations to address the needs of women with breast cancer, we identified 10 high quality patient-assistance organizations that serve women in the New York metropolitan area.
METHODS: Organizations were chosen based on the following criteria: a broad scope of services; short wait time to join support groups; highly trained peer or professional staff; friendly, attentive staff who provide close personal attention; bilingual services; extensive hours of operation; and a referral system for services not directly provided by that organization. A written semi-structured survey was designed to determine women's needs and their perceptions of the organization's ability to identify and meet those needs. Surveys were distributed at the organizations and collected on-site or returned by mail.
RESULTS: In total, 47 women ranging in age from 34y to 86y (mean: 60y) were surveyed, of whom 19 (41%) were minority, and 8 (17%) reported fair to poor health status. 81% of women reported that most or all of their needs had been identified (68% minority vs. 88% white; $p = .09$) and 81% had their needs met (69% minority vs. 88% white; $p = .09$). 44 women (94%) had social support from family & friends; despite this support, they found the support provided by the organization filled a critical need. Additionally, 60% of women noted the organization met a need they did not realize they had.
CONCLUSIONS: Community-based patient assistance organizations provide important services that appear to improve women's experiences with breast cancer and its treatment. These programs are effective at identifying and addressing the needs of women with breast cancer, though there may be some disparities between white and minority populations. By addressing barriers to care, such patient assistance can serve as a crucial link between patients and medical professionals and may enable greater access to, understanding and completion of care.

MENTAL HEALTH DIAGNOSES AMONG 133,984 VETERANS OF OPERATIONS IRAQI FREEDOM AND ENDURING FREEDOM SEEN AT VA FACILITIES SINCE MILITARY SERVICE SEPARATION. K.H. Seal[1]; C.R. Miner[2]; D. Bertenthal[3]; S. Sen[3]. [1]San Francisco VA Medical Center and the University of California, San Francisco, San Francisco, CA; [2]San Francisco VA Medical Center, San Francisco, CA; [3]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 154528)*

BACKGROUND: To date, there have been no published reports describing the mental health burden of veterans of Operations Enduring Freedom (OEF) and Iraqi Freedom (OIF) listed in the VA OEF/OIF Roster. The aim of this analysis was to determine the proportion of OEF/OIF veterans seen in a VA health care facility who has received one or more mental health diagnoses and to describe the specific types of mental health diagnoses.
METHODS: The present analysis includes OEF/OIF veterans with military service separation dates or a clinical encounter at the VA from October 15, 2001 through September 30, 2005. Further, of 158,857 veterans, 24,873 (15.7%) were excluded because they had not had a VA clinical encounter. Encrypted social security numbers of OEF/OIF veterans in the Roster were used to link to VA administrative and clinical data contained within the VA National Patient Care Database (NPCD). ICD-9 codes were used to approximate the frequencies and proportions of mental health diagnoses as they have accrued from enrollment in the VA to date. Bivariable and multivariable analyses were conducted to determine sociodemographic and military service characteristics associated with having one or more mental health diagnoses and to determine and compare the frequency and proportion of mental health diagnoses and disorders by unit type (National Guard and Reserve versus Active Duty).
RESULTS: Overall, 40,840 (30.5%) had received one or more mental health diagnoses in any VA outpatient or inpatient setting; 47.6% had one mental health diagnosis, 26.0% had two diagnoses and 26.4% had received three or more mental health diagnoses. With the exception of alcohol and substance use disorders, National Guard and Reserve veterans were more likely than veterans of Active Duty service to have higher proportions of all combat-related mental health diagnoses, with the greatest magnitude of effect seen in acute stress and adjustment disorders (OR=1.75, 95% CI=1.56–2.00 and OR=1.59, 95% CI=1.52–1.67, respectively). The single most common mental health diagnostic category was PTSD, a diagnosis received by 16,563 OEF/OIF veterans representing 40.6% of those with mental health diagnoses and 12.4% of all veterans seen in the VA health care system. Notably, veterans of National Guard and Reserve service were more likely than Active Duty members to receive a PTSD diagnosis (OR=1.09, 95% CI=1.05–1.12). Further, women and relatively older-aged veterans who had served in the National Guard and Reserve and men and relatively younger-aged veterans who had served in the Active Duty troops were at significantly higher risk for receiving mental health diagnoses. Finally, OEF/OIF veterans who were divorced, widowed and separated as opposed to never married were among those at highest risk for receiving a mental health diagnoses.
CONCLUSIONS: Of 133,984 OEF/OIF veterans enrolled and seen at VA health care facilities since separation from military service, we found that nearly a third of returned OEF/OIF veterans had received one or more mental health diagnoses and that over half of these were dually or triply diagnosed, with PTSD the most common mental health diagnosis. Veterans of the National Guard and Reserve were significantly more likely than veterans of Active Duty service to have received mental health diagnoses. Cost-effective approaches to early intervention are needed to prevent chronic mental illness.

MENTORING AND RESIDENTS' CAREER CHOICES. M. Cunnane[1]; J.E. Bost[1]; M.A. McNeil[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 153571)*

BACKGROUND: Predictions of impending faculty shortages at academic career centers has increased interest in residents' career decision-making. Mentoring has been implicated as a key factor for encouraging interest in academic medicine. This study investigated the influence of residents' mentoring relationships on career choice.
METHODS: We surveyed 443 residents in several specialties at a large academic medical center. Residents completed a web-based questionnaire about career intent, perceptions about career choice, and factors influencing career decisions. Demographics, research experience, and mentoring relationships were also assessed. Respondents were grouped according to future plans for academic vs. non-academic practice.Chi-2 statistics were used to explore associations between plans for academic medicine and demographic characteristics. Mentoring experiences and career perceptions were evaluated using 5–7 point Likert scale questions with response options ranging from "strongly disagree" to "strongly agree." T-tests were used to assess differences in mean responses between academic and non-academic residents.
RESULTS: Two hundred seventy-seven residents participated for an overall response rate of 63% (per specialty response rate: Surgery 77%, Psychiatry 68%, Internal Medicine 57%, Pediatrics 44%, Family Practice 41%, Obstetrics-Gynecology 28%). Sixty percent of residents planned a career in academic medicine. Although academic and non-academic residents did not differ with regards to marital status, children, race, age, or training level, academic residents were more likely to be male (57% vs. 40%, $p=0.015$), to have participated in research as a medical student (61% vs. 39%, $p=0.001$), and as a resident (61% vs. 39%, $p<0.000$). Both groups of residents were equally likely to have mentors in medical school (65% v. 54%, $p=0.129$) and residency (82% v. 84%, $p=0.859$). Academic residents were more likely to identify mentors on their own (40% v. 23%, $p=0.022$), often through shared research experiences (31% v. 5%, $p=0.000$); to meet with their mentor at least monthly (36% v. 24%, $p=0.026$); and to have higher ranking mentors (full professor: 34% v. 19%, $p=0.001$). Residents planning an academic career received more mentoring in skill acquisition and development ($p=0.017$) and more often desired mentoring in identifying research opportunities ($p=0.000$). Academic residents were more likely to interact with their mentors in social and informal settings ($p=0.037$), and to indicate that they could identify role models in academic medicine ($p=0.016$). A desire to do research, a desire to teach, and opportunities to publish were more likely to influence academic residents' career decisions; they perceived academic medicine as more intellectually satisfying ($p=0.000$) and more prestigious ($p=0.000$) than private practice. Over half of academic residents indicated that role models or mentors were a determining factor in their career decisions compared to less than 1/3 of those not choosing an academic career ($p=.001$).
CONCLUSIONS: Participation in research can foster the development of effective mentoring relationships that augment interest in academic medicine. Helping residents identify research opportunities and research mentors may increase residents' interest in an academic career path.

META-ANALYSIS: INHIBITION OF RENIN ANGIOTENSIN SYSTEM PREVENTS NEW ONSET ATRIAL FIBRILLATION. K. Anand[1]; A. Mooss[1]; S. Mohiuddin[1]; A. Bewtra[1]. [1]Creighton University, Omaha, NE. *(Tracking ID # 151766)*

BACKGROUND: Epidemiological studies suggest that inhibition of renin angiotensin system with angiotensin converting enzyme inhibitors and angiotensin receptor blockers may prevent development of atrial fibrillation. Our objective was to assess if there is significant indication for using angiotensin converting enzyme inhibitors and angiotensin receptor blockers in the prevention of new onset atrial fibrillation and to identify the target patient population.
METHODS: Pubmed and Cochrane Clinical Trials Database were searched from 1980 through March 2005 together with the review of citations. Nine randomized controlled human trials reporting the prevention of new onset atrial fibrillation by inhibition of renin angiotensin system were identified. Information about study design, follow up, intervention, population, outcomes, and methodology quality was extracted.
RESULTS: The mean follow up of the studies ranged from 6 months to 6.1 year. The pooled estimate using random effects model was 0.82 (95% confidence interval, 0.70–0.97) for prevention of new onset atrial fibrillation and (0.61, 95% CI: 0.46–0.83) for primary prevention of atrial fibrillation. The angiotensin converting enzyme inhibitors (0.75, 95% CI: 0.57–0.99) had greater protective effect than angiotensin receptor blockers (0.81, 95% CI: 0.62–1.06). Patients with heart failure benefited the most (0.57, 95% CI: 0.37–0.89). The test for heterogeneity between studies was significant. There was no consistent visual or statistical evidence of publication bias.
CONCLUSIONS: The use of angiotensin converting enzyme inhibitors and angiotensin receptor blockers had an overall effect of 18% risk reduction in new onset atrial fibrillation across the trials, and 43% risk reduction in patients with heart failure.

MISSED OPPORTUNITIES IN THE MANAGEMENT OF EARLY ACUTE ISCHEMIC HEART DISEASE IN THE PRIMARY CARE SETTING. T.D. Sequist[1]; R. Marshall[2]; S. Lampert[2]; E. Buechler[2]; T.H. Lee[1]. [1]Brigham and Women's Hospital, Boston, MA; [2]Harvard Vanguard Medical Associates, Newton, MA. *(Tracking ID # 152490)*

BACKGROUND: While several studies have characterized patients with acute myocardial infarction (MI) who are inappropriately discharged from the emergency department, no data exist on patients with MI who were seen shortly before their acute ischemic syndrome in the primary care setting, when intervention might have prevented their MI. Several instruments predict the presence of coronary heart disease (CHD) or MI, however whether they might be helpful in identifying symptomatic outpatients at increased risk for MI is unknown.
METHODS: We conducted a population-based case control study using billing claims to identify admissions for acute MI during 2000 to 2004 among patients with no prior history of CHD and linked these patients to outpatient records within a large integrated group practice. We defined cases as patients evaluated for chest pain or other anginal equivalents within 30 days prior to hospitalization for MI and not referred for immediate hospital care. Control patients were selected using a 3:1 design and matched on primary symptom and date of outpatient encounter, with no diagnosis of MI within the next 30 days. Prediction instruments included the Framingham Risk Score (FRS), which uses coronary risk factors to predict risk for developing CHD, the Diamond and Forrester probability (DFP), which relies on age, gender, and basic chest pain description to predict the presence of CHD, and the Goldman prediction tool (GPT), which uses detailed chest pain description and EKG findings to predict the presence of MI. All data were collected using chart review, and case-control comparisons were performed using conditional logistic regression.
RESULTS: We identified 966 admissions for acute MI, including 106 (11%) cases representing missed opportunities in early outpatient management of acute ischemic heart disease. Among these patients the most common symptoms during the outpatient encounter were chest pain (50%), shoulder pain (31%), and dyspnea (26%). Only 49% had an EKG performed, and 20% of these EKGs were misinterpreted. Angina (31%), musculoskeletal pain (25%), and heartburn (18%) were the most common clinician-assigned diagnoses. Compared to 318 matched controls, cases were older (64 years versus 50 years), more likely to be male (63% versus 31%), diabetic (33% versus 9%), current smokers (27% versus 16%), and had higher total cholesterol (216 mg/dL versus 206 mg/dL), lower HDL cholesterol (45 mg/dL versus 55 mg/dL), and higher systolic blood pressure (137 mmHg versus 127 mmHg, $p<0.01$ for all comparisons). Symptomatic outpatients with eventual MI had nearly 20 times greater odds of having a FRS $\geq 10\%$ compared to patients with no MI [odds ratio (OR) 19.5, 95% confidence interval (CI) 9.3–40.6]. Increased scores using the DFP and GPT were also associated with MI [DFP $\geq 10\%$ (OR 8.3, 95% CI 3.2–21.7); and GPT $> 7\%$ (OR 6.8, 95% CI 2.7–17.1)], though the DFP and GPT could only be used for those patients with chest pain. The sensitivities for detecting MI of the FRS, DFP, and GPT were 85%, 90%, and 43%; and the respective specificities were 75%, 52%, and 91%.
CONCLUSIONS: Nearly 1 in 9 patients admitted with an acute MI had seen a primary care clinician with symptoms suggestive of acute cardiac ischemia in the previous 30 days. Several common instruments can be used to identify these high-risk patients. The FRS was the strongest predictor and is particularly attractive as it is independent of presenting symptom and uses information readily available in the outpatient setting.

MODELING LITERACY WITH SOCIODEMOGRAPHIC CHARACTERISTICS AND LITERACY ACTIVITIES. M. Paasche-Orlow[1]; A. Hanchate[1]; A. Ash[1]. [1]Boston University, Boston, MA. *(Tracking ID # 156594)*

BACKGROUND: An emerging literature describes the association of low literacy with worse health outcomes. Tests of literacy, however, are typically inconvenient and all current such tests must be administered in person. As certain sociodemographic characteristics and literacy activities are linked to literacy and easier to obtain that direct measures of literacy, we sought to develop a model to predict literacy from such data.
METHODS: The National Adult Literacy Survey (NALS), 1992, was administered in a nationally representative sample of 23,962 American adults and included a background survey as well as an evaluation of Prose, Document, and Quantitative literacy. The NALS categorized subjects into five levels of literacy, with Level 1 subjects having the most limited literacy skills and Level 5 subjects having the most advanced. We evaluated items from the background survey to develop a model predicting Prose Level I. We split the total sample randomly in half, with one half (estimation sub-sample) used to run a logistic regression on the observed score to obtain predictive weights for each independent variable, and the other (validation sub-sample) used to obtain individual predicted probability of Prose Level 1 proficiency using these predictive weights. Tests of predictive accuracy reported (sensitivity; specificity; area under the receiver operating curve, that is, AUC) are for this validation sample. Through iterative model building, we identified a parsimonious model with high AUC. We divided the predictors into items commonly collected in clinical studies (cluster A) and less-common items (cluster B). We also applied this model to Document and Quantitative Literacy.
RESULTS: Of 23,962 subjects, 4,653 (19.4%) had Level I Prose literacy. The final model included 6 items in cluster A (age, race/ethnicity, sex, education, income, and country of origin) and 4 items in cluster B (disability, frequency of newspaper reading, frequency of reading English books, and needing help with printed information). Cluster A explained 38% of the variance in the Prose model; sensitivity was 52%; specificity, 95%; and AUC, 0.89. Cluster B explained 24% of the variance in the Prose model; sensitivity was 34%; specificity, 97%; and AUC, 0.81. The FULL Prose model (A+B) explained 43% of the variance in the model; sensitivity was 57%; specificity, 95%; and AUC, 0.91. The FULL model predicted similarly for Document and Quantitative literacy (both AUCs = 0.90).
CONCLUSIONS: Sociodemographic characteristics and literacy activities can predict low Prose, Document, and Quantitative literacy with a high degree of specificity, but are not particularly sensitive. While the low sensitivity is evi-

dence of important heterogeneity within NALS Level 1 subjects, it is not clear how this relates to any clinically relevant phenomenon. As such, the prediction model should now be tested for its value as a discriminator of populations regarding health care utilization and outcomes. Since, all variables in this model can be collected via telephone, the model provides a novel and useful mechanism for identifying people with low literacy in future epidemiologic and interventional research.

MODIFIABLE PREDICTORS OF MORTALITY IN HIV-INFECTED PATIENTS WITH CURRENT OR PAST ALCOHOL PROBLEMS. A.Y. Walley[1]; D.M. Cheng[1]; R. Saitz[1]; H. Libman[2]; D. Nunes[1]; J. Alperen[1]; J.H. Samet[1]. [1]Boston University, Boston, MA; [2]Harvard University, Boston, MA. *(Tracking ID # 151773)*

BACKGROUND: Mortality among HIV-infected patients has improved from the use of antiretroviral therapy (ART). Yet modifiable conditions, such as active alcohol use, drug use, and homelessness, may attenuate improvement in mortality directly or by interfering with optimal medical treatment. We assessed whether alcohol use, drug use, or homelessness predict increased mortality.
METHODS: We studied 596 HIV-infected patients with current or past alcohol problems (2 positive responses to the CAGE questionnaire or clinical diagnosis of alcohol dependence) for up to 8 years ending in 2005. We searched the Social Security Death Index and the National Death Index for dates of death. The primary outcome was time between study entry and date of death. Independent variables were determined at study entry. The three main independent variables were: current risky drinking (>7 drinks/week for women and >14 drinks/week for men in the last 30 days), recent drug use (heroin or cocaine use in past 6 months), and recent homelessness (any nights on the street or in a shelter in the past 6 months). Covariates considered for inclusion in regression models included age, sex, race/ethnicity, CD4 cell count <200, ART use (no ART, on ART but not adherent, or on ART and adherent), depressive symptoms, injection drug use (IDU) ever, and mental and physical health function. Data were analyzed using Cox proportional hazard models. Separate models were fit for each of the main independent variables. Adjusted models controlled for sex and all covariates with unadjusted p-values of <0.10.
RESULTS: Over an average follow-up of 4.68 years, 99 subjects (16.6%) died. Cohort characteristics were as follows: mean age 41 years; median CD4 count 372; 25% female; 41% African-American, 34% white; 41% no ART, 18% ART but not adherent, 42% ART and adherent; and 40% IDU ever. Examination of the 3 main independent variables found 30% current risky drinkers, 43% recent drug users, and 28% recent homeless. These variables were not significantly associated with mortality in unadjusted or adjusted analyses. In multivariable models controlling for age, sex, CD4 count, ART use, depressive symptoms, IDU ever, and physical health function, adjusted hazard ratios (HRs) for the main independent variables were: current risky drinking HR 1.16 (95% CI 0.74, 1.81), recent drug use HR 1.11 (95% CI 0.73, 1.69), and recent homelessness HR 1.17 (95% CI 0.74, 1.85)]. Covariates that were significant predictors of mortality in adjusted models included older age, lower CD4 count, no ART, IDU ever, and lower physical health function.
CONCLUSIONS: Although observed hazard ratios suggested that risky drinking, drug use, and homelessness may be associated with mortality in HIV-infected persons with alcohol problems, none of these associations was statistically significant. Further study to understand if these modifiable factors affect mortality in HIV-infected adults could clarify their role in achieving optimal care.

MORTALITY OUTCOMES AMONG HEALTHY YOUNG ADULTS WHO USE ILLICIT DRUGS (THE CARDIA STUDY). S.G. Kertesz[1]; M.J. Pletcher[2]; M.M. Safford[1]; J.H. Halanych[1]; S. Sidney[3]; J. Schumacher[1]; C.I. Kiefe[1]. [1]University of Alabama at Birmingham, Birmingham, AL; [2]University of California, San Francisco, San Francisco, CA; [3]Kaiser Permanente Division of Research, Oakland, CA. *(Tracking ID # 153255)*

BACKGROUND: Consequences of drug dependence in clinically-defined populations of addicted persons are well-known, but most young adults who use drugs do not have abuse/dependence, and most cease use after their twenties. Prior research has suggested that an apparent increased risk of mortality among young adults who use marijuana is explained by non-drug risk factors, but a similar association has not been tested for "hard" drugs such as cocaine. The longitudinal Coronary Artery Risk Development in Young Adults study (CARDIA) allowed us to test whether patterns of illicit drug use, including hard drugs, were associated with increased mortality over the subsequent 17 years.
METHODS: A biracial cohort of young adults was recruited in 4 cities and assessed for: drug use in 1987/88; mortality through 12/31/2004, using multiple methods to trace participants including the National Death Index. Participants reported current (i.e. last 30 days) and past use of illicit drugs (cocaine, amphetamines, opiates, and marijuana) and were grouped as follows: Never Use (n=1173, 26%), Past Drug Use Only (n=2170, 48%), Current Marijuana Only (n=802, 18%) and Current Hard Drugs (e.g. opiates, cocaine, amphetamines, n=404, 9%). Mortality risk was estimated with proportional hazards models adjusted for baseline characteristics including age, sex, race, alcohol, tobacco, economic status, education, marital status, self-reported general health, body mass index, physical activity, social support, count of chronic medical conditons, and history of a diagnosed psychiatric disorder.
RESULTS: For the 4547 subjects, mean age in 1987/88 was 26.9 (SD 3.5) (range 20–32); 27.9% were African-American (AA) women, 21.2% AA men, 24.0% European-American (EA) women, 24.0% EA men. Among persons reporting Current Hard Drugs in 1987/88, cocaine use was most common (90%), followed by amphetamines (13%), and opiates (5%), and heavy exposure was uncommon (18% of current cocaine users reported >100 lifetime episodes). Over 17 years of follow-up, 126 participants died (2.8% overall), most commonly from AIDS (n=34), homicide (n=13), cancer (n=13), unintentional injury (n=12) and suicide (n=8). Unadjusted data suggested an increased risk of death among persons who had drug use in 1987/88 (table), but this appeared to be explained by participant characteristics independently associated with mortality, including number of chronic illnesses present at baseline (HR 1.5, 95% CI 1.2–1.8), history of mental illness (HR 1.9, 1.1–3.1), African-American race (HR 2.0, 95% CI 1.3–2.9), and older age (+1 year) (HR 1.07, 1.0–1.13).
CONCLUSIONS: Despite the known harms of drug dependence, drug use was not independently associated with 17-year mortality risk among young adults in the general population. Future work should identify thresholds and drug use patterns that may confer additional risk. (NIDA-K23-DA-15487; NHLBI N01-HC-95095) Table t10

MOUNTAIN WEST REGIONAL RESIDENT AWARD WINNER: AGE-RELATED UTILIZATION OF ELECTIVE HIP AND KNEE JOINT REPLACEMENT IN U.S. BY PAYER. D.D. Matlock[1]; M. Earnest[1]; E. Anne[1]. [1]University of Colorado Health Sciences Center, Denver, CO. *(Tracking ID # 154120)*

BACKGROUND: Degenerative Joint Disease (DJD) is a debilitating illness causing significant morbidity. Elective joint replacement improves quality of life for severe DJD in hips and knees. In the United States, utilization of many health services varies with insurance status. Prior to age 65, insurance in the United States is highly variable while after age 65 Medicare provides nearly universal coverage. We evaluated the relationship between insurance status and utilization of elective hip and knee replacements before and after age 65.
METHODS: We used the National Inpatient Sample (NIS) dataset from 2002 to identify patients with ICD-9 codes for elective hip and knee replacement. We then compared the insurance status of these patients before and after age 65. A regime change statistical method was used to compare the trends of the two groups.
RESULTS: Between the ages of 45–64, there was a steady upward trend in incidence of 30.6/100,000 cases per year. At age 65, there is a one-time increase in incidence of 168.5/100,000 cases per year (P=0.01). After age 65, there was a flatter but still significant upward trend of 22.3/100,000 cases per year. Selecting only patients with insurance prior to age 65, there was still a significant, though smaller increase of 89.3/100,000 cases per year at age 65 (P=0.01). Extrapolating these findings to the entire U.S. population using the Current Population Survey, we estimate that 8,700 procedures per year are delayed for persons aged 60–64. At an average charge of approximately $30,000 per procedure, this translates into $261 million per year that Medicare pays which might otherwise have been covered by private insurance mechanisms.
CONCLUSIONS: Our data show an increase in the utilization of elective hip and knee arthroplasties among all people after age 65. The acquisition of insurance among previously uninsured people at the age of 65 accounts for most of the increased incidence. Presumably this population delays the procedure because they have no access to the service, potentially resulting in unnecessary disability and morbidity. Previously insured individuals also increased their utilization of elective hip and knee arthroplasty at age 65. A delay in this population could be explained by a number of factors including: waiting until retirement, cultural or ethnic factors, or various barriers that may exist in private insurance programs. Regardless of the reason for a delay, we estimate a $261 million per year shift in costs from private risk pools to Medicare.

MRI IS SUPERIOR TO OTHER CONVENTIONAL IMAGING TESTS FOR DIAGNOSING OSTEOMYELITIS OF THE FOOT. A. Kapoor[1]; S. Page[1]; M. LaValley[1]; D. Felson[1]. [1]Boston University, Boston, MA. *(Tracking ID # 150435)*

BACKGROUND: There is uncertainty as to the optimal imaging work up of suspected osteomyelitis of the foot. Internists are challenged by conflicting recommendations and ill-defined diagnostic performance of commonly ordered tests including magnetic resonance imaging. Most studies that have examined the issue reported on small cohorts, often with mixed populations of foot and other body sites, reaching different conclusions about the value of MRI. We conducted a meta-analysis to determine the diagnostic test performance of MRI for making the diagnosis of osteomyelitis of the foot and compared its performance with that of plain film, technetium bone scanning, and white blood cell (wbc) labeled studies.
METHODS: We selected English language studies of adults with suspicion of osteomyelitis of the foot or ankle that were evaluated by MRI. We then extracted data on MRI performance (and the other imaging tests when available) using a standard form derived from the Cochrane Methods Group. To summarize the performance of diagnostic tests, we used the summary receiver-operating characteristic (SROC) curve analysis which relies on the calculation of the diagnostic odds ratio (DOR). The DOR is the odds ratio of the usual 2×2 table used to calculate sensitivity and specificity. From the SROC curve, we then calculated the specificity at a clinically relevant cutpoint of 85%. We also examined subsets of studies defined by the presence or absence of particular design flaws or population differences.
RESULTS: 16 studies met inclusion criteria. The DOR for MRI was 56.3 (95% CI 20.7, 152.9) and the specificity at the 85% sensitivity cutpoint was 90.5%. The DOR did not vary greatly among subsets of studies. MRI performance was markedly superior to technetium bone scans, plain film radiography and wbc studies, although the data for the latter comparison was based on few comparisons. (see table below)

Result of Studies in Which Imaging Tests Were Compared

Study sample	Imaging test	Number of studies	DOR	DOR 95% CI	Estimate of Specificity at 85% Sensitivity
Studies with MRI and technetium	MRI performance	8	138.4	36.5, 524.7	98
	technetium performance	8	3.8	1.1, 13.0	40
Studies with MRI and plain film	MRI performance	9	81.4	14.2, 466.1	95.5
	plain film performance	9	2.9	1.9, 4.6	33.5
Studies with MRI and wbc studies	MRI performance	4	60.9	12.2, 304.1	91.5
	wbc study performance	4	3.0	0.5, 19.9	34.5

CONCLUSIONS: MRI performs very well in the diagnosis of osteomyelitis of the foot and ankle and can be used to rule in or rule out the diagnosis. Limitations to this work include low number of studies and methodological flaws of included studies. Given the result of head to head intertechnology comparison, MRI should be used preferentially to technetium bone scanning.

MULTIMEDIA INTERVENTION TO INCREASE BREAST CANCER SCREENING AMONG WOMEN WITH LOW HEALTH LITERACY. E.D. Brownfield[1]; M.V. Williams[1]; A. Burnett[2]; J. Bernhardt[2]. [1]Emory University, Atlanta, GA; [2]Centers for Disease Control and Prevention (CDC), Atlanta, GA. *(Tracking ID # 150964)*

BACKGROUND: Though mammography screening can decrease breast cancer mortality, actual mammography screening remains low. Health literacy may be a barrier to obtaining a mammogram. There is conflicting evidence as to which method is the most effective in educating low-literate women and increase mammography screening. The objective of this research was to evaluate the effectiveness of a multimedia breast cancer education program compared to a standard breast cancer brochure among women with low health literacy.
METHODS: Minority women between the ages of 50–69 who were patients of the urgent care clinic of a large urban hospital and who had not received a mammogram within the previous year, were recruited by a research assistant from August 2003–2004. Baseline questionnaires and health literacy assessments were administered. Information on income, education level, general health and mammography status were collected. Health literacy levels were assessed using the 66-item Rapid Estimate of Adult Literacy in Medicine (REALM) screening instrument. Participants were randomized into the brochure or multimedia CD group. Post-test questionnaires were administered immediately after completing the intervention.
RESULTS: Fifty-six women participated in the study, with 21 in the multimedia group and 35 in the brochure group. Groups did not differ significantly by race/ethnicity, marital status, income, education, health literacy level, or past mammography history. There were no significant differences at baseline between the groups for breast cancer/screening knowledge, likelihood of obtaining a mammogram, cancer beliefs, perceived cancer risk, perceived treatment response efficacy, and barriers to obtaining a mammogram. There were no significant differences between groups at post-test for knowledge, beliefs, response efficacy, and barriers scores. Those in the multimedia group had higher likelihood mean scores (18.29) than those in the brochure group (17.09) ($p=.058$), indicating greater intention to obtain a mammogram. No significant differences were found between groups in the number of women who obtained mammograms within 9 months of receiving the intervention, however.
CONCLUSIONS: Future research is needed to replicate the study with a larger sample size. Lower-cost health education materials, such as brochures and videos, may be more appropriate educational tools until the efficacy of multimedia interventions in low literacy populations have been proven.

NATIONAL SURVEY OF COMPLEMENTARY AND ALTERNATIVE MEDICINE (CAM) AMONG HISPANIC ADULTS IN THE UNITED STATES. R.E. Graham[1]; R.S. Phillips[1]; D.M. Eisenberg[1]; E.P. McCarthy[2]. [1]Harvard Medical School-Osher Institute; Division of General Medicine and Primary Care, Beth Israel Deaconess Medical Center, Boston, MA; [2]Division of General Medicine and Primary Care, Beth Israel Deaconess Medical Center, Boston, MA. *(Tracking ID # 153717)*

BACKGROUND: Hispanic Americans have a higher illness burden and poorer health outcomes than White Americans. Recent data indicate that health care disparities are worsening among Hispanic Americans. Although traditional approaches to care are commonly practiced in many Hispanic cultures, little is known about CAM use by Hispanic subgroups residing in the US. We sought to examine subgroup differences in CAM use, utilization rates applied to common medical conditions compared to whites, and identify factors associated with CAM use by Hispanic Americans.
METHODS: Using descriptive, chi square and multivariable logistic regression analysis, we analyzed data from the Alternative Health Supplement to the 2002 National Health Interview Survey, including information on 19 CAM therapies used in the past 12 months.
RESULTS: An estimated 27% of Hispanics in the United States used at least one CAM therapy (excluding prayer) during the prior 12 months. In multivariable analyses, independent predictors of CAM use among Hispanics were increasing age, higher education level, higher income levels, poor health status, recent visit to a health professional, and being of Mexican origin. Participants who spoke Spanish as their primary language and were foreign born were less likely to report CAM use. Among subgroups, the prevalence of CAM use was highest among Dominicans (35%) and lowest among Cubans (22%). The most common therapies used by Hispanics were herbal medicine (17%), relaxation techniques (10%) and chiropractic services (4%). CAM was most often used to treat back pain or back problems (13%), head or chest colds (10%), and stomach/intestinal illness (10%). Compared to whites, Hispanics used CAM therapies more for diabetes (0.6 vs. 2%, $p=<0.001$), stomach/intestinal illness (3 vs. 10%, $p=<0.001$), and anxiety/depression (4 vs. 6%, $p=<0.001$), respectively.
CONCLUSIONS: CAM therapies were used by one in four Hispanics in the past year, representing an estimated 10 million Hispanic adults in the US. Despite the higher use of CAM for certain medical conditions, further research is warranted to examine the impact of its concurrent and/or integrated use with conventional medicine, particularly among less acculturated and immigrant populations.

NATIONAL SURVEY OF STATES' PATIENTS' BILL OF RIGHTS. M. Paasche-Orlow[1]; D.M. Jacob[2]; M. Hochhauser[3]; R.M. Parker[4]. [1]Boston University, Boston, MA; [2]Healthcare Analytics, LLC, New York, NY; [3]Readability Consulting, Golden Valley, MN; [4]Emory University, Atlanta, GA. *(Tracking ID # 156876)*

BACKGROUND: Despite vigorous national debate 1999–2001, the federal patients' bill of rights (PBOR) was not enacted. However, multiple states have enacted PBOR legislation. We surveyed U.S. States' laws to determine: 1) which states have PBOR statutes; 2) what elements of patients' rights are protected; and 3) what enforcement powers are delineated within the statute. Several states specify the actual text of the PBOR to be presented to patients. For these states we evaluated the readability of this text and checked for approved text in other languages.
METHODS: State government Web sites and Legal codes were searched in the Lexis-Nexus Data base for all 50 states. If this information was unclear, we contacted the legal counsel for the state Department of Public Health and Welfare and/or the legal counsel for the State Legislature. PBOR legislation intended for special populations (e.g., psychiatric patients) or special circumstances (e.g., long-term care) were noted but were excluded from the main analysis. Specific rights and responsibilities addressed in a given statute were compared with the 12 themes presented in the American Hospital Association's (AHA) PBOR text of 2002. In addition any recourse delineated within the statute was abstracted. For any state that designated specific PBOR text to be presented to patients, the readability of such text was evaluated using Prose, a readability analysis software which reports an average of 8 readability formulas.
RESULTS: Five states have no relevant legislation. In 20 states, PBOR laws exist exclusively for the protection of specific vulnerable populations but there is no law for the general public. Of the 25 states with a general PBOR statute, all establish an internal grievance policy, three protect a private right of action as a legal remedy, and one state stipulates fines for violations. Of the 25 states with a general PBOR statute, 10 states present a specific PBOR document for distribution to patients. State PBOR texts address an average of 7.9 of the 12 AHA themes. There are multiple examples of unique themes (e.g., pain management including opiates, participation in religious activities, receiving an itemized bill). The average readability for these 10 documents is 14.6 (range Hawaii 8.4 to Minnesota 17). While 6 of these states exclusively present English texts, 4 states present a PBOR document in Spanish and 2 of these states present documents in additional languages as well (New York: Italian, Russian, Greek, Chinese, Yiddish, Creole; Minnesota: Hmong, Somali, Russian, Laotian).
CONCLUSIONS: While 45 states have PBOR legislation to protect vulnerable populations, only 25 states have a PBOR statute for the general public. Though a grievance procedure is codified in all 25 of these states, in only 3 states does the statute specifically protect a patient's right of action and in only one state does the statute delineate fines for violations. The 10 statutory PBOR texts, to be given to patients to advance their rights, require an average of a 2nd-3rd year college reading level and address only 2/3 of the themes recommended by the AHA. Most of these documents were only presented in English. The goals of patient rights statutes cannot be advanced with texts that patients cannot decipher.

NEEDS OF TORTURE SURVIVORS IN THE UNITED STATES. A.T. Ahmed[1]; U. Jacob[1]. [1]Survivors International, San Francisco, CA. *(Tracking ID # 153189)*

BACKGROUND: An estimated 500,000 torture survivors live in the United States. Most studies to examine the physical and psychological consequences of torture have been limited to torture survivors of a single nationality or ethnicity. The purpose of our study was to determine the demographic and social characteristics, and physical and psychological sequelae of torture survivors currently living in the United States, where torture survivors come from a wide variety of ethnicities.

METHODS: A standardized intake questionnaire was administered to 400 adult torture survivors evaluated consecutively during a three year period at Survivors International, the largest torture survivor treatment center in Northern California. The questionnaire collected information on the demographics, history, social and environmental stressors, and physical health of the survivors. Symptoms of anxiety and depression were assessed with the Hopkins Symptoms Checklist-25 and symptoms of PTSD with the PTSD Checklist.
RESULTS: The 400 torture survivors were originally from 70 countries. They ranged from 18 to 68 years of age (mean 35, SD 10) and 52% were female. Among those with living family, 59% were separated from their spouse, 72% from their children, and 50% from all family members. Respondents had difficulty meeting daily needs: 66% reported difficulty finding food, 12% obtaining clothing, and 14% finding housing. Physical pain was reported by 73% of the respondents and 20% reported their general physical health was "poor." 70% expressed symptoms of PTSD, 84% depression, and 89% anxiety. 62% reported that there was at least one occasion during the past year when they were unable to access medical care. Potential barriers to care included limited proficiency in spoken English (69%) and lack of health insurance (71%).
CONCLUSIONS: Torture survivors living in the United States suffer from high rates of physical and psychological morbidity. Social stressors, including separation from family and food insecurity, are common. Barriers to effective medical care include lack of health insurance, limited English proficiency, and pursuing immediate survival needs such as food and housing. In order to respond to the needs of this vulnerable population, a multidisciplinary response is necessary. Physicians who care for refugee and migrant populations should remain vigilant to the multiple physical, psychological, and social needs of torture survivors.

NEIGHBORHOOD CHARACTERISTICS AND THE MANAGEMENT OF CHRONIC CONDITIONS AMONG OLDER ADULTS: A QUALITATIVE ANALYSIS. A.F. Brown[1]; S.J. Teton[1]; J.M. Barron[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 156613)*

BACKGROUND: Persons with chronic conditions must often engage in complex medication, dietary, and exercise regimens. Chronic disease management among community-dwelling older persons may be influenced by neighborhood physical, social, and economic characteristics. Our aims were to identify and understand perceptions of the local environment and the role neighborhood factors play in the management of chronic conditions among older adults.
METHODS: Between April and December 2005, we recruited participants from senior centers, community clinics, and social service organizations for 11 focus groups with 66 older residents from neighborhoods of high (N=4) and low (N=7) socioeconomic status (SES) in Los Angeles County. Neighborhood SES was determined by characteristics of the participant's residential census tract. Inclusion criteria were age $\geq$60 years and a diagnosis (based on a screening survey and medication review) of hypertension, osteoarthritis, diabetes, coronary heart disease, or chronic lung disease. Each focus group was led by a trained facilitator using a standardized script and consisted of participants of the same race/ethnicity - African American, Latino (conducted in either English or Spanish), or white. Using systematic qualitative methods, we clarified complex interactions between values, neighborhood perceptions, experiences, and factors that influenced disease management. Two investigators masked to neighborhood SES used grounded theory methodology to independently code verbatim transcripts of the groups to identify key themes. To enhance reliability, a third investigator independently recoded transcripts and identified key themes.
RESULTS: Several themes emerged: 1) In all groups, exercise, a healthy diet, and appropriate medical care were endorsed as important to chronic disease management. 2) Participants from low SES areas reported greater difficulty obtaining medications ("In my neighborhood, there are no pharmacies"); obtaining healthy foods (due to poor selection in local markets); and walking for exercise in their neighborhoods. 3) Barriers to walking for exercise described by participants in all focus groups included general safety concerns and uneven sidewalks that increased the risk of falls. While those in high SES areas generally endorsed feeling safe walking in their neighborhoods, persons from low SES areas cited examples of factors that deterred walking, including violence ("I drive even though it's not too far, but I used to go walking before…they killed 2 guys here"), neighborhood physical decay (e.g. garbage dumped in alleys by people from other areas), unleashed dogs on the streets, and speeding cars. 4) Neighborhood cohesiveness was cited as an important factor in maintaining or improving conditions in groups from low and high SES areas. Persons in low SES areas were more likely to associate low cohesiveness with isolation, stress, and difficulty identifying needed resources. 5) Neighborhood problems had the greatest impact on disease management for those who lacked transportation ("To bring groceries on the bus is difficult for us") or assistance from family or friends.
CONCLUSIONS: Our findings suggest that neighborhood characteristics influence chronic disease management among older adults and that some factors disproportionately affect persons in low SES neighborhoods. Regardless of SES, neighborhood cohesiveness may be an important construct that can facilitate chronic disease management among older persons.

NEIGHBORHOOD SOCIO-ECONOMIC STATUS AND HEALTH BEHAVIOR. J. Escarce[1]; C. Bird[1]; B. Finch[2]; D. Do[1]; T. Seeman[3]; N. Lurie[4]. [1]The RAND Corporation, Santa Monica, CA; [2]San Diego State University, San Diego, CA; [3]University of California, Los Angeles, Los Angeles, CA; [4]The RAND Corporation, Arlington, VA. *(Tracking ID # 156595)*

BACKGROUND: Few studies have examined the effect of neighborhoods on health behaviors. We examined the extent to which neighborhood poverty is related to binge drinking and sedentary lifestyle, independent of individual characteristics.
METHODS: Using 3-level hierarchical logistic and linear regression, we analyzed National Health and Nutritional Examination Survey III (NHANES) interview and laboratory data, merged with data on sociodemographic characteristics of their residential census tract. Binge drinking was measured as the number of days in the past year that one consumed 5+drinks (mean=14.1, with 25% reporting bingeing once or more). Sedentary lifestyle was measured as whether or not the subject participated in any moderate or vigorous physical activity in the past month (25% report having engaged in no moderate or vigorous activity the past month). Our analyses included 14,626 adults from 83 counties and 1805 census tracts, who completed surveys and medical exams, were not missing key components of the outcome measures, and for whom residential census tract could be geocoded. The sample was 47% male; 43% white, 27% black, 26% Hispanic, 4% other. Subjects ranged in age from 19.5 to 90 (mean=48); 53% were employed, and 58% had at least a high school education. The mean family income/poverty ratio was 2.41.
RESULTS: Individual characteristics including income, age, education, being male, and being Hispanic were negatively associated with sedentary lifestyle ($p<.001$ for each). Even after adjusting for these individual characteristics, residing in a census tract with a higher percentage of households with incomes below the federal poverty line was associated with higher likelihood of sedentary lifestyle (OR=5.41, $p<.0001$). Age ($p<.001$), employment ($p<.001$), education ($p<.05$) and being Hispanic ($p<.03$) were negatively associated with binge drinking, whereas being male ($p<.001$) was positively associated. Residing in a census tract with a higher percentage of households in poverty was associated with more frequent binge drinking adjusting for individual characteristics (1.5 more days of binge drinking for every 10% increase in the poverty rate; $p<.0001$).
CONCLUSIONS: The association of neighborhood poverty with a lack of physical activity and more binge drinking, controlling for individual characteristics, suggests pathways through which neighborhoods may affect health. Potential mechanisms for these findings include increased fear of crime, fewer parks, more crowding, and more alcohol outlets and advertising in poor neighborhoods. Neighborhood effects represent one pathway through which neighborhoods ultimately affect health and thus a potential avenue for effective intervention. The mechanisms through which these effects are produced need to be explored.

NEW-ONSET TYPE 2 DIABETES IN PRIMARY CARE OF A PUBLIC TEACHING HOSPITAL: CO-MORBIDITIES AND DELAY IN DIAGNOSIS. J. Huang[1]; R. Parish[2]; I. Mansi[1]; P.F. Bass[1]; E. Kennen[1]; T. Davis[1]; D. Carden[1]. [1]Louisiana State University Health Sciences Center, Shreveport, LA; [2]South University, Savannah, GA. *(Tracking ID # 154757)*

BACKGROUND: Type 2 diabetes (DM2) has become an epidemic in the U.S. and is associated with significant morbidity and mortality from coronary artery disease (CAD). Although early treatment of DM2 is critical to reduce cardiovascular risks, many patients, particularly minorities, remain undiagnosed. The purpose of this study was to determine factors associated with delayed diagnosis of DM2 in a public teaching hospital primary care clinic serving a mainly, indigent population.
METHODS: Chart review of a convenient sample of primary care patients was conducted from January 2002 to October 2005. DM2 was diagnosed as defined by the American Diabetes Association. ANOVA or Student t test was used in the analysis of continuous parameters. Linear regression model was employed for the analysis of relationship between glucose, hemoglobin A1c (A1c), or number of co-morbid conditions at diagnosis and delayed diagnosis of DM2.
RESULTS: Seventy-nine patients were diagnosed with new-onset DM2. Sixty-seven percent were female, 71% were black, 32% had Medicare or Medicaid, 5% had commercial health insurance and 63% were uninsured. At the time of diagnosis, patients' mean characteristics were: age 53 years, fasting glucose 236 mg/dl, hemoglobin A1c (A1c) 9.2%, total cholesterol 202 mg/dl, triglyceride 182 mg/dl, HDL 46 mg/dl, and LDL 122 mg/dl. Ninety-seven percent of patients had one or more of the following co-morbidities: hypertension 90%, dyslipidemia 78%, CAD 18%, heart failure 8%, cerebral/peripheral artery disease 5%, microalbuminuria 10%, chronic kidney disease 9%, osteoarthritis 30%, obstructive sleep apnea 5%, and gout 4%,. Patients with CAD had significantly higher mean A1c values at diagnosis than patients without CAD (9.6 versus 7.5, $P<0.001$). Delay in the diagnosis of DM2 from the first abnormal blood test was 16.6 months on average with a maximum delay of 70 months. Significant delay in the diagnosis of DM2 occurred among patients with Medicare or Medicaid ($P<0.03$), those aged 60 years or older ($P<0.02$), and those with lower glucose level at diagnosis ($P<0.02$). Other factors including gender, ethnicity, and number of co-morbidities had no effect on delay in diagnosis.
CONCLUSIONS: This cross-sectional study demonstrated the high prevalence of co-morbid conditions in patients with newly diagnosed DM2 in a public teaching hospital primary care clinic serving a largely indigent population. Higher A1c level was associated with the presence of CAD. Significant delay in the diagnosis of DM2 was found in patients older than 60 and those with Medicare or Medicaid, but not among insured patients. The association between lower glucose level at diagnosis and delayed clinical diagnosis of DM2 suggests insufficient physician awareness of the diagnostic criteria. Other patient, physician, or system-related barriers to the early diagnosis of DM2 deserve further investigation.

NT-PROBNP: AN INDEPENDENT PREDICTOR OF HEART FAILURE IN THE HEART AND SOUL STUDY. K. Bibbins-Domingo[1]; B. Na[1]; R. Gupta[1]; A.H. Wu[1]; N.B. Schiller[1]; M.A. Whooley[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 153110)*

BACKGROUND: Elevated levels of N-terminal pro-B-type natriuretic peptide (NT-proBNP) are associated with future risk of heart failure. Whether NT-proBNP is a predictor of heart failure independent of other known prognostic markers such as systolic and diastolic dysfunction is not known.
METHODS: We used data from 814 individuals with stable coronary disease and no history of heart failure who were enrolled in the Heart and Soul study. We determined the association of baseline levels of NT-proBNP (in quartiles and in log of the continuous values) with subsequent hospitalization or death from heart failure using Cox proportional hazards models, adjusted for demographic factors, cardiovascular risk factors, and use of preventive medications. To further determine the independent association between NT-proBNP and future heart failure, we also adjusted for baseline left ventricular ejection fraction (LVEF), diastolic dysfunction (impaired relaxation, pseudonormal, or restrictive filling), left ventricular hypertrophy (LVH), New York Heart Association classification (NYHA class), C-reactive protein, and inducible ischemia. We tested for interactions between NT-proBNP and each of these markers and explored significant interactions ($p < 0.1$) with stratified analyses.
RESULTS: During a mean 3 years of follow-up, 57 of the 814 individuals with coronary disease and no pre-existing heart failure developed heart failure (annual incidence = 2.2%). The incidence of heart failure increased with each successive quartile of NT-proBNP, with the majority of events occurring in persons in the highest quartile (42/204 -annual incidence = 7.1%) and no events occurring in the lowest quartile (0/204). Log NT-proBNP was independently associated with subsequent heart failure [Adjusted Hazards Ratio (HR) 3.1, 95% Confidence Interval (CI) 2.4-3.9], and this association persisted after further adjustment for other predictors of heart failure including LVEF, diastolic dysfunction, LVH, NYHA class, inducible ischemia, and C-reactive protein (Adjusted HR 2.1, 95% CI 1.4–2.9). The strength of association between log NT-proBNP and future heart failure appeared to vary by the presence of systolic and diastolic dysfunction (p for interaction = 0.06). Although the association between log-NT-proBNP and heart failure was present among persons with systolic dysfunction (LVEF < 50%) (Adjusted HR 2.0, 95% CI 1.3–3.2) and diastolic dysfunction with LVEF $\geq$ 50% (Adjusted HR 2.7, 95% CI 1.8–4.2), the association was stronger among those with neither systolic nor diastolic dysfunction (Adjusted HR 3.4, 95% CI 1.9–.6.2).
CONCLUSIONS: NT-proBNP is a predictor of long-term heart failure, independent of other prognostic markers including systolic and diastolic dysfunction, and appears to identify individuals at high risk for heart failure even in the absence of ventricular dysfunction. Use of a simple blood test for NT-proBNP may help guide risk stratification and focus efforts toward preventing heart failure in high-risk patients such as those with stable coronary disease.

OBESITY MANAGEMENT: ATTITUDES AND PRACTICES OF INTERNAL MEDICINE RESIDENTS. C.A. Noble[1]; R.F. Kushner[1]. [1]Northwestern University, Chicago, IL. *(Tracking ID # 156924)*

BACKGROUND: Primary care providers should be well prepared to treat overweight and obesity due to the rising prevalence of these conditions in our society. However, no more than 40% of all obese patients are advised by their healthcare provider to lose weight. Inadequate training has been consistently cited by physicians as a reason why they do not provide these services. Obesity curriculum in most medical schools is limited and the vast majority of residency programs do not include formalized obesity management education. Development of such curricula requires an assessment of current practices, as well as, a greater understanding of the learner's attitudes and perceived barriers towards obesity care. The present study aims to identify these characteristics in internal medicine residents training at an academic institution.
METHODS: A written survey was distributed to all 1st, 2nd and 3rd year internal medicine residents (n = 130). The instrument included questions scored on a 5-point Likert scale assessing attitudes and perceived barriers towards obesity care. Respondents were also asked to estimate the frequency of certain practice behaviors and rank a list of barriers in order of importance. Response rate for the survey was 50% (n = 65).
RESULTS: Over 80% of respondents agreed that it was their responsibility to provide weight loss treatment to overweight patients and 100% agreed that obesity education should be included in resident curriculum. Although respondents were confident in their ability to diagnose obesity (98% agreed or strongly agreed), only 43% agreed they had sufficient knowledge to competently treat this problem. Fewer than 40% felt that residency training had prepared them to effectively treat obesity. With regards to barriers to care, over 80% of residents felt that there was no clear protocol to deal with obesity. Nearly three-quarters (74%) identified inability to change patient behavior as a significant barrier to providing weight loss treatment. Inadequate time, insufficient insurance coverage for weight management services, and lack of experience working with dietitians were other highly rated barriers. Current practices: Although a majority (78%) of respondents reported that they recommend weight loss to overweight patients, few (15.5%) calculate patient BMI more than half the time. Approximately 60% reported providing diet and exercise recommendations to overweight patients most of the time. Other forms of therapy are less frequently used; only 5% consider bariatric surgery for obese patients more than half of the time and none report prescribing weight loss medications to overweight patients more than half of the time. Comparisons of the means showed no significant differences in practice behavior measures between years of training.
CONCLUSIONS: Physicians-in-training believe providing weight loss therapy is their responsibility. However, few leave residency adequately prepared to effectively treat obesity. The medical establishment has a responsibility to counter this growing public health problem by improving graduate medical education in the field. New curricula must address current attitudes and perceived barriers to obesity care held by resident physicians. This study suggests that familiarizing residents with established weight management protocols, developing time-effective interventions and providing behavioral change training are important components to be included in an obesity management curriculum.

OFFICE VISITS FOR ANNUAL PHYSICAL EXAMS IN THE UNITED STATES. A. Mehrotra[1]; A.M. Zaslavsky[2]; J.Z. Ayanian[1]. [1]Dept of General Internal Medicine, Brigham and Women's Hospital, Boston, MA; [2]Harvard Medical School, Boston, MA. *(Tracking ID # 153870)*

BACKGROUND: The value of annual physical exams for adults is controversial, and these exams are not recommended by any major U.S. public health or medical organization. In prior surveys, however, 66% of patients and 65% of physicians reported believing that an annual physical exam is important for adults, and most commercial health plans pay for such visits.
METHODS: Using nationally representative data on US office visits from the 2003 National Ambulatory Medical Care Survey (NAMCS) and the 2003 National Hospital Ambulatory Medical Care Survey (NHAMCS) along with population estimates from the US Census Bureau, we assessed the number of visits for annual physical exams for adults age 18 and older. We also examined demographic characteristics associated with such visits, specialties of physicians providing the care, and preventive services related to these visits. Physical exams were defined by reason for visit and diagnosis codes and included annual gynecological exams. The eight preventive services examined were cholesterol screening, Pap testing, ordering a mammogram, PSA screening, and counseling about diet, weight reduction, exercise, and tobacco use. Analyses were adjusted for the complex survey design with SAS v9.2 software.
RESULTS: In the U.S. population of 212.6 million non-institutionalized adults, we estimate 64.7 million (30.4%) received an annual physical exam. The proportions of adults receiving an annual physical exam differed by gender (men 22.7%, women 37.6%), age (18–24 13.5%, 65 and older 48.4%), race/ethnicity (non-Hispanic whites 32.2%, non-Hispanic blacks 34.6%, Asians 23.9%, Hispanics 22.3%), and region (Northeast 32.9%, Midwest 32.9%, South 30.6%, West 25.5%). Annual physical exams were most commonly provided by internists (30.4%), general/family practitioners (28.9%), and obstetrician/gynecologists (22.8%). During visits for annual physical exams, 64.4% of patients received at least one of eight preventive services, compared with 31.1% of patients during other visits with primary-care physicians. In total, 26.6% of these eight preventive services were performed during visits for an annual physical exam.
CONCLUSIONS: Nearly 65 million office visits are devoted to annual physical exams for adults, and these visits are more common for women, older patients, white and black patients, and those in the Northeast and Midwest. Such visits are a common venue for preventive services, but nearly three-quarters of the eight preventive services we examined occur at other types of visits. Further research is needed to assess the overall value of visits for routine physical exams, including the preventive services provided at these visits.

ONLY THE TIP OF THE ICEBERG: PAIN, CRISES, AND UTILIZATION IN SICKLE CELL DISEASE. W.R. Smith[1]; L. Penberthy[1]; V.E. Bovbjerg[2]; D. McClish[1]; J. Roberts[1]; I. Aisiku[1]; J. Levenson[1]; S. Roseff[1]. [1]Virginia Commonwealth University, Richmond, VA; [2]University of Virginia, Charlottesville, VA. *(Tracking ID # 153689)*

BACKGROUND: Researchers in sickle cell disease have traditionally used health care services utilization as a proxy measure for acute episodes of severe pain ("crises") and underlying vaso-occlusion, partly because utilization-based measures have been shown to predict mortality. However, utilization, though clear-cut, may not reflect the amount of self-reported pain or crises. We therefore collected daily diaries to examine the relationship between self-reported pain, crises, and utilization.
METHODS: In a prospective cohort study of sickle cell disease patients age 16 (n = 226), subjects reported each day for up to 6 months their maximum pain (0–9 ordinal scale, > 0 defined as a pain day). Independently, they reported whether or not they were "in a crisis" during the prior 24 hours (crisis day), and whether or not they used hospital, emergency, or unscheduled ambulatory care for sickle cell pain (utilization day). From these diaries, we examined the proportions of pain days, crisis days, and utilization days, compared pain intensity according to various categories of days, and compared crises to utilization (days and episodes).
RESULTS: Patients reported 16,586 pain days (55.6% of all days), pain intensity 5 of 9 on 8,836 days (29.6%), and 4,429 crisis days (14.8%), but only 1,057 utilization days (3.5%). While 30.1% of patients reported pain on > 95% of their submitted diaries, only 13.3% of patients reported pain on 5% of their diaries. Whether averaged over pain days, over crisis days, or over non-crisis pain days, mean pain intensity rose as the percentage of pain days or utilization days increased ($p < 0.0001$), and was significantly higher on utilization days, both during crisis and non-crisis days ($p < .0001$). While utilization days were far more likely to occur on crisis days than on non-crisis days (OR [95% CI]: 6.32 [5.57, 7.16]), the two did not coincide beyond chance (Kappa = 0.1427). Similarly, utilization episodes occurred within or overlapped only 250 (21%) of 1205 crisis episodes, and crisis episodes occurred within or overlapped only 347 (58%) of 601 utilization episodes. Results did not vary with the percentage of diary completion or the length of time patients were in the study.

CONCLUSIONS: Pain in sickle cell disease is far more prevalent and more intense than either reported crises or utilization suggest, and reported crises occur far more often than utilization, and do not coincide with it. Misclassification, distorted communication, and undertreatment may result from underestimating or failing to measure pain in sickle cell disease.

OPIOID TREATMENT FOR CHRONIC BACK PAIN: A SYSTEMATIC REVIEW AND META-ANALYSIS OF ITS PREVALENCE, EFFICACY AND ASSOCIATION WITH ADDICTION. B.A. Martell[1]; P.G. O'Connor[1]; R.D. Kerns[1]; W.C. Becker[1]; K.H. Morales[2]; T.R. Kosten[1]; D.A. Fiellin[1]. [1]Yale University, New Haven, CT; [2]University of Pennsylvania, Philadelphia, PA. *(Tracking ID # 151848)*

BACKGROUND: The prevalence and efficacy of opioid treatment for chronic back pain is unclear and clinicians and patients are concerned about symptom relief and the risk of addiction. The purpose of this systematic review and meta-analysis was to answer; 1) What is the prevalence of opioid treatment in patients with chronic back pain? 2) Are opioid medications effective in treating chronic back pain? 3) What is the prevalence of addiction among patients receiving opioid medications for chronic back pain?
METHODS: We conducted electronic searches in MEDLINE (1966–March 2005), EMBASE (1966–March 2005), Cochrane Central Register of Controlled Clinical Trials (4th quarter, 2004), PSYCHinfo (1966-March 2005), and references from retrieved articles. We restricted our review to English language studies addressing one of the three clinical questions. Studies were selected according to pre-defined criteria. Two investigators independently extracted data and determined study quality using validated instruments.
RESULTS: 42 studies were included in the final analysis. 14 articles addressed the prevalence of opioid prescribing for chronic back pain, 19 addressed the efficacy of opioid medications for the treatment of chronic back pain, and 9 addressed the prevalence of addiction in patients prescribed opioids for chronic back pain. Prevalence estimates of opioid prescribing for chronic back pain varied by treatment location from 0.14% to 28% (primary care), to 2.6% to 38% (multi-disciplinary groups), to 41% to 57% (pain treatment centers). Meta-analysis of the eight studies assessing the efficacy of an opioid compared to placebo or non-opioid active control revealed a reduction in pain scores with opioids [g = – 0.194, 95% CI (– 0.351, 0.040), p = 0.038], although these effects were less robust in trials of longer duration (> 16 weeks). The weak mu opioid, tramadol, appeared to be of limited efficacy when compared with placebo. Meta-analysis of the seven studies comparing the efficacy of two opioids demonstrated reduction in pain scores [g = -1.660, 95% CI (– 0.769, – 0.067), p = 0.003] with treatment compared to baseline. The presence of behaviors indicative of substance abuse or addiction ranged from 5% to 24% in patients receiving opioids for chronic back pain. Studies were of short duration and susceptible to important biases.
CONCLUSIONS: Opioids are commonly prescribed for chronic back pain and appear to be efficacious for short-term pain relief. Long-term efficacy is less clear. Evidence of addiction is present in up to 25% of subjects who receive opioids for chronic back pain. Future studies should attend to methodologic standards and conduct longer evaluations of efficacy.

ORAL VITAMIN B12 TREATMENT FOR PATIENTS SUSPECTED OF COBALAMIN DEFICIENCY IN PRIMARY CARE : DOES IT WORK? A RANDOMIZED DOUBLE BLIND PLACEBO-CONTROLLED TRIAL. B. Favrat[1]; G. Ali[1]; O. Boulat[2]; B. Burnand[1]; L. Herzig[1]; A. Pecoud[1]; F. Verdon[1]. [1]Department of Community Medicine and Public Health,University of Lausanne, Lausanne, ; [2]LCC CHUV, University of Lausanne, Lausanne, . *(Tracking ID # 153627)*

BACKGROUND: There is a lack of randomized placebo-controlled trial to evaluate the efficacy of oral vitamin B12. Objective: To evaluate the clinical and biological impact of oral vitamin B12 therapy among patients with a serum vitamin B12 level between 125 and 200 pmole/l .
METHODS: Study design: placebo-controlled, double-blind, randomized trial. Inclusion criteria: Patients suspected of cobalamin deficiency with serum vitamin B12 level between 125 and 200 pmole/l. Exclusion criteria: primary folate deficiency. Setting: Academic primary care center and 14 general practices in western Switzerland. Participants: 45 patients (mean age 68+/ – 19, women 55%) assigned randomly to either oral vitamin B12 (1000 ug daily, n = 23) or placebo (n = 22) during 4 weeks. Adherence to treatment was verified by an electronic device recording the date and time of every opening of the pill container. Main outcomes measures at follow-up at 1 and 4 months: a) Serum vitamin B12, total homocysteine (Hcy) and serum methylmalonic acid (MMA) levels, hemoglobin and Mean Corpuscular Volume b) Hematological, neurological and psychiatric clinical scores.
RESULTS: Baseline characteristics and adherence to treatment were similar for both groups. Mean serum vitamin B12 levels were significantly higher in the oral vitamin B12 compared to the placebo group at one month (99.8+/ – 91 vs. 0.4+/ – 43 pmole/l : p < 0.001). Mean MMA decreased significantly in the treatment group (0.14+/ – 0.1 vs. 0.04+/ – 0.2 μmol/l: p < 0.01)). Hcy decreased also even if it was not significant (1.16+/ – 2.7 vs. 0.63+/ – 3.9 μmol/l). At 4 months, after three months without active treatment, MMA concentrations were similar to the baseline level in both groups. Changes in neurological, psychiatric and hematological scores did not differ between groups at one and 4 months.
CONCLUSIONS: Oral Vitamin B12 treatment normalized metabolic markers of vitamin B12 deficiency but had no clear clinical effect in a primary care population where symptoms and signs were poor. Furthermore a one-month treatment with oral vitamin B12 (1000 μg daily) was not enough to normalize the deficiency markers after 4 months.

OUTCOMES IN OLDER MEN FOLLOWING NEGATIVE PROSTATE BIOPSY. R.M. Hoffman[1]; T. Denberg[2]. [1]New Mexico VA Health Care System, Albuquerque, NM; [2]University of Colorado Health Sciences Center, Denver, CO. *(Tracking ID # 151575)*

BACKGROUND: The benefit of detecting prostate cancer in older men is uncertain because their disease-specific survival and treatment complication rates are relatively high. Even less apparent is the utility of repeated efforts to detect prostate cancer in older men following a negative prostate biopsy. We linked Medicare and Surveillance Epidemiology and End Results (SEER) databases to evaluate 5-year clinical outcomes for a population-based cohort of men who had a negative prostate biopsy at age 65 years or older.
METHODS: We applied Current Procedural Terminology codes to Medicare Standard Analytic Files to identify a cohort of men 65 years and older who underwent a prostate biopsy in Los Angeles or New Mexico in 1992. We linked these records with Los Angeles and New Mexico SEER tumor registry databases to exclude men with prevalent cancers and those diagnosed with prostate cancer at the initial (index) 1992 biopsy. We then used the Medicare files to identify subsequent prostate-specific antigen (PSA) testing and prostate biopsies occurring in this negative index biopsy cohort through 12/31/97. We also used tumor registry databases to identify prostate cancers diagnosed during this follow-up period and to characterize the tumor stage, grade, and initial treatment. We used Kaplan-Meier methods to estimate the cumulative incidences of PSA testing, biopsies, and cancer diagnoses. We compared clinical outcomes across patient age groups (65–69, 70–74, 75–79, and 80+ years at the time of the 1992 index biopsy) using the log-rank test. We used chi-square tests to compare the proportions of men in different age groups receiving aggressive treatment (radiation or surgery) for localized cancers.
RESULTS: We identified 7,119 men who underwent a negative index prostate biopsy in 1992. The five-year cumulative incidence of PSA testing in the cohort was 71.0%, with significantly less testing occurring in men aged 80+(67.4%) than in men aged 65–69 (71.7%), P < 0.0001. The cumulative incidence of repeat prostate biopsies was 32.2%, and men aged 80+(20.1%) and 75–79 (29.1%) were significantly less likely to undergo repeat biopsy than men aged 65–69 (36.0%), P < 0.0001. Overall, 741 prostate cancers were detected during follow-up. The cumulative incidence of cancer was 10.7%, ranging from 11.8% in men aged 70–74 to 8.3% in men aged 80+. Among men diagnosed with a localized cancer, those aged 75+ were significantly less likely than men aged 65–69 to undergo aggressive treatment, 33% vs. 69%, P < 0.0001. Only 11% of men in the older age group with localized cancer underwent radical prostatectomy while 22% received radiation therapy
CONCLUSIONS: A substantial proportion of older men, including those aged 75+years, underwent repeat PSA testing and prostate biopsy during a five-year period following an initial negative biopsy. Although cancer detection rates were similar for all age groups, men aged 75+with localized cancer were significantly less likely than younger men to receive aggressive treatment. These findings raise concerns about the clinical utility and costs of continued efforts to detect prostate cancer in older men.

OUTPATIENT TREATMENT AND CONTROL OF HYPERTENSION IN FIVE EUROPEAN COUNTRIES AND THE UNITED STATES. Y. Wang[1]; G. Alexander[2]; R.S. Stafford[3]. [1]AstraZeneca Pharmaceuticals, Wilmington, DE; [2]University of Chicago, Chicago, IL; [3]Stanford University, Stanford, CA. *(Tracking ID # 151738)*

BACKGROUND: Health care systems differ widely by country, yet few comparisons of hypertension treatment and control have been conducted among European countries and the United States (U.S.). We sought to determine how differences in hypertension diagnosis and treatment contribute to difference in hypertension control between European countries and the U.S.
METHODS: We performed cross-sectional analyses of the multi-country, geographically representative Cardio Monitor® survey conducted by TNS. The study sample consisted of 21,053 hypertensive patients visiting 291 cardiologists and 1284 primary care physicians in France, Germany, Italy, Spain, the United Kingdom, and the U.S. in 2004. Outcome measures included use rates of antihypertensive drug classes, latest systolic and diastolic blood pressure (BP), rate of hypertension control (< 140/90 mmHg), and rate of medication increase (dose escalation or addition of new drug therapy) for uncontrolled hypertension in each country.
RESULTS: The rate of antihypertensive drug therapy was similarly high (92%–96% of patient visits) across countries. Both the initial, pre-treatment BP and the latest BP were lower in the U.S than in any of the European countries. While the distribution of antihypertensive drug classes was similar across all countries, there was greater use of multiple drug classes (combination therapy) among patients in the U.S. (64%) than those in European countries (44%–60%). Multivariate analyses controlling for age, sex, smoking status, and physician specialty indicated persistent differences between the U.S. and European countries. Compared to the U.S., European countries showed a higher latest systolic BP (5.3 to 10.2 mm Hg), a higher latest diastolic BP (1.9 to 5.3 mm Hg), a smaller likelihood of hypertension control (odds ratios 0.27–0.50), and a smaller likelihood of medication increase for uncontrolled hypertension (odds ratios 0.29–0.65) (all p < 0.001). Additionally controlling for pre-treatment BP, co-morbidities, and concurrent drug treatment resulted in a smaller difference in latest systolic and diastolic BP and hypertension control but a larger difference in medication increase for uncontrolled hypertension.

CONCLUSIONS: These results suggest that better hypertension control in the U.S., compared with the European countries examined, may be explained by lower treatment threshholds, greater use of combination drug therapy, and greater frequency of medication increase for uncontrolled hypertension.

PAIN PREVALENCE AND TREATMENT: ARE THERE RACIAL/ETHNIC DIFFERENCES IN HOSPITALIZED ADULTS?. S. Fischer[1]; A. Sauaia[1]; J.S. Kutner[2]. [1]University of Colorado Health Sciences Center, Aurora, CO; [2]University of Colorado Health Sciences Center, Denver, CO. *(Tracking ID # 151637)*

BACKGROUND: Our group, as well as others, has shown a high prevalence of inadequately treated pain in adults. This has resulted in increased attention to pain assessment and treatment in institutional settings, such as the inclusion of pain as a fifth vital sign. However, as overall care improves, the disparities in care between ethnic minorities and Caucasians can widen. We thus sought to determine the association between ethnicity and the prevalence of pain and pain medication orders in a cohort of hospitalized adults.
METHODS: A prospective cohort study of adults (n=295) admitted for >24 hours to the general medical ward at either the Denver Veteran's Administration hospital or Denver Health Medical Center, a safety net hospital that has demonstrated elimination of disparities in other areas of health care. Patients with decisional capacity were interviewed to determine 1) self-identified ethnicity; 2) presence of pain over the past week; 3) intensity of pain at present and over the past week; 4) if pain was being treated; and 5) if pain treatment was adequate. All charts were reviewed to confirm medication orders and to classify pain medication by WHO standards- step 1, step 2, or step 3. Analyses were conducted using chi-square tests and ANOVA to examine differences between racial/ethnic groups (African American-AA, Latino-L, Caucasian-C).
RESULTS: Mean age was 59+13 years and race/ethnicity was as follows: AA 21% (n=63), L 26% (n=77), and C 53% (n=155). Overall, 68% of patients (n=200) reported pain in the past week with a median intensity score of 4.8+2. (on a scale from 1–10) Analgesic medication orders were documented for 76% of the sample (n=206). There were no significant differences in report of pain or the intensity ratings of pain by racial/ethnic group. Of the patients reporting pain and receiving a medication order for pain (n=166), 80% (n=135) reported that the medication was adequate to control their pain; there were no differences by race/ethnic group. Additionally, there were no significant racial/ethnic differences in the prescribing rates of step 1, 2 or 3 analgesics.
CONCLUSIONS: Pain was common but treatment rates were high and frequently adequate, according to patient report. However, patients have been shown to have lower expectations from pain treatment. No significant racial/ethnic differences were found for presence, intensity, medication orders, or adequacy of pain treatment. These findings may be limited to health care systems that provide relatively equal access to health care. Given these findings, it is important to understand how we can learn from these health care settings in the effort to eliminate health disparities, particularly related to pain management.

PALLIATIVE NEEDS AMONG INPATIENT VETERANS WITH SERIOUS, LIFE-LIMITING ILLNESS. K. Lorenz[1]; D. Riopelle[1]; M. Steckart[1]; G. Wagner[2]; K.E. Rosenfeld[1]. [1]Veterans Administration Greater Los Angeles Healthcare System, Los Angeles, CA; [2]The RAND Corporation, Santa Monica, CA. *(Tracking ID # 156983)*

BACKGROUND: Through the examination of functional status, symptoms, understanding of illness, emotional wellbeing and practical needs, we sought to assess palliative care needs among veterans with advanced cancer and non-cancer conditions.
METHODS: In the context of a randomized controlled trial of palliative case management, we enrolled cognitively intact, community dwelling veterans admitted to a general medicine ward with physician-estimated one-year mortality >25%. We surveyed them using the Functional Status Questionnaire, Condensed Memorial Symptom Assessment Scale-SF, Quality of Life at the End of Life, and Patient Health Questionnaire and compared palliative needs of veterans with cancer and other conditions.
RESULTS: Of 1,564 admissions, 525 (34%) had physician-estimated mortality >25%, 236 (45%) were eligible, and 154 (65%) enrolled (99 with cancer, 55 non-cancer conditions). Of all 154 veterans, much difficulty with vigorous activity in the prior month was reported by 77%; walking several blocks (54%); housework (48%); climbing 1 flight of stairs (38%); errands (32%); driving or using public transportation (22%) walking indoors (17%); moving in/out of bed or chair (15%); and eating, dressing or bathing (12%). Non-cancer patients had more difficulty managing medications (10% vs. 1%, p=.02). Of all 154 veterans, 84% reported experiencing fatigue in the prior week; 76% pain; 76% dry mouth; 69% drowsiness; 66% weight loss; 64% difficulty sleeping; 50% difficulty concentrating; 50% nausea; 42% constipation; and 39% lack of appetite (p>.05). Non-cancer vs. cancer patients were more likely to report dyspnea (74% vs. 57%, p=.03) and edema (49% vs. 30%, p=.02). The perception of having a life-limiting illness was greater among cancer patients (94% vs. 83%, p=.03) and they were more likely to perceive that treatment could result in a cure (2.1 vs. 1.4 mean rating on scale ranging from 0-no chance to 4-excellent chance, p=.01). Half of the patients (50% cancer, 52% non-cancer, p>.05) expressed feelings of depression. One-third reported difficulty obtaining practical assistance at least "some of the time."
CONCLUSIONS: Veterans with cancer and non-cancer conditions reported significant impairment, were highly symptomatic, and many patients had unmet emotional and practical needs. Inpatient veterans with serious chronic conditions have many unmet palliative needs, despite the fact that veterans with non-cancer conditions infrequently use palliative care services.

PARENTAL EDUCATION PREDICTS INCIDENT FUNCTIONAL DECLINE IN OLDER ADULTS. S.Y. Moody-Ayers[1]; K. Lindquist[2]; K.E. Covinsky[1]. [1]University of California, San Francisco/SF VA Medical Center, San Francisco, CA; [2]University of California, San Francisco, CA. *(Tracking ID # 154002)*

BACKGROUND: Childhood socioeconomic factors (SES), such as parental education, may act over a lifetime to influence functional decline in older adults. We examined whether parental education predicts incident functional decline in later life.
METHODS: We conducted a longitudinal study of 9,082 participants from the Health and Retirement Study, a nationally representative cohort of U.S. community-living adults aged 50 and older from 1992 to 2002. Childhood SES was measured as years of parental education (parent with the highest education). Our outcome measure was incident difficulty in performing one of five activities of daily living (ADL)-eating, dressing, bathing, transferring and toileting. Logistic regression was used to adjust for participants' current SES (years of education, household income and net worth). All analyses were also adjusted for gender, age, and ethnicity-race (white vs. non-white).
RESULTS: Mean age of the participants was 55 yrs, 53% were women, 73% white, 16% black, and 9% Hispanic. Mean level of education was 12 yrs, median household income $37,000 and median net worth $95,000. Twenty-two percent reported parental education of <8 yrs; 33%, 8–11 yrs; and 45%, ≥12 yrs. Low parental education (<8 yrs; referent ≥12 yrs) was associated with development of ADL difficulty in unadjusted analyses (32% vs. 18%; Unadjusted OR=2.16, 95% Confidence Interval [CI]=1.87–2.48). When adjusted for participants' current SES, the impact of low parental education was markedly reduced but remained independently associated with incident ADL difficulty (Adjusted OR=1.37, 95% CI=1.16–1.62). Additional analyses adjusting for demographic characteristics did not substantially change this relationship (age, gender and ethnicity-race Adjusted OR=1.32, 95% CI=0.94–1.25). The results were similar for participants whose parents had 8–11 yrs of education.
CONCLUSIONS: We found that low parental education predicts early functional difficulty in later life. However, when current SES was controlled for, much of the effects of low parental education were ameliorated, suggesting that improved economic disadvantage may forestall functional disability in later life.

PATIENT ACCEPTANCE OF A NOVEL PREVENTIVE CARE DELIVERY SYSTEM. T. Denberg[1]; T.V. Melhado[1]; S.E. Ross[1]; J.F. Steiner[2]. [1]University of Colorado Health Sciences Center, Denver, CO; [2]University of Colorado Health Sciences Center, Aurora, CO. *(Tracking ID # 153008)*

BACKGROUND: The number of patients who receive guideline-appropriate primary preventive health care is suboptimal. For most patients, the care they do receive is coordinated through face-to-face encounters with primary care providers (PCP's). A complementary approach is to use electronic query systems to identify patients eligible for preventive services and to employ non-PCP experts to contact patients (e.g. by mail and phone) in order to discuss and arrange for routine tests and procedures. Without having to see patients in the clinic, PCP's authorize key decisions and follow up on abnormal results. We wished to learn whether this concept would be acceptable to patients, and whether particular patient subgroups might be resistant to it.
METHODS: In a written survey we used Likert scale responses to assess patient attitudes about PCP-centered preventive care and a complementary approach, described above. We used descriptive statistics and chi-square tests to identify patient characteristics associated with these attitudes.
RESULTS: 354 patients completed the survey. The refusal rate was 5%. The sample was diverse with respect to age, gender, race/ethnicity, socioeconomic status (SES), marital status, and self-rated health. Patients agreed that the current PCP-centered system is inconvenient, needlessly expensive, and not always necessary (60–65%), that they visit PCP's only when feeling ill (43%) and never do so for prevention specifically (42%). A large proportion agreed that a non-PCP-based system is desirable (65%–80%) and that they would be more likely to get preventive tests if they did not have to see a PCP first (57%). Between 80% and 90% were at least neutral about these items. Patient characteristics predicting satisfaction with the current PCP-centered system and more resistance to the alternative were age >65 years, female gender, low SES, black race, poor self-rated health, and being unmarried.
CONCLUSIONS: More than half of all patients are dissatisfied with the current system of preventive care delivery while a large majority is open to an alternative. There is, however, somewhat less enthusiasm for the alternative concept among patients who arguably have the greatest unmet needs for preventive services. These findings should be taken seriously when implementing a system that complements a traditional PCP-based approach to primary prevention.

PATIENT AND PROVIDER NON-ADHERENCE TO OSTEOPOROSIS GUIDELINES: IS IT JUSTIFIED BY FULL DISCLOSURE OF THE (LIMITED) BENEFITS OF TREATMENT?. C.A. Sinsky[1]; P. Cram[2]. [1]Medical Associates Clinic, PC., Dubuque, IA; [2]University of Iowa, Iowa City, IA. *(Tracking ID # 152671)*

BACKGROUND: Clinical guidelines support the use of bisphosphonates for treatment of postmenopausal osteoporosis, yet clinicians frequently deviate

from these guidelines. Moreover, payers are increasingly linking provider reimbursement to guideline adherence in areas such as osteoporosis care. Advocates of aggressive osteoporosis treatment tend to cite an estimated relative risk reduction (RRR) when touting the benefits of therapy, while experts in health numeracy suggest that treatment benefits are more appropriately presented as absolute reduction in risk (ARR). Data suggest that bisphosphonate treatment for osteoporosis for 5-years results in a 35% RRR for hip fracture or a 1% ARR (from 3% to 2%). The objective of this study was to evaluate how alternative expressions of treatment efficacy (RRR vs. ARR) affected patient and physician interest in bisphosphonate therapy. We hypothesized that both patient and provider interest in bisphosphonate therapy would be significantly lower when treatment efficacy was presented as ARR as opposed to RRR.
METHODS: We developed a 10-item questionnaire and administered it to consecutive female patients (age >50) and all general medicine physicians at two practice sites. Using clinical scenarios, participants were asked whether they would accept (patients) or recommend (providers) osteoporosis therapy when treatment efficacy was presented alternatively as either: 1) RRR; 2) ARR. Additional scenarios examined how interest in osteoporosis therapy differed between patients and providers with varying levels of out-of-pocket cost to the patient.
RESULTS: The response rate was 85% for patients (267/312) and 69% for physicians (36/52). Patients were significantly more likely to express interest in osteoporosis therapy when treatment benefit was presented as RRR as opposed to ARR (86% vs. 57%, P<.001); similarly providers were significantly more likely to recommend osteoporosis treatment for their patients when treatment benefits were presented as RRR as opposed to ARR (97% vs. 53%, P<.001). When told the cost of bisphosphonate therapy (approximately $1,000 per year) and that insurance would cover the entire cost of treatment, 81% of patients wanted therapy but when told that insurance would only cover 10% of the cost, only 15% of patients wanted therapy (P=.04); in similar scenarios, 100% of providers recommended therapy when patients had full coverage while 61% recommended therapy when insurance covered only 10% (P=.02).
CONCLUSIONS: This study demonstrates that physicians and patients are less interested in bisphosphonate therapy when treatment efficacy is presented in absolute (ARR) terms, as health literacy experts recommend, rather than relative terms (RRR). Thus providers and patients who better understand the benefits of osteoporosis treatment appear less likely to follow current practice guidelines, with resultant negative effects on measures of clinical performance and reimbursement within pay for performance programs. Patient-centered decision making would include informing patients of treatment benefits in absolute terms, which this study suggests leads to decreased adherence to population-based guidelines.

PATIENT AND PROVIDER PERCEPTIONS OF IMPORTANT VARIABLES AFFECTING HYPERTENSION MANAGEMENT: DO THEY AGREE?. D.M. Shivapour[1]; M. Henderson[2]; A. Ishani[3]; P. Kaboli[1]. [1]Carver College of Medicine, University of Iowa, Iowa City, IA; [2]Iowa City VAMC, Iowa City, IA; [3]Minneapolis VAMC, Minneapolis, MN. *(Tracking ID # 154573)*

BACKGROUND: In spite of decades of evidence-based guidelines for clinicians and patient-education efforts, less than half of patients with hypertension are adequately treated. Our study explores patient and provider attitudes towards a number of domains affecting hypertension management.
METHODS: All primary care providers and a convenience-sample of hypertensive patients at two VAMC clinics and four community-based clinics were eligible. Provider surveys were sent by email and consenting patients were interviewed before primary care visits. Subjects were asked to rate the importance of factors related to hypertension management on a 5-point scale ranging from "not at all" to "very/extremely important".
RESULTS: Of 243 eligible providers, 145 (60%) completed the survey. Of 191 patients, 189 (99%) agreed to participate (mean age 66 years, 97% male, 92% white). When asked where patients receive hypertension information, patients and providers agreed that the doctor was "very/extremely useful" (78% vs. 80%, respectively; P=.66). Providers, compared to patients, over-estimated the value of pharmacists being "very/extremely useful" (69% vs. 57%, respectively; P=.02), direct-to-consumer advertising (11% vs. 3.8%, respectively; P=.01), and the Internet (17% vs. 6.3%, respectively; P<.01), but underestimated the value of VA educational material (28% vs. 41%, respectively; P=.01). The importance of drug costs differed significantly between patients and providers; 51% of providers and 65% of patients thought patient drug cost was "very/extremely important" important (P=.03). When asked about the cost of medications to VA, 17% of providers thought it was "very/extremely important" and only 10% thought it was important to patients, yet 62% of patients thought it was "very/extremely important" (P<.01). Providers under-valued side effects (71% vs. 84%, respectively; P<.01), preventing cardiovascular events (62% vs. 95%, respectively; P<.01), and national guidelines (22% vs. 68%, respectively; P<.01) being "very/extremely important" compared to patients.
CONCLUSIONS: Patients and providers had high level of agreement on the doctor's role in hypertension management, but providers significantly overestimated the extent to which patients utilized pharmacists, advertising, and the Internet as sources of information relating to the management of their hypertension. Additionally, patients were significantly more likely to cite the costs of medications both to themselves and the VA as "very/extremely important" when compared with providers. Curiously, providers also significantly underestimated the importance of reducing cardiovascular events and national guidelines to their patients. The discordance between patient and provider perceptions of what is important to each in the management of hypertension needs to be addressed to optimize the patient-provider relationship and improve clinical outcomes.

PATIENT CHARACTERISTICS AND SYMPTOMS FROM BREAST CANCER TREATMENT. J. Yoon[1]; J. Malin[1]; M. Tao[1]; D. Tisnado[1]; P.A. Ganz[2]; K.L. Kahn[1]. [1]University of California, Los Angeles, Los Angeles, CA; [2]University of California, Los Angeles, Sepulveda, CA. *(Tracking ID # 154625)*

BACKGROUND: With breast cancer diagnosis occurring at earlier stages and more patients receiving indicated treatments, survival has increased, and quality of life for patients has never been more of an important issue. We used a diverse, multi-ethnic, multi-lingual population-based cohort of women with incident breast cancer to learn population-based rates of five symptoms believed to be prevalent amongst breast cancer patients.
METHODS: In 2001 we conducted a survey of 1,219 breast cancer patients in Los Angeles County. The sample was drawn from a census of incident breast cancer cases diagnosed during 10 consecutive months in 2000. Patients were initially identified by Rapid Case Ascertainment from 103 hospitals or other settings in which breast cancer was diagnosed, and the survey was conducted in both English and Spanish. The survey queried women about the presence of morbid symptoms interfering with their daily mood or function. Patients were also asked about demographics and if they had received chemotherapy, radiation therapy, tamoxifen, mastectomy, and lumpectomy. Multivariate analyses were conducted using a two-part model to predict any severe symptom and the number of symptoms if any symptoms were experienced. Regression covariates in addition to treatment included patient age, race/ethnicity, language, education, income level, marital status, physical and mental health status, employment status, insurance coverage, depression, comorbid conditions, and stage at diagnosis.
RESULTS: Almost half of breast cancer patients studied (46%) had at least one severe symptom that interfered with her daily functioning or mood. The most prevalent symptoms reported were difficulty sleeping (28%) and hot flashes (19%). Multivariate analysis controlling for patient characteristics and treatment showed that older (OR=0.90; P<0.000), black (OR=0.50; P<0.000), Hispanic Spanish-speaking (OR=0.37; P<0.000), widowed or never married (OR=0.68; P=0.049), and working (OR=0.72; P=0.024) women were less likely to report severe symptoms than other women. The number of comorbid conditions (OR=1.21; P<0.000) and receipt of chemotherapy (OR=1.48; P=0.040) were positively associated with reporting symptoms.
CONCLUSIONS: After accounting for stage and type of treatment, these findings raise questions about whether women of different race/ethnic groups vary in their threshold for reporting symptoms or whether they truly have fewer symptoms. This analysis also documents comorbidity as a significant predictor of patient report of symptoms overall, and especially amongst women who received chemotherapy. Further research studying the effects of comorbidity on symptoms and longer-term outcomes is necessary to determine how, if at all, various degrees of comorbid disease should influence treatment intensity. Having accurate population-based estimates of the probability of symptoms for women with incident breast cancer may prove valuable as providers attempt to educate patients about the probabilities for various outcomes during the months following her breast cancer diagnosis. Quality of care can be improved as women collaborate with providers in reporting symptoms and in developing treatment plans.

PATIENT EXPECTATIONS AS PREDICTORS OF OUTCOME IN PATIENTS WITH ACUTE LOW BACK PAIN. S.S. Myers[1]; A. Legedza[1]; R.S. Phillips[1]; D. Cherkin[2]; A. Hrbek[1]; D. Post[1]; M.T. Connelly[1]; R.B. Davis[1]; J.E. Buring[1]; T. Kaptchuk[1]; D.M. Eisenberg[1]. [1]Harvard Medical School, Boston, MA; [2]Group Health Cooperative, Seattle, WA. *(Tracking ID # 152951)*

BACKGROUND: Although evidence suggests that patient expectations of a specific therapy may influence outcomes, less is known about the association of patients' general expectations for improvement with subsequent outcomes.
METHODS: We studied the association of patient expectations with outcomes for participants in an RCT of treatments for acute low back pain (ALBP). Patients were offered usual care or usual care plus a choice of acupuncture, massage or chiropractic. There were no statistically significant differences between the two groups in terms of improvement in functional status. Patients were asked to score their expectations as follows: "Using a scale from 0 to 10, with 0 being no improvement and 10 being complete recovery, how much improvement do you expect in six weeks?" The primary outcome was change in Roland score from baseline to week 5. Roland score is a measure of functional disability, with a higher score signifying more disability, and a maximum score of 23. At enrollment, we interviewed patients to obtain sociodemographic and clinical data including age, sex, race, income, education, work status, disability, pain, depression, prior history of back pain, exercise history, SF12, and evaluation of prior therapies. We used a multivariable linear regression model to identify significant predictors of a change in Roland score at week 5. We evaluated the association between expectation and change in Roland score adjusted for all significant covariates.
RESULTS: Of 444 patients enrolled in the trial, 2 subjects were missing data on expectations, and 42 subjects were missing data on Roland score at week 5. Of the 400 subjects in our analysis, mean age was 43, 53% were women, 66% were white, 86% of the subjects were working, and 34% were seeing a doctor for back pain for the first time. The mean expectation score was 8.6. Of the 400, 44% scored their expectation for improvement a 10, 44% scored 7–9, and 12% scored their expectation 3–6. No subjects scored <3. The mean Roland score at baseline was 16.3 (s.d. 4.7) and, at week 5, it improved to 7.5 (s.d. 6.9). On multivariable linear regression, we found that expectation was strongly associated with improvement in Roland score at week 5 ($p<.0001, = -0.80$, $[-0.43, -1.16]$). For each one point increase in expectation, a patient experienced a 0.8 point improvement in Roland score. Other baseline covariates significantly associated with improvement in Roland score in the adjusted model were younger age, being white, having income >$75,000, higher (worse) base-

line Roland score, not being depressed, not having a history of leg pain or numbness with back pain, and having a first episode of back pain requiring medical attention (all p-values $<.05$). The model as a whole had an R squared of 29%.
CONCLUSIONS: Among adults enrolled in a trial of therapy for ALBP, patient expectations for improvement were a significant predictor of clinical outcome at 5 weeks irrespective of which group they were in and after adjustment for all other variables significantly associated with improvement in Roland score. These findings suggest that patient expectations should be considered when evaluating outcomes of therapy for patients with ALBP and may be relevant to clinicians trying to anticipate which patients are likely to have rapid functional improvement.

PATIENT EXPERIENCE OF RESPECT: A QUALITATIVE STUDY. M. Beach[1]; P.S. Duggan[1]; L.A. Cooper[1]. [1]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 153924)*

BACKGROUND: Respect for persons is regarded as an important value in medical ethics, yet there is little written in the bioethics or professionalism literature about what respect actually entails. Respect for patient autonomy, which requires that patients be given the opportunity to be informed and direct their medical care, is of obvious importance, but may not offer a complete description of respect. We sought to describe respectful behaviors and attitudes from the patients' perspective.
METHODS: We conducted in-depth semi-structured interviews with 29 adults who saw their primary care physician on a regular basis. This sample consisted of 15 women and 14 men; 19 were African American and 10 were white. Patients were asked to describe their ideas about respect and to provide examples that illustrated respect and disrespect on the part of the physician. Interviews were transcribed and coded to identify major themes for each interview and to link together related themes across all interviews.
RESULTS: Though many patients were unable to provide formal definitions of respect, several themes were highlighted. These included being polite and courteous to patients, treating people equally regardless of social status, following the golden rule (treating others as one would want to be treated), and honoring patients' preferences and choices. Patients readily identified attitudes and behaviors that they associated with respect. These included greeting and addressing the patient by name, showing an interest in what the patient has to say, explaining things in a way he or she can understand without being condescending, and being willing to compromise with regard to treatment options. Many patients emphasized the importance of the physician knowing his or her patients on a more personal level, though they recognized that workload and lack of time made it difficult to develop this sort of relationship. Patients speculated that respectful treatment could affect the way a patient feels about oneself, and could also influence health outcomes. They suggested that they would be more likely to trust physicians who were respectful, and hence adhere to treatment recommendations. Furthermore, patients suggested that physicians who had personal knowledge of their patients would be more attuned to patients' needs and more likely to perceive nonspecific problems.
CONCLUSIONS: Physicians should attend closely to the interpersonal aspects of patient care and cultivate an attitude of respect for patients. Patients are aware of, and sensitive to, subtle verbal, behavioral, and attitudinal cues from the physician, and these cues may strongly influence the medical encounter and have far-reaching effects.

PATIENT LITERACY AND MISINTERPRETATION OF PRESCRIPTION MEDICATION LABELS. M.S. Wolf[1]; T. Davis[2]; P.F. Bass[3]; R.M. Parker[4]. [1]Northwestern University, Chicago, IL; [2]Louisiana State University Medical Center at Shreveport, Shreveport, LA; [3]University of Louisiana Health Sciences Center, Shreveport, Shreveport, LA; [4]Emory University, Atlanta, GA. *(Tracking ID # 154618)*

BACKGROUND: Patients' literacy and their ability to understand medication information have increasingly been viewed as a safety issue. We examined whether adult primary care patients were able to understand and demonstrate instructions found on the primary container label of five common prescription medications.
METHODS: In-depth, structured cognitive interviews were conducted among 395 adults receiving outpatient primary care services at two community health centers (Jackson, Michigan; Chicago, Illinois) and one public hospital clinic (Shreveport, Louisiana). The Rapid Estimate of Adult Literacy in Medicine (REALM) was used to measure patients' literacy level. The main outcome variable was understanding of medication label instructions, and was determined by a blinded panel review of patients' verbatim responses. For one of the medication labels, a substudy was conducted. Patients were asked to calculate how many pills were to be taken daily to test whether understanding translated to correct demonstration of how to properly administer the medication.
RESULTS: One in five patients were reading at a 6th grade level or below (low literacy) and approximately one third tested as having marginal literacy skills (7th to 8th grade). Overall, 46.3% of patients misunderstood one or more of the prescription label instructions. The prevalence rates of misunderstanding one or more labels by patients with adequate, marginal, and low literacy were 37.7%, 55.1%, and 62.2% respectively. Rates of understanding ranged from 67.1% to 91.1% for the five medication labels. The majority (51.8%) of the incorrect patients responses were classified as incorrect by dosage (i.e. tablespoon vs. teaspoon), and 28.2% were inaccurate concerning the stated frequency of the dosage (i.e. "one tablet each day for 7 days" instead of "take one tablet by mouth twice daily for 7 days"). 11.1% of responses were coded as "incomplete" if the duration of use was on the label but omitted. Patients had difficulty navigating the prescription label in 5.8% of the responses and were unable to identify the appropriate information, and 3.2% of the responses were without interpretation due to patients acknowledging to the interviewer they were unable to read. Patients reading at the 6th grade level or below (low literacy) were less able to understand the meaning of four of the five labels, with the exception of the instructions associated with Lasix ($p=0.09$). After controlling for relevant potential confounding variables and risk factors, both low (AOR 2.81, 95% CI 1.38–5.71) and marginal (7th–8th grade; AOR 2.13, 95% CI 1.15–3.93) literacy levels were significantly associated with misunderstanding of label instructions. Among patients with low literacy skills who understood the label (70.7%), less than half were able to correctly demonstrate (34.7%) instructions. In multivariate logistic regression analysis, low literacy was a significant independent predictor of an inability to properly demonstrate label instructions (AOR 4.32, 95% CI 2.10–6.92).
CONCLUSIONS: Many patients were unable to understand common instructions on prescription medication labels. However, our findings suggest limited literacy is a significant risk factor for misunderstanding of the primary label, which could be a source of medication error. As results from our substudy demonstrate, understanding does not always translate to an ability to correctly demonstrate instructions, among patients with marginal or low literacy skills.

PATIENT PREFERENCES AND WILLINGNESS TO PAY FOR CARE BY PRIMARY CARE PHYSICIANS VERSUS HOSPITALIST AND NON-HOSPITALIST WARD ATTENDINGS. D. Meltzer[1]; M.T. Prochaska[1]; B. Vekhter[1]; J.L. Schnipper[2]; T.B. Wetterneck[3]; P. Kaboli[4]; A.D. Auerbach[5]; V. Arora[1]; D.V. Gonzales[6]. [1]University of Chicago, Chicago, IL; [2]Brigham and Women's Hospital, Boston, MA; [3]University of Wisconsin-Madison, Madison, WI; [4]University of Iowa, Iowa City, IA; [5]University of California, San Francisco, San Francisco, CA; [6]University of New Mexico, Albuquerque, NM. *(Tracking ID # 154067)*

BACKGROUND: Traditionally in the US, primary care physicians (PCPs) have cared for hospitalized general medical patients. However, many academic medical centers have long used inpatient ward attendings rather than PCPs to care for these patients and this has increased with the growth of the hospitalist movement. However, there is little data on whether patients prefer care by their PCP or a non-hospitalist or hospitalist ward attending, or on how greatly patients would value receiving care from their preferred choice between these alternatives. This study aims to determine patient preferences to receive hospital general medical care from their PCP versus a non-hospitalist or hospitalist ward attending, and their willingness to pay (WTP) to receive care from their preferred choice between these alternatives. Because hospitalists have been suggested to save $400 per admission in recent studies and because patients with strong preferences for care by a PCP could theoretically choose to pay out of pocket for their PCP to see them in the hospital, we also studied the average WTP of patients who would be expected not to choose their PCP if required to pay a $400 copayment to receive hospital care by their PCP rather than a hospitalist.
METHODS: From July 1, 2001 to June 30, 2003, 34,246 patients were admitted to the general medicine services at 6 academic medical centers and assigned to hospitalist or non-hospitalist inpatient attending physicians based on a pre-determined call schedule. A follow-up phone call was administered 1 month after discharge. Patients were asked whether for future hospitalizations they would prefer to be cared for by their PCP or another physician like one of the hospital attending physicians from whom they had recently received care, and their WTP to get their preferred choice between a hospital attending physician and their PCP.
RESULTS: 18,227 patients participated in the follow-up phone interview. 14,301 reported having a PCP. Of these, 13,765 expressed their preference concerning care by their PCP or a ward attending physician. 63% of patients were cared for by non-hospitalists. Overall, 29% of patients with a PCP preferred that their PCP lead their hospital care, 27% preferred an inpatient attending, and 44% had no preference. These fractions did not differ between patients cared for by non-hospitalist and hospitalist ward attendings. Overall, more than half of patients expressed $0 WTP for their preferred choice, but a few patients expressed WTP of many millions of dollars. Of patients with preference for their PCP, 23% had WTP > $400. Among patients with a WTP < $400, the mean WTP for PCP's was $49 per inpatient stay. This willingness to pay was not significantly different for patients cared for by hospitalists and non-hospitalists.
CONCLUSIONS: Among patients with a PCP, there are mixed preferences for receiving care by a PCP or a hospital attending. About 23% of patients would be willing to pay over $400 to receive care from their PCP if faced with a copayment that forced them to bear the added hospital costs that some studies suggest might be saved by hospitalists. Among the remaining patients, the average WTP is low. Preserving patient ability to receive care from their PCP is of great value for many patients. If hopsitalists reduce hospital costs compared to PCPs, requiring copayments for patients to receive hospital care by their PCP may be an effective way to improve efficiency of care while respecting patient preferences for care by their PCP.

PATIENT PREFERENCES IN INSTRUCTIONAL ADVANCE DIRECTIVES. E.D. Abbo[1]; S. Sobotka[1]; D.O. Meltzer[1]. [1]The University of Chicago, Chicago, IL. *(Tracking ID # 152795)*

BACKGROUND: The clinical efficacy of instructional advance directives (ADs), also known as living wills, is in doubt. However, traditional ADs as generally written are limited to apply only in terminal illness and the persistent vegetative state. As such, they do not readily capture patient preferences for care in common death trajectories of acute illness in the setting of chronic organic failure and frailty.

METHODS: From an ongoing study of hospitalized patients at an academic hospital, a convenience sample of patients interested in learning more about ADs was identified. Patients were excluded if they were lacking decision-making capacity (either grossly or scored less than 17/22 on an abbreviated mini-mental status exam), were facing a new diagnosis of cancer, or were medically stable with two or more abnormal vital signs (heart rate, blood pressure, temperature, or oxygen saturation). Patients were presented a traditional AD (the recommended Illinois statutory living will) and a modified AD. The traditional AD allowed patients to express the desire to limit life-sustaining therapy (LST) in terminal illness. The modified AD allowed patients to choose among four conditional options: 1. to limit LST in terminal illness, 2. to limit LST in critical illness to a reasonable trial, 3. to refuse LST in advanced dementia (which was described in the AD in lay language), and 4. to refuse artificial hydration and nutrition (AHN) in advanced dementia. Each AD was explained to the patient by the interviewer. In the first phase of the study, the traditional AD was presented first. In the second phase, the order was pseudorandomized based on the last digit of the patient's social security number. ADs were not identified as traditional or modified. The primary outcome was which AD was preferred to be presented to patients generally. Secondary outcomes included the AD choice of those who executed an AD and the options chosen by those executing the modified AD. Results were analyzed as exact binomial variables.
RESULTS: Seventy-two patients completed the survey. The average age was 55.2. African-Americans constituted 84% of respondents, similar to the hospital's general medical population. A significant and overwhelming majority, 85% (95% CI, 74%–92%), preferred that the modified AD be presented to patients over the traditional AD. There were no significant differences based on survey order or stratified demographic analysis. Twenty patients chose to execute an AD. Eighteen, 90% (95% CI, 68%–99%), executed the modified AD. The majority, 12 patients, executed all four options. All 18 patients executing the modified AD wanted to limit LST in critical illness to a reasonable trial of LST (100%; 95% CI, 81%–100%, one tail), whereas 16 wanted no LST in terminal illness (89%; 95% CI, 65%–99%), 14 wanted no LST in advanced dementia (78%; 95% CI, 52%–94%), and 12 also refused AHN in advanced dementia (67%; 95% CI, 41–87%).
CONCLUSIONS: Traditional instructional ADs fail to capture important patient preferences. Patients prefer an AD which not only provides the option to limit LST in terminal illness but includes language which readily provides for the options to limit LST in critical illness to a reasonable trial and to limit LST and AHN in advanced dementia. Future research should examine whether ADs that are modified to include these specific options of care limitation can improve the clinical efficacy of ADs.

PATIENT RISK ASSESSMENT AND ENGAGEMENT IN PRIMARY CARE MANAGEMENT OF CARDIOVASCULAR RISK. N.R. Shah[1]; Z. Daar[2]; C.V. Ackley[2]; M.S. Shreve[3]; B.E. Lewis[4]; W.F. Stewart[2]. [1]New York University, New York, NY; [2]Geisinger Health, Danville, PA; [3]AstraZeneca, Kentfield, CA; [4]AstraZeneca, Worcester, MA. *(Tracking ID # 154627)*

BACKGROUND: Underused and inadequate care can adversely affect patient health. Missed opportunities often occur in primary care because care processes are not optimized to make effective use of established clinical knowledge. To bridge the gap between knowledge and practice, we tested an electronic health record based process to routinely assess and manage cardiovascular disease (CVD) risk.
METHODS: This project was pilot tested in one Geisinger Clinic using EpiCare's® EHR system. Five computerized procedures were tested during routine encounters to: 1) deploy an automated protocol to identify patients meeting criteria for CVD risk assessment; 2) determine data elements missing to assess heart attack risk; 3) automatically consent and order lab and patient self-reported risk questionnaires to assess risk; 4) activate a modified Framingham CVD formula to calculate individual patient risk; 5) engage patients at moderate to high risk to review risk factors and define goals.
RESULTS: Over a 12-month period, 1610 patients were eligible for screening, all of whom were missing data on one or more CVD risk factors. Of these, orders for labs and questionnaire were placed for 27%. 93% of these patients completed some or all measures and 86% of those asked completed the online risk assessment questionnaires. Using a modified Framingham risk-scoring algorithm, 36% of patients who were fully assessed were at moderate or high risk of a heart attack and were scheduled to set goals to reduce their risk. Almost half of these patients completed their goal setting module. Goals were filed back to the EHR as a reference for monitoring patient progress.
CONCLUSIONS: This preliminary test of a new model for CVD risk management suggests that automated protocols based on the EHR can be used to routinely identify, assess and manage cardiovascular disease risk. Primary care physicians can use EHR-based processes to improve patient management.

PATIENT SATISFACTION WITH EMERGENCY DEPARTMENT CARE IS NOT ASSOCIATED WITH ANTIBIOTIC TREATMENT FOR ACUTE RESPIRATORY TRACT INFECTIONS. R. Gonzales[1]; C.A. Camargo[2]; T.D. MacKenzie[3]; C.E. McCulloch[1]; J. Maselli[1]; A.S. Kersey[4]; S.K. Levin[1]; J.P. Metlay[5]. [1]University of California, San Francisco, San Francisco, CA; [2]Massachusetts General Hospital, Boston, MA; [3]Denver Health and Hospital Authority, Denver, CO; [4]Department of Veterans Affairs, Philadelphia, PA; [5]University of Pennsylvania, Philadelphia, PA. *(Tracking ID # 153873)*

BACKGROUND: Patient satisfaction with care is an important indicator of health care quality. Maintaining patient satisfaction is frequently cited by physicians as one reason for the over-prescription of antibiotics. This study assesses patient satisfaction with emergency department care for acute cough illness, and the relationship between antibiotic treatment and patient satisfaction.
METHODS: A convenience sample of English- or Spanish-speaking adults (age >18 years) seeking care for acute cough illness at 15 emergency departments (EDs) nationwide consented to medical record review, as well as one telephone interview 2 to 4 weeks following their ED visit. A validated instrument assessed overall satisfaction with care, and patient ratings of their interactions with ED clinicians (time spent, explanation of treatment, and manner of treatment). Multivariable ordinal logistic regression analysis was used to measure the association between predictor variables and increasing levels of overall satisfaction; ED length of stay (LOS) (minutes) was log-transformed.
RESULTS: Of the 1104 patients that consented to participate, 776 completed the telephone interview and 726 had medical records from their index ED visit abstracted. 598 had complete data fields for multivariable analysis. Study sample characteristics included: median age $=49$ years, 65% female, 27% Black, 15% Hispanic, and 15% uninsured. The most common principal diagnoses were nonspecific URI (36%) and bronchitis (25%); 61% of all patients were prescribed antibiotics at the index visit. Satisfaction with care was rated as poor (5%), fair (9%), good (25%), very good (28%), and excellent (33%). The strongest independent predictors of increasing satisfaction included the 3 patient-clinician interaction ratings ($p<0.001$); as well as decreasing ED LOS ($p=0.03$), and provider type ($p=0.05$) (attending adjusted OR $=1.7$, 95% CI: 1.0, 2.[8]; midlevel adjusted OR $=2.7$, 95% CI: 1.1, 4.9 compared with housestaff). Antibiotic prescription was not associated with satisfaction (adjusted OR $=0.95$, 95%CI: 0.61, 1.48).
CONCLUSIONS: The quality of the clinician-patient interaction, and not antibiotic prescription, is important to patients' satisfaction with ED care for acute respiratory illnesses. Understanding the factors that mediate greater patient satisfaction with mid-level providers deserves greater attention. In the meanwhile, clinicians should not justify antibiotic prescriptions based on a perceived need to maintain or increase patient satisfaction with care.

PATIENT, PHYSICIAN, PHARMACY AND PHARMACY BENEFIT DESIGN FACTORS RELATED TO GENERIC MEDICATION USE. W.H. Shrank[1]; M. Stedman[2]; S. Ettner[3]; D. Delapp[4]; J. Dirstine[4]; M.A. Brookhart[2]; M.A. Fischer[2]; S. Asch[5]. [1]Brigham and Women's Hospital, Division of Pharmacoepidemiology and Pharmacoeconomics, Boston, MA; [2]Brigham and Women's Hospital, Boston, MA; [3]University of California, Los Angeles, Los Angeles, CA; [4]Anthem Blue Cross Blue Shield, denver, CO; [5]Veterans Administration Greater West Los Angeles Healthcare System, Los Angeles, CA. *(Tracking ID # 153338)*

BACKGROUND: Many have called for increased generic drug use to assist in managing rapidly rising prescription drug costs. Recent studies have found that prescribing generic drugs can improve adherence to chronic medications while reducing patients' costs. Little is known about the factors that influence generic drug use. We sought to explore whether physician, patient, pharmacy benefit design or pharmacy characteristics influence the likelihood that patients will use generic drugs.
METHODS: We analyzed 2001–2003 pharmacy claims from a large health plan in the Western U.S. for five classes of chronic medications: HMG CoA reductase inhibitors, calcium channel blockers, oral contraceptives, angiotensin converting enzyme inhibitors and proton pump inhibitors/histamine-2 receptor antagonists. We evaluated new users of these classes of medications and identified patients who were initiated on generic drugs. Among those started on branded medications, we identified all patients who switched to generic drugs in the same drug class in the subsequent year. We used generalized estimating equations to perform separate analyses assessing the relationship between independent variables and the probability that patients were initiated on or switched to generic drugs, controlling for drug class and clustering at the physician level.
RESULTS: A total of 5399 new prescriptions were filled in the classes of medications evaluated, written by 2282 physicians, and 1262 were generic medications. Of the 4072 patients who were initiated on branded medications, 606 switched to a generic drug in the same class in the subsequent year. After regression adjustment, patients who reside in high-income zip codes (RR $=1.27$, $p=0.03$) were more likely to initiate treatment with a generic drug than those in low-income regions, and generalists (RR 0.83, $p=0.03$) and obstetrician/gynecologists (RR $=0.81$, $p=0.01$) were less likely than medical subspecialists to initiate patients on generic medications. Pharmacy benefit design and type of pharmacy were not significantly associated with the likelihood that patients were initiated on generic medications. However, patients were over 2.5 times more likely to switch from a branded medication to a generic medication if they were enrolled in pharmacy benefit designs with three or more tiers of copayments ($p=.03$), and patients who used mail-order pharmacies were 60% more likely to switch to a generic ($p=.01$) during the subsequent year. Older patients were more likely to switch to generics, while physician factors had little relationship to switching.
CONCLUSIONS: While tiered pharmacy benefit designs and mail-order pharmacies help steer patients towards generic medications once the first prescription has been filled, they have little effect on initial prescriptions in a drug class. Physician and patient factors have a greater influence on whether patients are initiated on generic drugs, with the poorest patients paradoxically receiving generic drugs less frequently than patients with higher incomes. These findings suggest that lower-income patients may not advocate for themselves as well as higher-income patients, and their receipt of more expensive medications may lead to greater disparities in access to medications. Efforts to provide patients and physicians with information about generic alternatives may reduce costs and lead to more equitable care.

PATIENT-PHYSICIAN AGREEMENT ON THE CONTENT OF PROSTATE CANCER SCREENING DISCUSSIONS. S.L. Sheridan[1]; C. Golin[1]; A. Bunton[1]; B. Schwartz[1]; L. McCormack[2]; D. Driscoll[2]; R.P. Harris[1]. [1]University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]Research Triangle Institute, Research Triangle Park, NC. *(Tracking ID # 154529)*

BACKGROUND: Little is known about whether patients and physicians perceive the content of clinical discussions similarly. With increasing calls for shared-decision making, clinicians and researchers need a better understanding of how to measure a shared decision. We undertook this study to examine the agreement between patient and physician reports about clinical discussions about prostate cancer screening.
METHODS: We performed a nested cross-sectional survey of all patients and physicians enrolled in a practice-based prostate cancer screening study to determine their agreement on the content of PSA discussions during one clinical visit. Immediately following the visit, both patients and physicians reported whether they discussed prostate cancer screening, and the content and results of any discussion. We used Cohen's kappas to determine concordance in their reports.
RESULTS: We surveyed 28 physicians and 128 patients who had been seeing their physician for at least the last year. 73% of physicians and 37% of patients preferred shared participation in prostate cancer screening decisions. Physicians and patients agreed on whether they discussed prostate cancer screening in 84% of visits (kappa = 0.66, $p < 0.001$) and who initiated the discussion in 83% of visits (kappa = 0.62, $p < 0.001$), but agreed on other content of prostate cancer screening discussions less often. Physicians and patients agreed what they discussed (e.g. pros or cons) in 55% of visits (kappa = 0.27, $p < 0.001$), whether a recommendation was made in 54% (kappa = 0.27, $p < 0.001$), and on results of their discussion for only 60% of visits (kappa = 0.31, $p < 0.001$). Importantly, they agreed on their level of involvement in the decision in only 37% of visits (kappa 0.10, p 0.09). Agreement on both the length of the discussion and whether the patient expressed their thoughts was also quite modest (kappas 0.16 and 0.10 respectively).
CONCLUSIONS: Physicians and patients frequently disagree on the content of prostate cancer screening discussions raising questions about how to best evaluate the content and quality of a shared decision. Future work should compare patient and physician reports to audio or videotaped patient encounters and determine how perceptions translate to actual prostate cancer screening decisions.

PATIENTS' PREFERENCES DO NOT EXPLAIN REGIONAL VARIATION IN END-OF-LIFE TREATMENT INTENSITY. A.E. Barnato[1]; M.B. Herndon[2]; D.L. Anthony[3]; P.M. Gallagher[4]; J.P. Bynum[2]; J.S. Skinner[3]; F.J. Fowler[4]; E.S. Fisher[5]. [1]University of Pittsburgh, Pittsburgh, PA; [2]Dartmouth Medical School, Hanover, NH; [3]Dartmouth College, Hanover, NH; [4]University of Massachusetts at Boston, Boston, MA; [5]Dartmouth Medical School and the VA Outcomes Group, White River Junction, VT. *(Tracking ID # 153240)*

BACKGROUND: US Hospital Referral Regions (HRRs) differ by almost two fold in the overall intensity with which Medicare beneficiaries are treated during their last six months of life. Whether these dramatically different practice patterns could be due to patient preferences is unknown.
METHODS: We surveyed a national probability sample of fee-for-service Medicare beneficiaries over the age of 65 using either a computer-assisted telephone interview or a self-administered mail questionnaire. Respondents were asked to imagine that they had a serious illness with less than 1 year to live and then asked about their concerns and preferences in that situation. We measured age-sex-race adjusted spending in the last six months of life for all Medicare decedents calculated using standardized prices - the End-of-Life Expenditure Index (EOL-EI) - in each HRR. We compared survey responses across HRRs categorized by quintile of EOL-EI using one-way ANOVA and multivariable logistic regression.
RESULTS: 2,515 of 3,840 eligible sampled Medicare enrollees completed the survey, for a response rate of 65% (refusal rate = 3%). The mean age of respondents was 75.6 (SD 6.6), 42% were men, 82% non-Hispanic white, 7% black, 5% Hispanic, 3% other race/ethnicity, 20% had not completed high school, 19% had completed college or graduate school, 27% were in fair or poor health, and 29% reported that financial issues were very important in their decisions to get medical care. In the last year of their life with a terminal illness, general attitudes were evenly split: 44% were concerned about getting too little treatment and 49% were concerned about getting too much treatment. When asked about specific treatments, however, only 9% would prefer to spend their last days in a hospital, 16% would prefer potentially life-prolonging drugs that made them feel worse all the time, 13% would prefer mechanical ventilation (MV) if it would extend their life by 1 week, and 22% would prefer MV if it would achieve 1 month's life extension. Seventy-five percent would prefer palliative drugs, even if they might be life-shortening. Respondents' EOL treatment concerns and preferences were no different across quintiles of EOL-EI, with one exception: in higher intensity regions respondents were less likely to want palliative drugs that might be life-shortening (Q1 = 79.9%, Q2 = 75.5%, Q3 = 75%, Q4 = 68%, Q5 = 74.5%, p = 0.002), a difference that was no longer significant in multivariable analyses adjusted for socio-demographics and health status.
CONCLUSIONS: Almost all Medicare enrollees are concerned about a mismatch between the amount of treatment they want and what they will receive in their last year of life but generally prefer treatment focused on palliation rather than life-extension. Differences in preferences do not explain regional variations in end-of-life spending.

PATTERNS OF USE AND ACCEPTABILITY OF A BILINGUAL INTERACTIVE COMPUTER KIOSK DESIGNED TO TEACH PATIENTS ABOUT APPROPRIATE ANTIBIOTIC USE FOR ACUTE RESPIRATORY TRACT INFECTIONS. T.D. MacKenzie[1]; R. Gonzales[2]; S.K. Levin[2]; J. Maselli[2]; C.A. Camargo, Jr[3]; A.S. Kersey[4]; J.P. Metlay[5]. [1]Denver Health and Hospital Authority, Denver, CO; [2]University of California, San Francisco, San Francisco, CA; [3]Massachusetts General Hospital, Boston, MA; [4]Department of Veterans Affairs, Philadelphia, PA; [5]University of Pennsylvania, Philadelphia, PA. *(Tracking ID # 154134)*

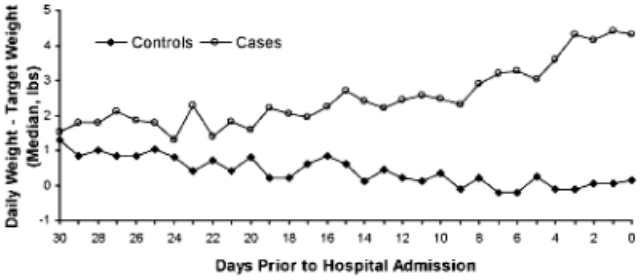
BACKGROUND: Interactive computer technology holds great potential to educate patients about illness, wellness, and medical treatment at the point of health care service. Effective education and concomitant behavior change may be dependent on multiple factors including the ease of use, understandability, readability, presence of audio cues, cultural sensitivity, and language options.
METHODS: We designed a bilingual (English-Spanish) interactive computer module for placement in 8 hospital emergency departments in 4 U.S. cities during the 2004–05 winter season. The module was one component of a multidimensional provider and patient education program to reduce inappropriate antibiotic use for acute respiratory tract infections (ARIs) among adults. The program was self-administered and housed in a stand-alone "ATM"-style kiosk with a touch-screen, audio cues, digital videos, and a bilingual educational printout. Educational elements included dramatized physician and patient dialog. All interactions with the kiosks, including date of interaction, primary respiratory symptom, attitudes about antibiotic benefits, knowledge assessments, and desire for antibiotics before and after the educational segments were captured electronically.
RESULTS: Over 3.5 months, the 8 kiosks recorded 8292 unique interactions, of which 3528 (42.5%) were by adults who answered at least the first three questions. Of those, 1024 (29.0%) reported being sick with one of the following 4 target symptoms: cough, congested or runny nose, sore throat, or a combination of the first 3 choices. Of these sick adult users, 117 (11.4%) selected the Spanish version, and 428 (41.8%) completed the 5-minute educational program tailored to the chief complaint. Of those who completed the program, 186 (43.5%) believed at the start of the program that antibiotics would help them feel better, and 328 (76.6%) reported at the end that they had learned something new from the computer kiosk. We measured desire for antibiotics on a 10-point scale before and after the educational section of the program, with a response of "10" representing the most desire. Sick adults who completed the program (n = 428) had mean desire scores at the start of 6.1 and at the end of 4.5 ($p < 0.001$). Change in desire by baseline quartile of desire is shown in Table 1
CONCLUSIONS: This self-administered bilingual interactive computer module was well-accepted by adult users with ARIs, many of whom believed at the start of the module that antibiotics would help their symptoms. Overall, self-reported desire for antibiotics declined after using the educational module. This suggests that educational computer modules in ED waiting rooms may be effective tools for increasing patients' knowledge, changing their attitudes, and perhaps affecting behavior in the patient-provider interaction.

Table 1 Change in desire for antibiotics by quartile of baseline desire

Quartile of Initial Desire	Mean Baseline Desire	Mean Change in Desire (SD)	Percent Change in Desire
Q1 (scores 1–4)	2.0	+1.0 (3.7)	+53%
Q2 (score 5)	5.0	−1.4 (3.1)	−27%
Q3 (scores 6–8)	6.9	−2.2 (3.3)	−32%
Q4 (scores 9–10)	9.8	−3.5 (3.8)	−35%

PATTERNS OF WEIGHT GAIN BEFORE HOSPITALIZATION FOR HEART FAILURE. S. Chaudhry[1]; Y. Wang[2]; H.M. Krumholz[1]. [1]Yale University, New Haven, CT; [2]Yale University School of Medicine, New Haven, CT. *(Tracking ID # 150788)*

BACKGROUND: Patients with heart failure (HF) are advised to weigh themselves daily so that signs of clinical decompensation may be detected early. While weight gain has long been recognized as a marker of HF decompensation, notably missing from our current knowledge is detailed information about daily changes in weight that are predictive of hospitalization among patients with HF. Equipped with this information, clinicians managing HF patients would be better prepared to make prognostic predictions and management decisions. The goal of this study was to identify the timing and magnitude of weight change associated with imminent hospitalization among patients with HF.
METHODS: Data were collected over 18 months for 8000 community-dwelling patients with HF using a telemedicine program which involved measuring daily body weight with standardized, digital scales. Using a nested case-control study design, we identified 302 cases with a HF hospitalization and 302 controls without HF hospitalization during the same study period. Cases and controls were matched on age, sex, HF severity and target body weight (set by each patient's physician as a weight that indicates no excess fluid retention). Daily weight gain (calculated by subtracting target weight from weight on a given day) prior to hospitalization was compared between cases and controls. The F-test in Generalized Linear Model Analysis was used to test if the difference between cases and controls in weight gain was statistically significant.
RESULTS: Study participants had a mean age of 74 years, 44% were male and 97% had New York Heart Association class III or IV. The major divergence in weight patterns between cases and controls began 20 days prior to admission (PTA) (Figure). By day 9 PTA, 50% of cases gained >2 lbs and 35% gained >5 lbs. By day 2 PTA, 65% of cases had gained >2 lbs and 45% gained >5 lbs. Control patients did not exhibit weight gain during the study period. Adjusting for the number of days before hospitalization, the difference in weight gain between cases and controls was statistically significant ($P < 0.0001$).



Daily Weight Gain Prior to Hospitalization: Cases versus Controls

CONCLUSIONS: Weight gain before HF hospitalization is a gradual phenomenon and increases begin 20 days PTA. Close monitoring of weight may afford clinicians a window of opportunity to intervene before HF hospitalization becomes inevitable. Systems to enhance such close monitoring should be explored and tested.

PER PUPIL EDUCATION SPENDING EFFECT ON TEEN PREGNANCY AND DEATH RATES. J.H. Schumann[1]; J.B. Silverman[1]; A. Basu[1]; C. Masi[1]. [1]University of Chicago, Chicago, IL. *(Tracking ID # 152789)*

BACKGROUND: Little data exists on the effects of per pupil spending (PPS) in public schools on teen pregnancy and teen death. Teen pregnancy rates have been declining over the last decade, but still are a significant issue, especially among lower socioeconomic status (SES) groups. Similarly, teen death, which reflects accidents, homicides, and suicides, varies by SES and would seem to be amenable to investment in primary and secondary education. We developed a model to evaluate the relationship between state-level PPS and both teen pregnancy and teen death rates.
METHODS: We used data from the 1997–2002 National Association of State Budget Officers' State Health Expenditure Reports and the CDC's National Vital Statistics Reports. Our analysis controlled for several state-level covariates that could influence the outcomes, such as state public health expenditure, median household income, proportion of residents in poverty, percentage of total budget dedicated to secondary and elementary education, graduation rates within 4 years for high school students, total health expenditures, and total population. All dollar amounts were adjusted to 2003 dollars. A Hausman test was used to test whether between- and within-state effects for state-level covariates were systematically different. If they are, we used a fixed effects model to account for unobserved state-specific covariates. If not, we used a random effects model for efficient estimation.
RESULTS: Over the six years of data, between-state variability was much larger than the within-state variability for each of the covariates and both the outcomes. For teen pregnancy rates, our final model was a fixed effects model while for teen death rates, our final model was a random effects model, but one that allowed for different between- and within-state effects of graduation rates within 4 years for high school students and state public health expenditure. We found an increase of one standard deviation in per pupil spending (about $1400) was associated with an 11% reduction (p-value <0.001) in teen pregnancy rates. We also found a one standard deviation increase in per pupil spending was associated with an 8% reduction (p-value $=0.008$) in teen death rate.
CONCLUSIONS: Per pupil spending was significantly associated with reductions in both teen pregnancy and teen death rates at the state level. The mechanism by which per pupil spending affects these health outcomes is not clear but may be related to health and injury prevention education provided in primary and secondary schools. The effect sizes we estimated are conservative since we did not account for reverse causality, an issue we plan to explore in future work using instrumental variables. Our results suggest primary and secondary school investment may be an important strategy for reducing teenage pregnancy and teen death in the U.S. More research is needed to determine how education investment affects health outcomes. In the interim, physician advocacy for public school investment appears to be a legitimate public health strategy.

PER PUPIL INVESTMENT IN PRIMARY AND SECONDARY EDUCATION INFLUENCES OBESITY IN YOUNG ADULTS. J.B. Silverman[1]; J.H. Schumann[1]; A. Basu[1]; C. Masi[1]. [1]University of Chicago, Chicago, IL. *(Tracking ID # 154390)*

BACKGROUND: During the last three decades, the United States has witnessed a dramatic increase in obesity rates for both children and adults. The obesity rate has more than doubled for adolescents aged 12–19 years and has more than tripled for children aged 6–11 years. Obesity is associated with increased risk for many health problems, including hypertension, Type 2 diabetes, and coronary heart disease. Medical costs associated with overweight and obesity and their associated health conditions have a significant economic impact on the health care system. As obesity in adolescents is a significant predictor of adult obesity, investment in primary and secondary education may have important consequences for adult obesity and health.
METHODS: We used 1997–2002 data from the National Association of State Budget Officers' State Health Expenditure Reports and the CDC's Behavioral Risk Factor Surveillance System to determine the relationship between state per pupil spending on primary and secondary education and obesity prevalence in young adults aged 18–34 years. All dollar amounts were inflated to $2003 dollars. A Hausman test was used to identify state-level covariates which had significantly different between- and within-state effects. The final random effects model allowed for different between- and within-state effects for relevant covariates as identified by the Hausman test.
RESULTS: Over the six years of data, between-state variability was much larger than within-state variability for each of the covariates and the outcome. Only total health expenditure and total population were found to have significantly different between- and within-state effects on obesity rates for young adults. We found an increase of one standard deviation in per pupil spending (about $1400) was associated with a 3% (p-value $=0.009$) reduction in obesity in young adults after adjusting for state public health expenditure, median household income, proportion of residents in poverty, percentage of total budget dedicated to primary and secondary education, graduation rates within 4 years for high school students, total health expenditures, and total population.
CONCLUSIONS: Per pupil spending was significantly associated with obesity in young adults at the state level. The mechanism by which per pupil spending affects obesity is not clear but may be related to nutrition and/or health education provided in primary and secondary schools. The effect size we estimated is conservative since we did not account for reverse causality, an issue we plan to explore in future work using instrumental variables. Future research will also focus on the relationship between state per pupil spending and adolescent obesity. Our results suggest primary and secondary education investment may be an important strategy for addressing the epidemic of obesity in the U.S.

PERCEIVED RISK OF ADVERSE PREGNANCY OUTCOMES AMONG WOMEN WITH CHRONIC MEDICAL CONDITIONS. C.H. Chuang[1]; M.J. Green[1]; C.S. Weisman[1]. [1]Pennsylvania State University, Hershey, PA. *(Tracking ID # 155714)*

BACKGROUND: Certain chronic medical conditions significantly increase the risk of adverse pregnancy outcomes. This is relevant since the prevalence of diabetes, hypertension, and obesity are increasing among women of reproductive age in the United States. Despite improvements in access to prenatal care, the incidence of adverse pregnancy outcomes such as low birthweight and preterm birth has not improved in recent years. One way to improve pregnancy outcomes is through preconception health optimization. This requires that women with chronic medical conditions (as well as their health care providers) recognize their increased risk so they seek appropriate interventions prior to pregnancy. However, it is not known whether women with chronic medical conditions are aware of their increased risk for adverse pregnancy outcomes.
METHODS: The Central Pennsylvania Women's Health Study (CePAWHS) is a population based telephone survey of reproductive age women residing in a predominantly rural 28-county region in Central Pennsylvania. Women were asked how likely they think they are to have a preterm or low birthweight baby. Responses were dichotomized as very/somewhat likely versus very/somewhat unlikely to have a preterm or low birthweight baby. We compared the risk perception for these adverse pregnancy outcomes of women with diabetes, hypertension, or obesity to women without these conditions. Multivariable analysis controlled for sociodemographic variables, pregnancy history, health habits, and health status variables.
RESULTS: Out of the 694 women included in the analysis, 16 (2%) had diabetes, 50 (7%) had hypertension, and 141 (21%) were obese; 174 (25%) of the women had at least one of these 3 chronic conditions. Women with chronic conditions were not more likely to perceive increased risk of adverse pregnancy outcomes in the multivariable analysis when compared to women without any of these conditions (adjusted OR 0.59, 95% CI 0.34–1.01). Previous preterm birth, smoking, having lower mental and physical health status scores, and having a mother with history of preterm birth or low birthweight were significantly associated with perceiving higher risk of adverse pregnancy outcomes.
CONCLUSIONS: Despite being at increased risk for adverse pregnancy outcomes, the women with diabetes, hypertension, and obesity in this study did not perceive their risk any differently than women without these conditions. If interventions aimed at improving pregnancy outcomes via preconception health optimization are to succeed, they must first address this problem.

PERCEPTIONS OF HEALTH AND HOUSING OF UNSTABLY HOUSED HIV-INFECTED INDIVIDUALS IN NEW YORK CITY. A. Fox[1]; G.M. Sacajiu[2]; M. Ramos[1]; N.L. Sohler[3]; D. Heller[4]; C. Cunningham[2]. [1]Montefiore Medical Center, Bronx, NY; [2]Albert Einstein College of Medicine, Bronx, NY; [3]City University of New York Medical School, New York, NY; [4]Citiwide Harm Reduction, Bronx, NY. *(Tracking ID # 154716)*

BACKGROUND: HIV-infected individuals, particularly those with unstable housing, have difficulty maintaining adequate access to health care. Previous studies of the influence of housing status on access to health care have focused on measures of literal homelessness. This approach does not fully capture housing instability nor the range of contextual factors related to one's living environment that are likely to profoundly influence access to health care. Additionally, participants' perception of the role of housing on health care, a potentially significant factor in seeking care, has not been considered. To address this gap in knowledge, this study explores participants' representations of illness and perceived role of housing, competing priorities, drug use, and support systems in HIV care.

METHODS: We conducted 14 semi-structured interviews with HIV-infected residents of single room occupancy (SRO) hotels in New York City. Participants were recruited from a harm reduction organization that serves HIV-infected SRO hotel residents. The interviews established timelines related to housing status and health care following HIV diagnosis. Patterns of drug use, social service utilization, and unmet basic needs (like food and clothing) were also explored. Interviews were transcribed and then coded using N-vivo software. Qualitative analysis using grounded theory elicited common themes and developed a typology for perceptions of health and housing.
RESULTS: The majority of the sample were over 35 years old (93%), male (71%), African-American (71%), and heterosexual (79%). Half had lived in more than five different SRO hotels since their HIV diagnosis. Themes that emerged included the destabilizing effect of HIV diagnosis; the importance of social support; the impact of poor conditions of emergency housing in NYC; and the structural barriers to obtaining care. For most individuals, diagnosis of HIV was followed by a period of chaos, which often included loss of housing, escalating drug use, and worsening self-care behaviors. During this period, many described a sense of total isolation, such as withdrawing from friends and families in fear of rejection, as well as a sense of hopelessness and denial. However, positive change in the participants' illness representations were often described following interactions with individuals or organizations that acted as advocates by providing emotional support and/or resources to deal with isolation and hopelessness. Living conditions in SRO hotels, which were described as infested with drugs and prostitution, were demoralizing and decreased motivation for self care, including attending to health care needs. Additionally, competing priorities negatively affected health care. Specifically, the need for housing required frequent moves, which disrupted continuity of medical care, and food insecurity impeded adherence with medications.
CONCLUSIONS: This study provides insight into the perceptions of unstable housing and health care in a sample of HIV infected individuals in New York City. The downward spiral experienced by many participants following HIV diagnosis impacted on self-care. Interventions to facilitate initiating medical treatment and preventing social destabilization are crucial during this period. These data suggest that community based organizations may be able to provide necessary support systems. Ultimately, for HIV-infected marginalized populations, housing must be addressed as part of the overall health care picture.

PERCEPTIONS OF RISK: ASSOCIATION WITH DIABETES ADHERENCE TO SELF-CARE. M. Figaro[1]. [1]Vanderbilt University, Nashville, TN. *(Tracking ID # 156094)*

BACKGROUND: Diabetes complications are costly and impair patients' quality of life. The perception of risk for complications likely impacts patient adherence in diabetes management. In order to improve the health of, and assure good outcomes for, patients with diabetes, physicians must identify and moderate causes of inadherence. We describe the development of a new measure to assess one dimension of health motivation, risk perception. This, in addition to self-efficacy and outcome expectancy forms the basis for Bandura's social cognitive model. This assumes that patients' desire to avoid or lower risk of health complications or experience positive health states motivates them to engage in self-care practices.
METHODS: In a sample of 245 subjects with type 2 diabetes, we developed a 4-item scale measuring patients' perception of their risk of complications in comparison to others with diabetes. Subjects were identified from community health centers and tertiary health centers or by advertisement. The study used a cross-sectional survey research design. Data were collected via telephone-administered interviews. The 4 items assess four complications of diabetes: amputation, myocardial infarction, blindness and renal failure. We evaluated the scale, characterizing both validity and reliability. We then assessed the scale's association with self-reported adherence, patients expectations of diabetes outcome, and their self-efficacy for performing self-care.
RESULTS: Our sample of 245 (43% women, 36% black) had diabetes for an median of 8 years (mean 10.5). The mean age was 61 years, (SD 10.8). Subjects were at high risk of diabetes complications with 81% having hypertension and 21% having prior heart disease. Thirty-nine percent of subjects perceived that they had lower-than-average risk for a myocardial infarction, 46% for renal failure, 42% for blindness, 54% for amputations. The combination of 4 risks comprise the scale (Cronbach's alpha=.82) which is the mean of at least 3 risks. Factor analysis revealed that over 66% of the total item variance was explained by a single underlying factor. All factor loadings exceeded .60. Those who perceived themselves to be at higher risk of diabetes complications reported less adherence ($p=0.001$). Previous heart disease was associated with higher risk perception ($p=0.01$). Sex, age, and race were not associated with higher risk perception. Those who perceived more risk had similar diabetes outcome expectancy and self efficacy to those who perceived less risk.
CONCLUSIONS: In a high-risk sample, those with higher perceived risk of diabetes complications, as measured by a reliable, single construct, reported they were less adherent to their regimen. Using a 4-item scale, physicians can assess patients for risk perception, since it may impact whether patients prioritize adherence to diabetes self-care. Patients may be less adherent because they are unrealistically optimistic about diabetes outcomes or do not link their adherence to outcomes. Studies are needed to determine whether use of this scale, combined with more intensive patient education regarding risk avoidance will improve self-care adherence of primary care patients with diabetes.

PHYSICAL PAIN IS A MODIFIABLE RISK FACTOR FOR SUB-OPTIMAL ANTIRETROVIRAL ADHERENCE IN HIV-INFECTED CURRENT AND FORMER DRUG USERS. K.M. Berg[1]; N.A. Cooperman[1]; H. Newville[2]; X. Li[1]; J.H. Arnsten[1]. [1]Albert Einstein College of Medicine, Bronx, NY; [2]Yeshiva University, Bronx, NY. *(Tracking ID # 153357)*

BACKGROUND: Strict adherence to complex medication regimens is necessary to achieve the clinical and survival benefits of antiretroviral therapy. HIV-infected drug users have received less benefit from combination antiretroviral therapy than non-drug users, in part because of sub-optimal adherence. Though previous studies have noted that physical pain is highly prevalent among both HIV-infected persons and drug users, little is known about the association between physical pain and antiretroviral adherence. The objective of this study was to describe prevalence and characteristics of physical pain in HIV-infected current or former drug users, and to examine associations between physical pain and antiretroviral adherence.
METHODS: We conducted surveys using audio computer-assisted self-interview (ACASI) with methadone maintained HIV-infected current or former drug users on antiretroviral therapy. Seven-day self-reported antiretroviral adherence was measured for each medication separately, and we calculated a mean overall adherence rate giving equal weight to each medication. We used the Brief Pain Inventory to measure presence of acute or chronic physical pain. Other covariates we assessed were depression (defined as the median score on the depression subscale of the Brief Symptom Inventory), medication side effects (defined as being extremely bothered by one or more common side effects), and recent drug use (heroin or cocaine use in the past month). Bivariate associations between pain and adherence were conducted using independent samples t-tests. The independent effect of pain on antiretroviral adherence was then assessed using multivariate linear regression.
RESULTS: ACASI surveys were completed with 70 HIV-infected current or former drug users. Their mean age was 45 and the majority was female (54%), black or Hispanic (93%), and had stable housing (86%). Sixteen percent reported use of heroin or cocaine in the past month. Six percent reported the side effect of "burning or numbess" in their extremities. Forty participants (57%) reported physical pain. Of those with physical pain, 70% had been to a doctor for their pain complaint in the past 3 months, 30% had been given a diagnosis, 68% had taken pain medication prescribed by their doctor, and 43% had used drugs, alcohol, or street pills to treat their pain. Of those who received pain medication from their doctor, 50% experienced little or no pain relief. Antiretroviral adherence among those who reported physical pain was 11% lower than among those without pain (98% vs. 87%, $p<0.05$). In multivariate analyses, controlling for depression, medication side effects, and recent drug use, physical pain remained independently associated with worse antiretroviral adherence ($p<0.05$).
CONCLUSIONS: Physical pain is prevalent among HIV-infected current and former drug users in substance abuse treatment, and is independently associated with worse antiretroviral adherence. Further, almost half of those with physical pain reported using drugs, alcohol, or street pills to relieve their pain. Because physical pain may be an important modifiable risk factor for sub-optimal antiretroviral adherence, clinicians should aggressively screen for and treat physical pain in HIV-infected current and former drug users.

PHYSICIAN CHARACTERISTICS AND PARTICIPATION IN AN INTERNET-DELIVERED INTERVENTION TO IMPROVE POST-MYOCARDIAL INFARCTION CARE: THE MI PLUS STUDY. E.F. Tipton[1]; T.K. Houston[2]; E.M. Funkhouser[3]; D.A. Levine[4]; C.I. Kiefe[2]. [1]Birmingham VA Medical Center, Birmingham, AL; [2]University of Alabama-Birmingham School of Medicine, Birmingham, AL; [3]University of Alabama-Birmingham School of Public Health, Birmingham, AL; [4]University of Alabama at Birmingham, Birmingham, AL. *(Tracking ID # 153304)*

BACKGROUND: The MI Plus study is a randomized, controlled trial of an Internet-delivered intervention to improve treatment of ambulatory post–myocardial infarction (MI) patients with multiple co-morbidities; 70% of U.S. physicians seek medical information from the Internet. Internet-delivered interventions reach large numbers of physicians at low cost; however, such interventions may be less intense than other quality improvement methods. Physician characteristics may influence the rate of initial and recurrent participation in an internet-delivered intervention.
METHODS: Community-based primary care physicians in Alabama and Mississippi who cared for post-MI patients were identified using Medicare data provided by the Alabama Quality Assurance Foundation and recruited using fax, postal and electronic mail, and telephone solicitation. Recruitment incentives included a textbook, access to Elsevier online journals, and continuing medical education (CME) units. The MI Plus intervention arm received a 30-month Internet-based educational program, consisting of: 1) quarterly case-based modules, 2) "literature watch" with monthly summaries of relevant recent studies, and 3) a "toolbox" with consensus (clinical practice) guidelines, treatment algorithms and patient educational materials. The control group was directed to a web-site with similar educational characteristics for generic chronic disease management, but not specific to complex post-MI patients. Using data from an American Medical Association database, we assessed the association of physician specialty, sex, age, and physician practice size with initial enrollment, initial participation and recurrent participation. We present data at month 17 of the study.
RESULTS: Of the 2039 physicians in our recruitment pool, 201 (10.4%) enrolled in the study (177 men and 24 women). Enrollment was higher for internists than family practitioners (12.4% vs. 9.1%, $p=0.013$), with no difference by physician practice size. Among physicians who enrolled, 67% returned after the initial log-on for at least 1 additional visit, 68% completed at least 1 case module, 64% requested a CME certificate, and 74% requested a textbook. A

higher proportion of women than men engaged in each activity. There were no differences by physician specialty, practice size, or age. Among the 102 intervention physicians (88 men and 14 women), 64% accessed the toolbox, 51% the guidelines, 27% the literature watch and 16% participated in all 3 of these intervention components as well as completing at least one case (intense users). Though not statistically significant, physician participation in the intervention components appeared inversely related to physician practice size and women appeared more likely than men to participate in all components except accessing guidelines; 29% of women vs. 14% of men, p=0.2, were intense users. There were no differences in the use of intervention options by physician specialty or age.
CONCLUSIONS: Given the very large and still expanding population of physicians reachable through the Internet, a recruitment rate of 10% represents a potentially significant group to be enlisted in Internet-delivered quality improvement interventions. Our findings of differences in recruitment and participation rates by physician specialty and sex, and of differential use of the options offered by the intervention, should guide future efforts to use the Internet as a delivery system for quality improvement efforts.

PHYSICIAN CHARACTERISTICS ASSOCIATED WITH BEING A PROFICIENT LEARNER-CENTERED TEACHER. E. Menachery[1]; A.M. Knight[1]. [1]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 156666)*

BACKGROUND: Medical education relies heavily upon medical learners' self-awareness and motivation. Clinical competence and professional growth is thought to occur more efficiently, effectively, and satisfyingly when a learner-centered approach to medical education is taken. This study's primary objective was to identify characteristics that are associated with physician teachers' proficiency in leaner-centered teaching skills.
METHODS: A cohort of 363 physicians, who were either past participants of the Johns Hopkins Faculty Development Program or members of a comparison group, were surveyed by mail in July 2002. Survey questions asked the physicians about personal characteristics, professional characteristics, teaching activities, self-assessed teaching proficiencies and behaviors, and scholarly activity. The learner-centeredness scale, a composite learner-centeredness variable, was developed using factor analysis. Logistic regression models were then used to determine which faculty characteristics were independently associated with scoring highly on a dichotomized version of the scale.
RESULTS: Two hundred and ninety-nine physicians responded (82%) of whom 262 (88%) had taught medical learners in the prior 12 months. Factor analysis revealed that the six questions from the survey addressing learner-centeredness clustered together to form the 'learner-centeredness scale' (Cronbach's Alpha: 0.73). Eight items, representing discrete faculty responses to survey questions, were independently associated with high learner-centered scores: (i) proficiency in giving lectures or presentations (OR=5.1, 95% CI: 1.3–19.6), (ii) frequently helping learners identify resources to meet learners' needs (OR=3.7, 95% CI: 1.3–10.3), (iii) proficiency in eliciting feedback from learners (OR=3.7, 95% CI: 1.7–8.5), (iv) frequently attempting to detect and discuss emotional responses of learners (OR=2.9, 95% CI: 1.2–6.9), (v) frequently reflecting on the validity of feedback from learners (OR=2.8, 95% CI: 1.1–7.4), (vi) frequently identifying available resources to meet the teacher's learning needs (OR=2.8, 95% CI: 1.1–7.2), (vii) having given an oral presentation related to education at a national/regional meeting (OR=2.6, 95% CI: 1.1–6.0), and (viii) frequently letting learners know how different situations affect the teacher (OR=2.5, 95% CI: 1.1–5.5).
CONCLUSIONS: It may now be possible to identify medical educators that are more learner-centered in their approach to medical education. Beyond providing training to help physicians become more proficient learner-centered teachers, training programs that want to improve the overall quality of teaching among their faculty may wish to promote the teaching behaviors and proficiencies that are associated with high learner-centered scores identified in this study.

PHYSICIAN COMPENSATION AND QUALITY OF DIABETES CARE: PRELIMINARY RESULTS FROM THE TRIAD STUDY. C. Kim[1]; W.N. Steers[2]; W.H. Herman[1]; C.M. Mangione[2]; K.M. Venkat Narayan[3]; S.L. Ettner[2]. [1]University of Michigan, Ann Arbor, MI; [2]University of California, Los Angeles, Los Angeles, CA; [3]Centers for Disease Control and Prevention (CDC), Atlanta, GA. *(Tracking ID #150277)*

BACKGROUND: Few studies have explicitly examined the association between physician compensation and quality of care. One study suggested that physicians paid primarily by salary provided better quality care than those paid fee-for-service.
METHODS: We examined the cross-sectional association between physician-reported compensation strategies and quality of care in the Translating Research Into Action for Diabetes (TRIAD), a study of diabetes care in managed care. Eight of the 10 TRIAD health plans contracted with 1 to 26 provider groups (total of 68 groups) to provide care; participants in this analysis included 4200 individuals with diabetes and their physicians (n=1248). Main outcome measures included diabetes process measures over the past year (assessment of hemoglobin A1c (HbA1c), proteinuria, and lipids; performance of dilated eye exam, foot exam, influenza vaccination; and advice to take aspirin), intermediate outcomes (HbA1c<8.0%, low-density lipoprotein cholesterol level <130 mg/dL, and systolic blood pressure level <140 mmHg), and management intensity (2 or more oral agents or medications for glucose control; 1 or more lipid-lowering agents for hypercholesterolemia; and 2 or more anti-hypertensive agents for hypertension). The primary independent variable was physician-reported percent of total compensation from salary as compared to fee-for-service. Percent compensation was modelled as a continuous variable. Physician covariates included gender, race/ethnicity, specialty, and years of practice; patient covariates included age, gender, education, income, body mass index, smoking, type of diabetes treatment, quality of life, and presence of other insurance. Hierarchical mixed-effects models adjusted for clustering within health plans and physicians. We calculated the difference in predicted probabilities of each outcome associated with a change in the percent compensation from salary from 10% to 90% (i.e., the predicted probability if the sample had reported 90% compensation from salary, minus the predicted probability if the sample had reported 10% compensation from salary). Differences greater than zero indicated a higher probability of the outcome with a greater percent compensation from salary.
RESULTS: Patients of physicians who reported higher percent compensation from salary (>90% vs. <10%) were not any more likely to receive any diabetes process measures, nor were they more likely to have better intermediate outcomes. Greater percent compensation from salary was also not associated with reports of getting needed care or satisfaction with communication.
CONCLUSIONS: Salary, as opposed to fee-for-service compensation, was not associated with diabetes processes and intermediate outcomes. Financial incentives may not be an effective means of improving diabetes quality of care.

PHYSICIAN FACTORS ASSOCIATED WITH DISCUSSIONS ABOUT END-OF-LIFE CARE. N.L. Keating[1]; M. Landrum[1]; S. Rogers[2]; S. Baum[3]; B. Virnig[4]; H.A. Huskamp[5]; C. Earle[6]; K.L. Kahn[7]. [1]Harvard University, Boston, MA; [2]Brigham and Women's Hospital, Boston, MA; [3]University of Alabama, Birmingham, AL; [4]University of Minnesota, Minneapolis, MN; [5]Harvard Medical School, Boston, MA; [6]Dana-Farber Cancer Institute, Boston, MA; [7]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 152854)*

BACKGROUND: Guidelines recommend advanced care planning for patients with terminal illness and life expectancy of 1 year or less. We described physicians' reports of when they discuss prognosis, do not resuscitate (DNR) status, hospice, and preferred site of death for terminally ill patients and identified factors associated with timing of these discussions.
METHODS: Survey of physicians (57% response rate) from 7 population-based sites in the U.S. who cared for lung or colorectal cancer patients participating in the CanCORS study–a national study of patterns and outcomes of cancer care. Physicians were named by patients as providing key roles in their care. The survey asked physicians to assume they were caring for a patient newly diagnosed with metastatic cancer who is otherwise feeling well, with an estimated life expectancy of 4–6 months. They were asked when they would discuss prognosis, DNR status, hospice, and preferred site of death. Response options were "now", "when the patient first has symptoms", "when there are no more non-palliative treatments", "only if the patient is hospitalized", and "only if the patient or family bring it up". We used logistic regression models to identify physician factors independently associated with having discussions "now".
RESULTS: The mean age of the 2,699 responding physicians was 50.2 (SD 9.9), 82% were male, and 25% were surgeons, 16% medical oncologists, 7% radiation oncologists, and 52% non-cancer specialists. Sixty-six percent of physicians would discuss prognosis "now", while 18% would have this discussion only if the patient/family brings it up. Forty percent would discuss DNR status "now" with 20% waiting for the patient to have symptoms and another 25% waiting until there were no more nonpalliative treatments. Only 25% would discuss hospice "now" with 16% waiting for symptoms and 50% waiting until there are no more nonpalliative treatments. Finally, 20% would discuss preferred site of death now. In multivariable analyses, younger physicians were more likely to discuss prognosis, DNR status, hospice, and preferred site of death "now" (all P<0.001). Surgeons were more likely than noncancer specialists to discuss prognosis "now" (P=0.008), but noncancer specialists were more likely than surgeons, medical oncologists, and radiation oncologists to discuss DNR status, hospice, and preferred site of death "now" (all P<0.001). Physicians with more terminally ill patients were more likely than others to discuss prognosis "now" (P=0.04) and physicians in office (vs. hospital) practice were more likely to discuss hospice "now" (P=0.001).
CONCLUSIONS: Many physicians do not discuss end-of-life options with terminally ill patients while they are still feeling well, instead waiting for onset of symptoms or until there are no more non-palliative treatments to offer. Younger physicians and noncancer specialists are generally more likely to discuss end-of-life options sooner than older physicians and cancer specialists. Despite guidelines recommending these discussions occur early, our findings suggest that different types of physicians have very different views regarding the appropriate timing. More research is needed to understand physicians' reasons for timing of their discussions, patients' preferences for timing, and the role of physicians' propensity to treat metastatic cancer on the timing of discussions. Education and physician interventions may be necessary to increase advanced care planning for terminally-ill cancer patients.

PHYSICIAN RESPONSE TO THE "BY-THE-WAY" SYNDROME IN PRIMARY CARE. P. Rodondi[1]; J. Maillefer[1]; N. Rodondi[1]; P. Singy[2]; J. Cornuz[1]; M. Vannotti[2]. [1]Department of Community Medicine and Public Health, University of Lausanne, Lausanne; [2]Department of Psychiatry, University of Lausanne, Lausanne. *(Tracking ID # 151310)*

BACKGROUND: Exploring all patient's requests during a medical encounter represents a difficult task. In some encounters, the patient raises a new problem just at the end of the visit, which has been called the "by-the-way" syndrome. Little is known about the content of the questions asked and physician response. We aimed to analyze this syndrome, physician response to it and the predictors of its apparition.
METHODS: We videotaped a gender-stratified random sample of 24 encounters in a primary care outpatient clinic. Patients were aged 19–90 and 50% were women. We performed a qualitative and quantitative analysis of patient-physician encounters and examined the predictors of the apparition of the "by-the-way" syndrome, defined as a new problem raised by the patient during the

closure of the encounter. The content of the "by-the-way" syndrome and physician response were classified in three categories: biomedical, psychosocial and biopsychosocial by two independent investigators (kappa=0.82 and=1.0 for the category of the question and response respectively).
RESULTS: The "by-the-way" syndrome occurred in 37.5% (9/24) of office visits. The content of this syndrome was biopsychosocial in 67% of encounters, psychosocial in 22% and biomedical in 11%, while physician responses were mostly biomedical (67%). In 78% of encounters, the content of physician response was not concordant with patient's question. To a patient who said he was "anxious about an eventual positive response to an HIV test" (biopsychosocial question), the physician did not give any response to the anxiety and added she "never gives the results by phone" (biomedical only answer). The visits with a syndrome were not shorter than those without (34 vs. 24 minutes; p=0.08). Questions about the patient's agenda at the beginning of the office visits was not significantly associated with the apparition of such a syndrome (44% in the group with the syndrome vs. 67%, p=0.29), but questions about patient's own agenda during the continuation of the encounter was (22% vs. 67%, p=0.04).
CONCLUSIONS: The "by-the-way" syndrome is mainly of biopsychosocial or psychosocial content, while physician response is usually biomedical. Asking a question about the patient's own agenda during the continuation of the office visit might decrease the apparition of this syndrome. Teaching should focus on a more appropriate physician response to the "by-the-way" syndrome.

PHYSICIAN-PATIENT COMMUNICATION ABOUT COLORECTAL CANCER SCREENING. G.T. Makoul[1]; M.S. Wolf[1]; M. Clayman[1]; D.W. Baker[1]. [1]Northwestern University, Chicago, IL. *(Tracking ID # 154197)*

BACKGROUND: Physician failure to recommend colorectal cancer (CRC) screening has previously been found to be a significant impediment to early detection efforts. In this study, we examined physicians' perceptions of their communication to patients about CRC screening. In a second paired study, we analyzed the content and immediate outcome of primary care physician and patient discussions regarding CRC screening.
METHODS: A questionnaire was mailed to 486 primary-care physicians in clinical practices affiliated with an academic medical center. A total of 275 (56.6%) surveys were returned. The survey asked respondents to rate the importance (on a scale from 1 to 10, with 10=very important) of 18 colorectal cancer screening discussion topics. Physicians were also asked to estimate the percentage of screening-eligible patients with whom they discuss each topic. For the second study, we analyzed transcripts from videotaped encounters collected for a large investigation of communication and decision making in primary care. A total of 31 visits included CRC screening discussions. These discussions were subsequently coded by two of the authors to determine which of the 18 topics included in the survey arose in a sample of everyday clinical encounters. For each CRC discussion, we coded who initiated the conversation, which topics were raised, and whether or not a resolution occurred (screen now, screen later, no screening, no resolution).
RESULTS: The survey indicated that primary care physicians consider discussing colorectal cancer screening to be very important (M=9.5, SD=0.9). Thirteen of the 18 discussion topics were viewed as important (mean rating on 1 to 10 scale greater than 7.5) by primary care physicians. Ratings of importance were lowest for presenting either fecal occult blood test (FOBT; M=5.0, SD=3.0), flexible sigmoidoscopy (M=4.3, SD=2.9), or CT imaging (M=3.1, SD=2.5) as screening options, and discussing the costs of tests (M=5.4, SD=2.7). Among the 13 topics viewed as important, physicians perceived their rates of accomplishment the lowest for checking patient understanding (59%), discussing risks associated with tests (62%), eliciting patient preferences (65%), and discussing test preparation (66%). Older physicians were more likely to view discussing the costs of tests as important and to accomplish this with more patients (p=0.03). Among the 31 discussions analyzed in the second study, 87% were initiated by the physician. Physicians defined the screening tests discussed in 54.8% of encounters, while a third (32.3%) described the procedure, and 25.8% mentioned patient preparation (25.8%). Risks associated with the screening procedure itself were rarely mentioned (3.2%). Twenty-six percent of discussions on colorectal cancer screening ended without any resolution. Discussions that resulted in a decision covered more topics (4.1 vs. 2.5, p<.05) and took more time (81.0 seconds vs. 42.5 seconds, p<.05).
CONCLUSIONS: Overall, primary care physicians view discussing colorectal cancer screening with patients as important. However, communication about the options, preparation, the procedure itself, and associated risks may be inadequate, as evidenced through both physician self-report of behaviors and observation of actual encounters.

PHYSICIANS AND FAMILIES' CONFLICTS DURING END-OF-LIFE DECISION MAKING. L.T. Watkins[1]; G.M. Sacajiu[2]; A.K. Karasz[1]; M. Kogan[1]. [1]Albert Einstein College of Medicine, Bronx, NY; [2]Montefiore Medical Center, Bronx, NY. *(Tracking ID # 153975)*

BACKGROUND: Recent developments in medical technology have prolonged the lives of people with severe illness. The end of life has become a time of painful decision making. Though the literature on decision making emphasizes individual patients, most end of life decisions are made by families. Reports of conflicts between caregivers and families are common. Yet there has been little systematic study of communication between caregivers and families. Illness representations are structured conceptual models of illness. The literature on patient-doctor communication indicates that conflict and dissatisfaction with care arise when patients and physicians do not share similar representations of the patient's condition. In this study, we examine families' representations of patients' illness and investigate the relationship between these representations and the presence or absence of conflict between families and hospital staff.
METHODS: This was a qualitative study conducted in an urban teaching hospital using observational and interview data. We observed 24 decision-making meetings between staff and the families of patients nearing the end of life. Follow up group interviews and telephone interviews were conducted with most families. The data was analyzed using standard qualitative techniques. The goal of the following analysis was to develop a theoretical model for understanding the relationship between illness representation and family/caregiver conflict.
RESULTS: We categorized the conflict levels of family meetings as low, medium, and high. Five meetings were categorized as high conflict. We next examined families' representational models of the patient's health condition. We found that families differed dramatically from one another in their level of understanding of the patient's final illness. We developed a taxonomy of illness representations that consisted of the following: 1. "historical" representation: the patient's condition resembles his condition before his illness. 2. "rectification": anatomical change, such as weight loss or shortness of breath, is seen as a sign of the failure of medical care that needs to be addressed and reversed. 3. "suspended": families grasp the seriousness of the illness but cannot comprehend the imminence of death. 4. "alert": open eyes or other movement indicate the presence of life and consciousness, even when families understand that other organ systems have failed. 5. "Diminishing": anatomical change is seen as an indication of approaching death 6. "helpless": the loss of self control signifies the loss of self and life We found an association between illness representations, family's ability to accept the patient's approaching death, and the consequent level of conflict in the meeting. Representations #1 and 2 were associated with high conflict meetings. Representations #5 and 6 were usually associated with the willingness to withdraw care and with low conflict meetings. Other types of illness representation were identified in both low or high conflict meetings.
CONCLUSIONS: The link between illness representations and conflict may represent a significant advance in our understanding of why end of life decision making is often painful and conflicted. Further understanding of this link may facilitate the development of new tools for the negotiation of meeting conflicts between families and care providers.

PHYSICIANS INVOLVED IN THE CARE OF PATIENTS WITH RECENTLY DIAGNOSED LUNG AND COLORECTAL CANCER. K.L. Kahn[1]; N.L. Keating[2]; M.B. Landrum[2]; J.Z. Ayanian[2]; R. Boer[1]; C.N. Klabunde[3]; P.J. Catalano[4]. [1]The RAND Corporation, Santa Monica, CA; [2]Harvard University, Boston, MA; [3]National Institutes of Health (NIH), Washington, DC; [4]Dana-Farber Cancer Institute, Boston, MA. *(Tracking ID # 156925)*

BACKGROUND: To understand the distribution of physicians and roles fulfilled for patients with incident lung and colorectal cancer.
METHODS: Approximately four months after diagnosis, 1810 lung cancer (LC) and 2371 colorectal cancer (CRC) patients were surveyed by telephone to assess the types of physicians fulfilling key clinical roles. We examined the distribution of patients reporting a physician fulfilling 4 key roles and how often that role was fulfilled by a cancer (surgeon, medical or radiation oncologist) or non-cancer doctor. Patients with incident LC and CRC diagnosed during 2003–2005 in five regions, four integrated health-care delivery systems, and 10 VA hospitals were research subjects.
RESULTS: LC patients receiving surgery, chemotherapy, and radiation reported a mean of 3.6 (SD 1.3) unique physicians involved with their care vs. mean 3.0 (SD 1.2) for patients receiving none of these treatments. CRC patients receiving surgery, chemotherapy, and radiation reported a mean of 3.1 (SD 1.1) unique physicians involved with their care vs. mean 2.1 (SD 1.0) for patients receiving none of these treatments. Most patients reported having a primary-care physician (PCP) (80% for LC, 74% for CRC), a doctor most important in helping them decide whether or not to have tests or treatments (77%, 57%, respectively), a doctor in charge of treatment for the next six months (81%, 59%), and a doctor responsible for managing symptoms (79%, 56%). For more than 90% of patients reporting a PCP, that doctor was someone other than their surgeon, chemotherapy or radiation doctor. For 49% of LC and 31% of CRC patients, the PCP was also the physician patients reported as most important in at least one of three other key roles: helping them decide whether or not to have tests or treatments, the doctor in charge of treatments for the next six months, or the doctor most likely to know about their symptoms. Among patients reporting one doctor who was most important in helping them decide whether or not to have treatments, this physician was not a cancer specialist for 39% of patients with either LC or CRC. The doctor in charge of treatments for the next six months and the doctor responsible for managing symptoms was a cancer doctor for most patients (77% and 62%); for the remaining patients, a noncancer doctor fulfilled these roles.
CONCLUSIONS: Early after a diagnosis of LC and CRC, most patients reported having several key providers of their care. Within the first 4 months, patients often received care from both primary care and cancer specialists. Across both cancers, 23% to 39% of patients reported a key management role fulfilled by a non-cancer doctor. For more than two-thirds of these patients, the non-cancer doctor fulfilled multiple roles. The management of patients with incident cancer typically includes several physicians fulfilling multiple key roles, including both primary-care and cancer physicians. These findings underscore the need to develop and maintain systems for coordinating care effectively among these multiple physicians for patients with newly diagnosed lung cancer or colorectal cancer.

PHYSICIANS' PARTICIPATORY DECISION-MAKING AND QUALITY OF DIABETES CARE PROCESSES AND OUTCOMES: RESULTS FROM THE TRIAD STUDY. M. Heisler[1]; B. Tabaei[2]; R.T. Ackermann[3]; K. Venkat Narayan[4]; B. Waitzfelder[5]; M.M. Safford[6]; C. Tseng[7]; K. Duru[8]; J. Crosson[9]; W.H. Herman[2]; C. Kim[2]. [1]VA Ann Arbor Health System/University of Michigan, Ann Arbor, MI; [2]University of Michigan, Ann Arbor, MI; [3]Indiana University Purdue University Indianapolis, Indianapolis, IN; [4]Centers for Disease Control, Atlanta, GA; [5]Pacific Health Research Institute, Honolulu, HI; [6]University of Alabama at Birmingham, Birmingham, AL; [7]University of Hawaii, Honolulu, HI; [8]University of California, Los Angeles, Los Angeles, CA; [9]UMDNJ-New Jersey Medical School & Robert Wood Johnson Medical School, Newark, NJ. *(Tracking ID # 153733)*

BACKGROUND: In participatory decision-making (PDM), the physician actively engages the patient in treatment decision-making. Previous studies suggest that patients who report that their doctors engage in PDM have better health outcomes and disease self-management. We examined whether physicians' self-reported PDM preferences and practices are associated with the quality of diabetes care processes and outcomes.
METHODS: Cross-sectional survey of a linked sample of 4195 diabetes patients in six managed care health plans and their physicians (1217 physicians). We examined three sets of outcome measures from patients' medical record data: 1) four key recommended diabetes care processes that require patient follow-up to physician recommendations (A1c test; lipid profile test; proteinuria assessment; and dilated retinal exam); 2) levels of three intermediate outcomes (A1c, BP, LDL); and 3) "appropriate management": whether intermediate outcomes were either controlled (A1c $<$ 8%, BP $<$ 140/90, LDL $<$ 130) or, if elevated, patients were on appropriate medications. Independent variables were physicians' reported preferences and practices for involving patients in diabetes treatment decision-making (no patient involvement; physician-dominant decision-making; shared decision-making; patient-dominant decision-making).
RESULTS: In unadjusted analyses and after adjusting for patient-level confounders and clustering at the physician and health plan levels, physicians' preference for PDM was associated with higher odds of their patients receiving all four diabetes care processes than patients of physicians who preferred less patient participation. After also adjusting for provider-level confounders, physician preference for shared decision-making was associated with higher odds of their patients receiving 3 of the 4 processes of care within the recommended interval: an A1c test (AOR: 2.10, 95% CI: 1.32–3.32); a proteinuria assessment (AOR: 1.71, 95% CI: 1.14–2.55); and a dilated eye exam (AOR: 1.53, 95% CI: 1.12–2.09). Differences in likelihood of having received a lipid test were no longer statistically significant (AOR: 1.46, 95% CI: 0.99–2.20). After adjusting for confounders, there were no differences between the groups in intermediate outcome levels or appropriateness of blood pressure or lipid management. Physician preference for shared decision-making was associated with lower odds of 'appropriate A1c management' (AOR: 0.65, 0.45–0.96), compared to physician preference to make decisions without patient involvement.
CONCLUSIONS: The patients of physicians who report a preference for involving their patients equally in decision-making are significantly more likely to have received recommended diabetes processes of care than patients whose physicians report more physician-directed styles. Among patients who had an A1c checked, however, shared decision-making may be associated with less biomedically optimal anti-hyperglycemic treatment regimens.

PNEUMOCOCCAL VACCINATION IN GENERAL INTERNAL MEDICINE PRACTICE-CURRENT PRACTICE AND FUTURE POSSIBILITIES. L.P. Hurley[1]; J.F. Steiner[2]; M. Daley[3]; L.A. Crane[4]; B. Beaty[2]; S. Stokley[5]; J. Barrow[2]; C. Babbel[2]; M. Dickinson[6]; S. Berman[3]; A. Kempe[3]. [1]Denver Health and Hospital Authority, Denver, CO; [2]Colorado Health Outcomes Program, University of Colorado Health Sciences Center, Aurora, CO; [3]Department of Pediatrics, University of Colorado Health Sciences Center, Children's Outcomes Research Program, The Children's Hospital, Denver, CO; [4]Preventive Medicine and Biometrics, University of Colorado Health Sciences Center, Denver, CO; [5]National Immunization Program, Centers for Disease Control and Prevention, Atlanta, GA; [6]Family Medicine, University of Colorado School of Medicine, Denver, CO. *(Tracking ID # 153358)*

BACKGROUND: Pneumococcal vaccine is currently recommended by the Advisory Committee on Immunization Practices (ACIP) for all adults $\geq$65 and adults $<$65 with chronic conditions. A change in this guideline to include all adults $\geq$50 is being considered.
METHODS: Between 9/2005 and 10/2005, we surveyed a network of general internists that is representative of the American College of Physicians membership to assess physician perceptions regarding the pneumovax vaccine and their willingness to comply with potential new guidelines. Physicians were sent an e-mail (71%) or mail survey (29%) based on preference.
RESULTS: The response rate was 75% (327/438). 87% thought the majority of their patients $\geq$65 had received the vaccine whereas 42% thought the majority of patients $<$65 with chronic conditions had received the vaccine. 84% strongly recommended vaccination to patients $\geq$65 years of age, 67% to persons $<$65 with chronic conditions and 32% currently recommend the vaccine to 50–64 yo healthy patients. 40% had a computerized method for identifying patients based on age or presence of chronic illness, although $<$20% currently used this capability. 89% of physicians routinely screen for pneumococcal vaccination status at the same time they administer yearly influenza vaccinations. Barriers to vaccine delivery included: acute problems taking precedence over preventive care (39%), difficulty determining previous vaccination history (30%), inadequate reimbursement for vaccine (19%), patient refusal because of insurance not covering vaccine (19%), up-front costs of purchasing vaccine (14%), and patient safety concerns (13%). If ACIP recommended changing age criteria for healthy adults from 65 to 50, 60% of respondents reported they would definitely institute this change and 37% more would probably do so. Urban practitioners were more likely to comply, while those concerned about up-front costs of purchasing vaccine and acute problems taking precedence over preventive care as barriers were less likely to comply.
CONCLUSIONS: Although most general internists report complying with current pneumococcal vaccine recommendations, their efforts are hindered by competing demands in primary care, problems identifying patients needing the vaccine, cost/reimbursement issues and patient safety concerns. The majority report a willingness to vaccinate patients at 50 years if recommended by ACIP and one third currently recommend it to this group.

PNEUMOCOCCAL VACCINATION RATES DO NOT DIFFER BETWEEN PRIMARY CARE AND CATEGORICAL TRACK INTERNAL MEDICINE RESIDENTS. M. Etiebet[1]; F.A. Ganz-Lord[1]. [1]Cornell University, New York, NY. *(Tracking ID # 157056)*

BACKGROUND: The jury is still out on whether primary care training programs are better at training residents in preventive medicine. Few studies have compared whether primary care or categorical track residents are better at reaching performance benchmarks in outpatient care and service. The Advisory Committee on Immunization Practices recommends that all adults $\geq$65 years receive the pneumococcal polysaccharide vaccine, yet only 63% of patients $\geq$65 years in the United States were vaccinated in 2002. The objective of this study was to compare pneumococcal vaccination rates between primary care and categorical track residents in the Internal Medicine Residency Program at the New York Presbyterian Hospital–Weill Cornell Medical Center.
METHODS: The study design was a retrospective electronic medical record chart review. It was conducted at Cornell Internal Medicine Associates, the main ambulatory care site for both primary care and categorical track residents. A database search for pneumococcal vaccination status was conducted for all patients who: 1) were seen between 01/01/2005 and 12/31/2005; 2) had junior or senior internal medicine residents as their primary medical doctor during this time period; and 3) were $\geq$65 years.
RESULTS: There were 110 primary care resident patients (of 9 primary care residents), compared with 773 categorical resident patients (of 66 categorical care residents) seen during the study period. 72 (65.5%) of the primary care resident patients compared with 530 (68.6%) of the categorical resident patients had documented pneumococcal vaccination status. This difference was not statistically significant (Fishers Exact Test: 2-tailed p-value $=$ 0.513). There was also no difference in the average number of provider visits between the patients with primary care providers vs. categorical providers (10.1 vs. 10.1). However, within the primary care group, those that received the pneumococcal vaccine had more provider visits than those who had not (11.6 vs. 7.2).
CONCLUSIONS: Primary care and categorical track residents in the Cornell Internal Medicine Residency Program provide statistically equivalent care with regard to pneumococcal vaccination rates among their patients. Higher rates of vaccination seem to correlate more with number of provider visits rather than type of provider. More research is needed to find out what clinic systems and teaching curriculum can be used to improve pneumococcal vaccination rates and other indicators of quality of care among both primary care and categorical track Internal Medicine residents.

POLYPHARMACY AND PRESCRIBING QUALITY IN ELDERS. M.A. Steinman[1]; C.S. Landefeld[2]; G.E. Rosenthal[3]; D. Bertenthal[2]; S. Sen[2]; P. Kaboli[4]. [1]San Francisco VA Medical Center, San Francisco, CA; [2]University of California, San Francisco, San Francisco, CA; [3]University of Iowa, Iowa City, IA; [4]Iowa City VAMC, Iowa City, IA. *(Tracking ID # 152315)*

BACKGROUND: Use of multiple medications by elders is common and associated with potentially inappropriate prescribing. However, little is known about the relationship between polypharmacy and medication underuse, nor about the relative frequency of different types of prescribing problems in elders taking few vs. many medications.
METHODS: Medication prescribing quality was evaluated in a cohort of 196 veterans age 65 and older who were taking 5 or more medications. Inappropriate medication use was assessed by a combination of drugs-to-avoid criteria and subscales of the Medication Appropriateness Index that assess whether a drug is ineffective, not indicated, or unnecessary duplication of therapy. Underuse was assessed by the Assessment of Underutilization of Medications instrument. For each outcome, we used log-linear models with a Poisson distribution to evaluate the association between number of medications taken and the number of problem medications.
RESULTS: Subjects were predominantly male and white, with a mean age of 74.6 years, and used a mean of 8.1 medications (SD 2.5). Among 196 subjects, 128 (65%) were taking at least one inappropriate medication, including 112 (57%) with at least one medication that was ineffective, not indicated, or therapeutically duplicative, and 73 (35%) with at least one medication in violation of drugs-to-avoid criteria. In contrast, 125 subjects (64%) were not using at least one medication that was indicated for disease prevention or treatment. In log-linear models, the number of inappropriately prescribed medications rose sharply with increasing total number of medications (beta-coefficient 1.68, 95% CI 1.23–2.12), from an average of 0.4 inappropriate medications in patients taking 5–6 drugs to 1.9 inappropriate medications in patients taking 10 or more drugs ($P < .001$). However, the frequency of medication underuse did not vary with changes in total number of medications taken: on average, patients were missing 1.0 potentially useful medications regardless of whether they were taking few or many medications (beta-coefficient 0.27, 95% CI $-$.20–0.74). Overall, in patients taking fewer than 8 medications the likelihood of medication underuse exceeded the likelihood of inappropriate medication use.
CONCLUSIONS: Inappropriate medication use is strongly associated with the total number of medications taken, but underuse is frequent and equally common in elders taking few vs. many medications. In patients taking fewer

numbers of medications, evaluation of potential undertreatment should be a priority, whereas patients taking many medications should have close attention paid both to undertreatment and to use of inappropriate drugs.

POPULATION BASED PROFILE OF ELECTROCARDIOGRAPHIC INTERVALS IN PERSONS AGE OVER 80. L. Vaidyanathan[1]; S. Behera[1]; K. Vedula[1]; R. Gilmore[1]; L. Stead[1]. [1]Mayo Clinic, Rochester, MN. *(Tracking ID # 156560)*

BACKGROUND: In today's fast-growing geriatric population, are standard clinical values for electrocardiographic (ECG) intervals reliable since they were historically based on the average young healthy male adult? In this study we estimated the average intervals based on a population over 80 years of age and compared it to the 'normal values'.
METHODS: The medical records of all patients who presented to our institution for community health maintenance examinations, aged 80 years and older, in the year 2002, who had an ECG performed as part of their routine medical exam were selected. Following approval by the institutional review board, records of 709 patients were reviewed. The following information was abstracted: Age, gender, rhythm, PR, QRS, QTc intervals and the incidence of cardiac disease. Cardiac disease was defined as the presence of coronary artery disease, myocardial infarction, unstable angina, cardiac arrhythmias (including atrial fibrillation, atrial flutter, supraventricular tachycardia and conduction system disease), left bundle branch block, cardiomyopathy, congestive heart failure, sick sinus syndrome, presence of a pacemaker, vavulopathy and cardiac or valvular surgery. Reference ranges for electrocardiographic measurements and cut-offs for prolonged intervals were compared to the findings. A prolonged PR interval was defined as $>=$200 msec; QRS $>=$100 msec and QTc $>=$450 msec for females and $>=$430 msec for males. For each parameter the 95th percentile and the 95% confidence interval were determined using non parametric methods.
RESULTS: Of the 709 patients 325 (45.8%) were male. 502 (70.8%) were 80–84 years of age, 178 (25.1%) 85 - 89, 26 (3.7%) 90 - 94 and 3 (0.4%) over 95 years. A total of 125 (17.6%) had a history of coronary disease. All measurements were obtained on the 709 patients with the exception of PR intervals, recorded for only 644 patients. The data was initially assessed to determine if there was variation with regard to gender and age. Interval values were significantly higher in males. No discrepancy was found between different age groups within this age range. Revised reference ranges were thus established separately for males and females based on the data for the subset of 584 patients without a history of coronary disease. In all instances, the 95% confidence interval was higher than the cutoffs recommended in literature. This indicates that the 'normal' intervals may indeed be increased for an older population. For prolonged PR intervals an appropriate cut-off for males and females over the age of 80 was established to be $>=$237 msec and $>=$224 msec respectively. For prolonged QRS cut-offs were determined at $>=$182 msec for males and $>=$128 msec for females. And for prolonged QTc $>=$430 msec for males and $>=$450 msec for females was established.
CONCLUSIONS: The upper limits for prolonged PR, QRS and QTc intervals are increased in a population above the age of 80. The data suggests that perhaps the standard ECG interval cutoffs in the geriatric population should be revisited.

POPULATION MORTALITY DURING THE SARS OUTBREAK IN TORONTO. S.W. Hwang[1]; A.M. Cheung[1]; R. Moineddin[1]; C.M. Bell[1]. [1]University of Toronto, Toronto, Ontario. *(Tracking ID # 150516)*

BACKGROUND: The outbreak of Severe Acute Respiratory Syndrome (SARS) in Canada in 2003 led to extraordinary infection control measures that limited access to medical services in the Greater Toronto Area. It is unknown whether such measures affected overall population mortality. The objective of this study was to determine if infection control measures undertaken during the SARS outbreak were associated with changes in mortality due to causes other than SARS.
METHODS: The population of the province was grouped into two regions: the Greater Toronto Area (N=2.9 million) and the rest of Ontario (N=9.3 million), according to the level of restrictions on delivery of clinical services during the SARS outbreak. Our main outcome measure was all-cause mortality rates, excluding deaths due to SARS. We used Poisson regression and interrupted time-series analysis of death registry data to compare mortality before, during, and after the SARS outbreak in 2003 with corresponding periods in 2001 and 2002.
RESULTS: There was no significant change in mortality in the Greater Toronto Area before, during, and after the period of the SARS outbreak in 2003 compared to the corresponding time periods in 2002 and 2001. The rate ratio for all-cause mortality during the SARS outbreak was 0.99 [95% Confidence Interval (CI) 0.93–1.06] compared to 2002 and 0.96 [95% CI 0.90–1.03] compared to 2001. Similarly, the interrupted time series analysis found no significant change in mortality rates in the Greater Toronto Area associated with the period of the SARS outbreak. Sensitivity analyses indicated that changes in mortality rates of about 15–17% would be required to detect a significant difference.
CONCLUSIONS: Limitations on access to medical services during the 2003 SARS outbreak in Toronto had no observable impact on short-term population mortality; however, effects on morbidity and long-term mortality were not assessed. Efforts to contain future infectious disease outbreaks due to influenza or other agents must consider effects on access to essential health care services.

POTENTIAL SAVINGS ASSOCIATED WITH CONSUMER REPORTS BEST BUY DRUGS PROGRAM. J.M. Donohue[1]; M.A. Fischer[2]; H.A. Huskamp[3]; J. Weissman[4]. [1]University of Pittsburgh, Pittsburgh, PA; [2]Brigham and Women's Hospital, Boston, MA; [3]Harvard Medical School, Boston, MA; [4]Massachusetts General Hospital, Boston, MA. *(Tracking ID # 154776)*

BACKGROUND: Medication cost is one cause of under-treatment. Providers and patients seldom have reliable information on comparative effectiveness and cost of prescription drugs. The Consumer Reports Best Buy Drugs (CRBBD) Program aims to provide consumers and providers with an independent source of information on drug effectiveness and costs in several therapeutic classes, including angiotensin-converting enzyme inhibitors (ACEIs). Using an evidence-based review of drugs in the ACEI class conducted by the Oregon Health and Science University Drug Effectiveness Review Project, the CRBBD program has identified the drugs with the highest value (effectiveness and cost) in the class. Our objective was to determine how much would be saved from a societal perspective by following the CRBBD recommendations.
METHODS: ACEIs were selected as the focus of this study because they are widely used in the treatment of hypertension, congestive heart failure, and other conditions, under-treatment is common, multiple drugs are available in the class, and retail prices vary dramatically. We obtained national aggregate data on pharmaceutical unit and dollar sales and retail pharmacy prices for all formulation, strength and package size combinations of medications in the ACEI class purchased between December 1, 2004 and November 30, 2005. Data were obtained from NDC Health, which collects sales data from a large nationally representative network of pharmacies. Drugs were grouped by formulation, strength and package size to ensure that substitutions were clinically reasonable. We compared the dollar sales for the ACEI class to what would have been spent if the CRBBD drugs had a larger market share, and estimated the potential savings.
RESULTS: Over 135 million prescriptions were sold for ACEIs between December 1, 2004 and November 30, 2005 at a cost of nearly $6.2 billion. The average retail pharmacy price for a one-month supply of ACEIs varied from approximately $18 to $270. The drugs recommended by CRBBD made up 74% of the market but only 58.6% of spending due to their lower average price. We estimated that $1.3 billion would have been saved in 2005 if all individuals taking ACEI had been prescribed one of the CRBBD drugs. A majority of the savings would result from substitution of generic equivalents for brand name drugs.
CONCLUSIONS: ACEI are widely used to treat a range of chronic conditions. The medications in this class vary with respect to effectiveness and price. This analysis shows that substantial savings could be achieved by increasing the use of ACEIs identified by the CRBBD program as cost-effective. Increasing drug costs are of concern to both payers and patients who face high out-of-pocket costs. Reducing the drug costs of patients with chronic conditions through more cost-effective prescribing is one strategy to reduce cost-related underuse of medication therapy. Our findings point to the need to make information on comparative drug effectiveness and price available to providers and patients.

PREDICTING PRESSURE ULCER HEALING USING THE MINIMUM DATA SET. A. Kapoor[1]; B. Kader[1]; D.R. Berlowitz[2]. [1]Boston University, Boston, MA; [2]Boston University, Bedford, MA. *(Tracking ID # 151603)*

BACKGROUND: Improving quality of care in nursing homes has become a mandate since the Institute of Medicine issued its landmark report in 1986. Pressure ulcer healing is an important quality measure but the factors predisposing to healing have not been well studied. We set out to develop a risk adjustment model which contains a high capacity to predict which nursing home residents with a pressure ulcer will experience healing.
METHODS: From a 100 facility nursing home chain, we identified individuals suffering a stage 2 or higher pressure ulcer in 1997 or 1998. Based on the medical literature for pressure ulcer development and healing, we decided to examine 36 different variables, available in the Minimum Data Set (MDS), for association with pressure ulcer healing. Nursing homes complete the MDS on all its residents every 90 days or whenever a change in status occurs. MDS contains many clinical and demographic variables used to track the health of its residents. We divided our sample randomly into a 60:40 split for derivation and validation of a model to predict pressure ulcer healing. Candidate predictors were tested in bivariate analysis and then entered into a multivariable logistic regression. We then executed a stepwise selection procedure to choose predictors to analyze in the validation set. Discrimination was measured by the c statistic and calibration with the Hosmer/Lemeshow test.
RESULTS: In our multivariable analysis, we analyzed 2263 ninety day observation periods (representing 2664 different subjects). 1478 healing events occurred representing a 56 percent healing rate. Stage 2 ulcers healed at a rate of 65% whereas stage 3 and 4 ulcers healed less frequently at a 40% and 34% rate respectively. 7 variables predicted healing in the derivation sample. The c statistic for this model was 0.69 and the Hosmer/Lemeshow p value was 0.13 indicating acceptable fit. In the validation sample, the odds ratios predicting healing for 5 of 7 variables were statistically similar to those for the derivation set. These included not being in a bedfast (bedbound) state, not being paraplegic, having bed mobility, having a stage 2 ulcer (compared with a stage 4 ulcer), and paradoxically having a diagnosis of cancer. The c statistic for the validation model was 0.65 and the p value for the Hosmer/Lemeshow test was 0.70.
CONCLUSIONS: We successfully developed a model that contains, in general, clinically credible predictors of healing. The model fit the data well and had moderate discriminatory capacity consistent with other work using large databases in which treatment and ulcer level data is not available. Future models

examining pressure ulcer healing should include variables of mobility, paraplegic state, and stage of ulcer.

PREDICTOR METHODS FOR THE DETECTION OF LEFT MAIN CORONARY ARTERY OCCLUSION OR LEFT MAIN EQUIVALENT USING THE 12-LEAD ECG: A FORMULA FOR ERROR. J. Zaky[1]; C. Caraang[2]; R. Yu[3]; A. El-Bialy[4]; S. Meymandi[4]; R. Wachsner[4]. [1]University of California, Los Angeles - San Fernando Valley Program, Porter Ranch, CA; [2]University of California, Los Angeles - San Fernando Valley Program, Sepulveda, CA; [3]University of California, Los Angeles - San Fernando Valley Program, Los Angeles, CA; [4]University of California, Los Angeles - San Fernando Valley Program, Sylmar, CA. *(Tracking ID # 150222)*

BACKGROUND: Early diagnosis of left main (LM) disease is crucial to the management of patients presenting with Acute Coronary Syndrome (ACS). Early Clopidogrel therapy improves clinical outcome prior to PCI, but delays surgery if significant LM stenosis is found. Three studies advocate a different method for predicting significant LM disease including: 1. ST-segment elevation in lead aVR>V1 (represents unbalanced forces between basal septum and opposing anterior wall and anterior septum). 2. ST-segment deviation in V6>V1 (signifies unbalanced forces between lateral and anterior wall). 3. Transient ST depression with maximally inverted T waves in V4 to V5 with rest angina (reflects impaired relaxation, elevated LVEDP, and ischemia).
METHODS: Of the 4,464 consecutive diagnostic angiograms of a public Los Angeles County and V.A. Hospital (Jan '01 to April '05), we identified 212 patients with LM disease (occlusion >50%). Of these 212 identified cases, 55 had well documented onset and resolution of active angina on the ECGs. The three Methods were applied to the 55 ECGs. As in the above studies, patients with prior MI, significant RCA stenosis, right bundle branch block (RBBB), left bundle branch block (LBBB) and tachycardia were excluded.
RESULTS: We calculated the false negative rates and their associated 95% confidence intervals (CI) to evaluate the applicability of the published Methods to our population. Only 4/55 patients (7.3%) were identified by Method 1 with a false negative rate of 92.7% (95% CI: 82.4%–98.0%). Method 2 resulted in a 76.4% false negative rate (95% CI: 63.0%–86.8%). Method 3 resulted in a false negative rate of 81.8% (95% CI: 68.1%–90.9%). For each of the criteria examined, the false negative rate represents a statistically significant difference when compared to a rate of 50% ($p<0.0001$). Applying the above criteria would have led to an incorrect diagnosis regarding the presence of Left Main disease in the great majority of patients in this sample.
CONCLUSIONS: Based on this sample, the 3 Methods used to predict Left Main disease resulted in a high false negative rate and should not be used alone to predict the presence of significant LM disease during active angina. The mechanism behind such high false negative rates in our population in comparison to other population is unknown. More prospective studies are needed before the application of such predictor methods across all patient populations.

PREDICTORS OF ACADEMIC SUCCESS AMONG PART-TIME GENERAL INTERNISTS. R.B. Levine[1]; H.F. Mechaber[2]; E.B. Bass[1]; S.M. Wright[1]. [1]Johns Hopkins University, Baltimore, MD; [2]University of Miami, Coral Gables, FL. *(Tracking ID # 152862)*

BACKGROUND: There is increased interest in part-time positions at academic medical centers. We sought to identify factors associated with academic success among faculty who are exclusively working part-time in divisions of general internal medicine.
METHODS: We conducted a survey of part-time (PT) (n=140) and full-time (FT) (n=139), age and sex matched physician faculty, identified through the Society of General Internal Medicine's part-time careers interest group and the Association of Chiefs in General Internal Medicine. Survey content included personal and professional characteristics, academic support, academic productivity, and hours worked. After controlling for effort in full-time equivalents (FTE), we compared measures of academic success (publications and funding) between PT and FT faculty at different ranks. Multivariable analysis was used to identify factors independently associated with academic success. To develop the final models we included variables from three domain specific models (personal factors, professional characteristics and academic support) that were significantly associated with a greater number of publications and having received funding.
RESULTS: The response rate was 64%. Faculty from 34 academic medical centers participated. The mean FTE of PT faculty was 66%, SD (14). On average, PT faculty worked 36.3 hours per week, SD (6.9) compared to FT faculty who worked 53 hours, SD (9.5) ($p<0.01$). There were no significant differences in academic rank or the percentages of time that PT and FT faculty spent in patient care, research, teaching and administrative activities (all $p=>0.05$). PT faculty were more likely to be married (99% vs. 84%, $p<0.01$), have children (97% vs. 63%, $p<0.01$) and have a physician spouse (72% vs. 35%, $p<0.01$). PT faculty were more likely to be clinicians or clinician-educators (96% vs. 78%, $p<0.01$) and less likely to be fellowship trained (23% vs. 44%, $p=0.00$), have received funding (32% vs. 68%, $p<0.01$) or have more than 5 publications (10% vs. 38%, $p<0.01$). Compared to FT faculty, part-timers reported less academic support including administrative assistance (84% vs. 67%, $p=0.01$), mentoring (71% vs. 54%, $p=0.03$), and research/statistical support (44% vs. 25%, $p=0.01$). After controlling for FTE, among Instructors and Assistant Professors, FT faculty were more likely to have greater than 5 publications (OR 10.8, 95% CI 2.3–50) and to have secured funding (OR 3.9, 95% CI 1.8–9.0). At the Associate Professor and Professor ranks, controlling for FTE revealed that FT faculty were more likely to have obtained funding (OR 5.5, 95% CI 1.2–25.0) but not more publications (OR 3.8, 95% CI 0.9–15.6) compared to PT faculty. In multivariable analysis, only research/statistical support (OR 5.6, 95% CI 2.0–15.6) was associated with a greater number of publications while PT status had a negative association (OR .33, 95% CI .12–.90). Factors independently associated with having secured funding included use of academic supports such as grantwriting (OR 4.5, 95% CI 1.8–9.3) and research/statistical assistance (OR 4.1, 95% CI 1.2–6.1) as well as being fellowship trained (OR 2.6, 95% CI 1.2–6.1). PT status resulted in a decreased odds of being funded (OR .35, 95% CI .16–.77).
CONCLUSIONS: Access to academic support may influence PT faculty's ability to publish and obtain funding. Academic medical centers that wish to facilitate the success of PT faculty may consider expanding the professional support available to them.

PREDICTORS OF EMERGENCY DEPARTMENT LENGTH OF STAY. R.L. Gardner[1]; U. Sarkar[1]; J.H. Maselli[1]; R. Gonzales[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 153434)*

BACKGROUND: Approximately 10% of ambulatory medical care in the US takes place in the emergency department (ED). Overall ED utilization is increasing, and many ED physicians attribute sub-optimal health care quality to chronically overcrowded departments. Several studies have shown that ED length of stay (LOS) is one of the strongest determinants of patient satisfaction with care in the ED. This study examines patient, physician, and hospital/system factors that contribute to ED LOS.
METHODS: Data were analyzed from the National Hospital Ambulatory Medical Care Survey (NHAMCS), a national probability sample of ED visits to non-federal hospitals. About 400 EDs participate each year, generating about 40,000 annual visits. Survey data from 2001 through 2003 were aggregated for this analysis. Predictor variables included patient sociodemographics, triage score, and diagnostic testing; as well as hospital-level characteristics such as location in a metropolitan area and safety-net burden. The primary outcome was log-transformed ED LOS, in minutes. Multivariable linear regression analysis was performed to identify independent predictors of LOS.
RESULTS: The median LOS in the sample was 130 minutes (IQR 75, 220). Factors associated with longer LOS varied significantly between admitted and discharged patients, therefore subsequent analyses were stratified by discharge status. Admitted patients' median LOS was 255 minutes (IQR 160, 400). After controlling for patient and hospital factors, characteristics that were independently associated with increased LOS by more than 15 minutes were Hispanic ethnicity (+20 minutes compared with non-Hispanic whites), ultrasound imaging (+22 minutes), MRI or CT imaging (+36 minutes), a less acute triage score (+21 minutes per unit decrease in acuity level), and ED location in a metropolitan region (+32 minutes). ICU admissions had shorter LOS (−30 minutes) compared with admissions to a regular hospital bed. ED stays in the highest quintile (>12 hours) for admitted patients were associated with the above characteristics, as well as with hospitals having a high safety-net burden. The r-square for this model was 0.09. Discharged patients' median LOS was 120 minutes (IQR 70, 199). Visit characteristics independently associated with increased LOS by more than 10 minutes included Hispanic ethnicity (+10 minutes compared with non-Hispanic whites), any blood test (+40 minutes), any X-ray (+15 minutes), ultrasound imaging (+28 minutes), CT or MRI imaging (+28 minutes), and ED location in a metropolitan area (+16 minutes). ED stays in the highest quintile (>5 hours) for discharged patients were associated with the above characteristics, as well as older age, Black race, uninsured status, teaching hospitals, and provider type including a resident or intern. The r-square for this model was 0.25.
CONCLUSIONS: Patient-level and the hospital-level factors are strongly associated with increases in ED LOS and vary according to hospital admission status. The variables captured in the NHAMCS explain a greater degree of variance among discharged patients than admitted patients, suggesting that other factors may play a greater role in the LOS of admitted patients (such as hospital bed availability). Initiatives to reduce ED LOS among discharged patients should consider prioritizing strategies that minimize unnecessary diagnostic testing, with the goal of improving quality of care and patient satisfaction.

PREDICTORS OF NONCOMPLIANCE WITH CHRONIC NARCOTIC AGREEMENTS IN PRIMARY CARE. J.T. Hagaman[1]; J. Seaman[1]; D.P. Schauer[1]; E. Warm[1]; G.W. Rouan[1]. [1]University of Cincinnati, Cincinnati, OH. *(Tracking ID # 153282)*

BACKGROUND: The management of chronic pain is a considerable issue for primary care practices. In order to effectively manage patients with chronic pain, "controlled substance agreements" have become a mainstay of management. Such agreements stipulate expectations on patient's behavior to include methods for obtaining refills and provisions for urine toxicology screening. Violation of this agreement typically results in patient dismissal from the practice. Predicting which patients may violate a controlled substance agreement would likely enable physicians to provide better care to those with chronic pain. We sought to define characteristics of patients failing to comply with a controlled substance agreement.
METHODS: We performed a cohort study, including patients begun on chronic narcotic therapy from February 2005 to November 2005. We identified patients in violation of their controlled substance agreements as well as patients stable on chronic narcotic therapy for at least six months. Data including demographic

information, comorbid conditions, substance abuse history, adjuvant pain medications used, behavior in clinic (missed appointments, calls to clinic, emergency room visits, dose escalation of narcotics, and exceeding prn doses), as well as level of current pain were considered as predictors of future violation of the controlled substance agreement. Predictors with statistical significance at the level of 0.05 in the univariate analysis were included in a multivariate model.
RESULTS: Of 205 patients started on chronic narcotic therapy during our study period, 75 violated their controlled substance agreement. Fifty-nine patients were compliant with a controlled substance agreement for at least 6 months. Patients violating controlled substance agreements were younger than compliant patients (48.0 v 52.5, $p=0.004$). The proportion of African American patients violating controlled substance agreements was higher than those complying (53.3% v 30.5%, $p=0.012$). Those violating agreements were less likely to have radiographic confirmation of pathology leading to pain (48% v 82%, $p<0.0001$), more likely to be "self pay" patients (49% v 24%, $p=0.004$) and less likely to have Medicare as a payor source (8% v 41%, $p<0.0001$). Violators of controlled substance agreements were also more likely to require dose escalation (13.3% v 3.4%, $p=0.04$), more likely to miss appointments (14.67% v 0%, $p=0.002$), and less likely to admit to exceeding prn's (9% v 52%, $p<0.0001$). Only six patients violating the narcotics agreement had a negative urine toxicology screen prior to initiating chronic narcotic therapy as opposed to 24 of those complying (8% v 40%, $p<0.0001$). In the multivariate model, African American race (OR 3.3, 95% CI 1.34 to 8.19), payor status (OR 2.56, CI 1.015 to 6.45), not having radiographic confirmation of pain source (OR 3.98, 95% CI 1.56 to 10.13), and not reporting exceeding prn medications (OR 9.16, 95% CI 3.22 to 26.09) were significant predictors of violating controlled substance agreements.
CONCLUSIONS: We have identified four predictors of compliance with controlled substance agreements. Future study may use such predictors to enable physicians to make better evaluations as to who is likely to violate controlled substance agreements. Efforts might then be directed at providing additional support to this at risk population.

PREDICTORS OF PROPORTION OF LIMITED ENGLISH PROFICIENT PATIENTS AMONG PROVIDERS TREATING WOMEN WITH BREAST CANCER, FINDINGS FROM LOS ANGELES COUNTY, 2004. D. Rose Ash[1]; K.L. Kahn[1]; M. Tao[2]; J. Malin[3]; P.A. Ganz[4]; D. Tisnado[1]. [1]University of California, Los Angeles, Los Angeles, CA; [2]University of California, Los Angeles, Santa Monica, CA; [3]Amgen, Thousand Oaks, CA; [4]University of California, Los Angeles, Sepulveda, CA. *(Tracking ID # 156861)*

BACKGROUND: According to US Census data, 28% of Los Angeles County residents do not speak English well. Little is known about the health care delivery system's capacity to serve Limited English Proficient (LEP) patients, particularly those with conditions requiring extensive care such as cancer. We surveyed all cancer specialists associated with a population based sample of patients with incident breast cancer to better understand the clinical epidemiology of LEP in clinical practices caring for cancer patients.
METHODS: As part of a cross-sectional, observational study of cancer physicians in Los Angeles County, we surveyed medical oncologists, radiation oncologists and surgeons identified by a population-based cohort of women with breast cancer identified by a cancer registry (76% response rate, $n=346$). Physicians reported the proportion of patients in their practices who do not speak English well enough to give an adequate history and responded to queries regarding practice and personal characteristics. We used a two-part model, with multivariate logistic regression ($n=304$) estimating the probability of providers having $>=5\%$ vs. $<5\%$ LEP patients, and multivariate linear regression to estimate the proportion of LEP patients among physicians serving $>=5\%$ LEP patients. We adjusted the models for physician age, gender, race/ethnicity and specialty, and practice type (solo practitioners, single specialty group, multispecialty group, HMO, university/medical center and county clinics or hospitals). Analyses were weighted for non-response and controlled for clustering within office.
RESULTS: According to survey responses, the mean proportion of LEP patients was 17% (range: 0–98%, 95% CI: 15, 19). We noted a high correlation ($>40\%$) between the physician's reported proportion of Medicaid and uninsured patients and the proportion of LEP patients and we removed these covariates from both analyses accordingly. After adjusting for the full set of predictors, we found radiation oncologists are more likely to have $>=5\%$ LEP patients in comparison to medical oncologists and surgeons (OR=6, 95% CI=1, 28). Physicians in HMOs were more likely to report having $>=5\%$ LEP patients compared to solo practitioners (OR=5, 95% CI=2,18). In the adjusted linear regressions, physicians practicing in county facilities reported higher proportions of LEP patients compared to solo practitioners ($p<0.001$). And, among physicians serving $>=5\%$ LEP patients, Hispanic and Asian physicians were positively associated with the proportion of LEP patients ($p<0.05$ for both groups of physicians).
CONCLUSIONS: Within the practices of providers delivering care for patients with incident cancer, LEP is prevalent (17%) and associated with physician race/ethnicity, specialty and practice type. In light of the high correlations between the proportion of Medicaid, uninsured and LEP patients, more research is needed to determine if insurance coverage (or lack thereof) determines the physicians and site of care chosen by LEP patients with cancer, or if other structural factors (e.g., ease of access to interpreters) influence patients' care seeking decisions.

PREDICTORS OF SELF-EFFICACY FOR CONDOM USE AND SEXUAL NEGOTIATION AMONG SOUTH AFRICAN YOUTH. J. Sayles[1]; A. Pettifor[2]; M. Wong[1]; T. Coates[1]. [1]University of California, Los Angeles, Los Angeles, CA; [2]University of North Carolina at Chapel Hill, Chapel Hill, NC. *(Tracking ID # 152693)*

BACKGROUND: HIV prevalence in South African youth is alarmingly high and disproportionately affects females, with one in every four women age 20–24 infected with HIV compared to one in every fourteen men of the same age. Consistent condom use and negotiation of safer sex are the most effective means of HIV risk reduction for sexually active youth, yet studies have shown that only about a third of South African men and women consistently use condoms. In South Africa, condoms are widely available at no cost, and the majority of youth report they know that condoms prevent HIV, sexually transmitted infections, and unwanted pregnancy. However, accessibility and knowledge about condoms have not translated into adoption of condom use for many youth. Previous studies have found that persons are more likely to use condoms if they believe in their ability to use condoms (self-efficacy). In this study, we use the Social Cognitive Model as a framework to examine predictors of self-efficacy for condom use and sexual negotiation in South African youth and how this self-efficacy may differ by gender.
METHODS: The Reproductive Health and HIV Research Unit (RHRU) National Youth Survey examined a nationally representative sample of 7,409 sexually active South African youth aged 15–24. We used logistic regression to identify factors from our conceptual model associated with self-efficacy for condom use and sexual negotiation in South African youth.
RESULTS: Among women, significant predictors of high self-efficacy were knowing how to avoid HIV, having spoken with someone other than parent/guardian about HIV/AIDS, having life goals, having used condoms during their first sexual encounter, no history of unwanted sex and not believing condom use implies distrust in one's partner. Men with high self-efficacy were more likely to take HIV seriously, believe they are not at risk for HIV, report getting condoms is easy, and have life goals. Having first sexual experience before age 14, not using condoms during their first sexual experience, a history of having unwanted sex, and refusing to be friends with HIV-infected persons was associated with low self-efficacy among men.
CONCLUSIONS: Many predictors of self-efficacy for condom use and sexual negotiation are modifiable and suggest potential ways to improve self-efficacy and reduce HIV sexual risk behavior in South African youth.

PREDICTORS OF TIMELY INITIATION OF ANTIBIOTIC THERAPY FOR PATIENTS HOSPITALIZED WITH PNEUMONIA. D.J. Hsu[1]; D. Obrosky[1]; R.A. Stone[2]; E. Crick[2]; M.J. Fine[2]. [1]University of Pittsburgh, Pittsburgh, PA; [2]VA Pittsburgh Healthcare System, Pittsburgh, PA. *(Tracking ID # 154288)*

BACKGROUND: Although initiation of antibiotic therapy within 4 hours of presentation has been associated with improved survival for patients hospitalized with pneumonia, there is limited information on the factors associated with the performance of this nationally used pneumonia quality indicator. Our aim was to identify the patient, provider, and system-level factors associated with timely initiation of antibiotic therapy for inpatients with pneumonia.
METHODS: Participants were inpatients, who presented to a participating emergency department (ED) with clinical and radiographic evidence of pneumonia, and were enrolled in the 32-site cluster-randomized EDCAP trial to assess the effectiveness of 3 guideline implementation strategies of incremental intensity in increasing the quality of care for patients with pneumonia. Timely initiation of antibiotic therapy was a process of care recommended by the project guideline. Baseline patient factors collected included demographics, comorbid conditions, physical examination findings, and laboratory and radiographic findings. Baseline medical provider factors included demographics, year of medical school graduation, and shifts worked per month. All 32 ED directors were asked to determine whether the guideline recommendation for timely initiation of antibiotic therapy was systematically implemented in their ED, and, if relevant, by what methods. Baseline system-level factors included annual ED volume, teaching status, and state. The primary outcome for this analysis was timeliness of antibiotic therapy, defined as the time from presentation in the ED to delivery of the first dose of antibiotic therapy. A cut-point of less than or equal to 4 hours was used to define adherence to this quality measure, consistent with current national guideline recommendations. Multivariable, multilevel random effects logistic regression models were used to identify patient, provider, and system-level factors independently associated with this outcome, after controlling for the trial intervention arm.
RESULTS: Among 2076 inpatients, 1632 (78.6%) managed by 378 ED medical providers received the first dose of antibiotic therapy within 4 hours of presentation. Across the 32 study sites, rates of compliance with this outcome ranged from 55.6% to 100%, with no significant differences observed across the three treatment arms (low 77.0%, moderate 79.7%, high 78.8%; $p=0.2$). In multivariable analysis, tachycardia (OR=1.6, 95% CI [1.1, 2.3]), tachypnea (OR=2.3, 95% CI [1.6, 3.4]), and suspected aspiration (OR=3.7, 95% CI [1.1, 12.7]) were positively associated with timely initiation of antibiotic therapy, while anemia (OR=0.6, 95% CI [0.4, 0.9]) was negatively associated with this outcome. No provider or system-level factors were independently associated with initiation of antibiotic therapy within 4 hours of presentation.
CONCLUSIONS: Timely initiation of antibiotic therapy is related primarily to patient-related factors that reflect severity of illness. That provider and system-level factors were not independently associated with this outcome may reflect a lack of statistical power in this 32-site study, or a failure to collect the most relevant provider and site-level factors.

PREFERENCE-BASED UTILITY MEASURES ARE INSENSITIVE TO CHANGES IN ALCOHOL CONSUMPTION AND CONSEQUENCES. K.L. Kraemer[1]; M.S. Roberts[1]; D.M. Cheng[2]; K. Sullivan[3]; T. Palfai[2]; J.H. Samet[2]; R. Saitz[2]. [1]University of Pittsburgh, Pittsburgh, PA; [2]Boston University, Boston, MA; [3]DM-Stat, Malden, MA. *(Tracking ID # 155374)*

BACKGROUND: Cost-utility analysis has promise for use alongside clinical trials of alcohol prevention and intervention programs. However, there is scant evidence to guide the choice of utility assessment method in individuals with

unhealthy alcohol use. In this study, we assessed the responsiveness of different utility measurement methods to changes in alcohol consumption and adverse alcohol consequences over time.
METHODS: We analyzed 3-month and 12-month follow-up data from 341 participants enrolled in a randomized, controlled effectiveness trial of a brief motivational intervention for medical inpatients with unhealthy alcohol use (>14 standard drinks per week or >4 drinks per occasion for men; >11 drinks per week or >3 drinks per occasion for women and people over 65 years). Participants completed Time Line Follow Back measures of alcohol consumption, the 15-item Short Inventory of Problems (SIP; a measure of alcohol consequences), and the 5-item EQ-5D and SF-6D (derived from the SF-12) utility measures at each assessment. We used Impact3 software to measure Visual Analogue Scale (VAS), Time Trade-Off (TTO), and Standard Gamble (SG) utilities for the participants' current health at each follow-up assessment. In participants with complete follow-up data, we used multivariable linear regression models to test the association between changes in the alcohol-specific and generic health measures and changes in each of the five utility measures. Separate models were fit for each independent variable and outcome and all models adjusted for age, gender, race, homelessness, and heroin or cocaine use.
RESULTS: 251 participants (mean age 45 years, 49% black, 68% male, 82% alcohol abuse/dependence) completed both follow-up assessments. Alcohol consumption decreased by a mean of 0.34 drinks per day and alcohol consequences decreased by a mean of 2.2 points on the SIP scale. Mean utility ratings increased minimally from the 3-month to the 12-month follow-up (VAS, 0.62 to 0.65; TTO, 0.80 to 0.82; SG, 0.78 to 0.78; EQ-5D, 0.57 to 0.62; SF-6D, 0.65 to 0.67). In adjusted analyses, we found that VAS utility increased significantly over time as alcohol consumption (VAS+0.005 for decrease of 1 drink/day; $p<0.05$) and consequences (VAS+0.015 for each 5 point decrease in SIP score; $p<0.05$) decreased. SF-6D utility also increased significantly ($p<0.05$) over time as alcohol consequences decreased but did not change significantly with alcohol consumption. TTO, SG, and EQ-5D were not significantly responsive to changes in alcohol consumption and consequences.
CONCLUSIONS: In a population of mostly alcohol dependent patients, we found most standard utility methods were insensitive to changes in alcohol consumption and adverse alcohol consequences over time. We do not know if this observed insensitivity is due to errors in utility measurement, to a lack of impact of alcohol consumption and consequences on quality of life in this population, or to another reason. Further work is needed to determine the most valid and sensitive utility measure for alcohol studies.

PREFERENCES FOR INTERACTION WITH INTERNAL MEDICAL CONSULTANTS DIFFER BETWEEN SPECIALTIES. S.M. Salerno[1]; F.P. Hurst[2]; D.L. Mercado[3]; S. Halverson[4]. [1]Tripler Army Medical Center, Honolulu, HI; [2]Walter Reed Army Medical Center, Washington, DC; [3]Tufts University, Springfield, MA; [4]Oregon Health & Science University, Portland, OR. *(Tracking ID # 151905)*

BACKGROUND: Despite rapid changes in health care delivery, scant literature on communication preferences between different medical specialties has been published over the past decade.
METHODS: 307 general internists, family physicians, general surgeons, orthopedic surgeons, and gynecologists from three academic medical centers were given an anonymous survey using a 5 point Likert scale on their ideal relationship with consultants in internal medicine specialties. Differences between surgeons and non-surgeons were calculated using logistic regression adjusting for location and trainee status. Differences between different surgical subspecialties were calculated using analysis of variance with Scheffe post-hoc analysis.
RESULTS: There was a 72% response rate. Half of respondents were surgeons and the rest were general internists and family medicine physicians. Surgeons were more likely (OR 3.52, 95% CI 2.1–6.0) than internists or family medicine physicians to want consult advice on a broad variety of care topics rather than a narrowly defined question. Over half (59%) of family medicine physicians and internists preferred to retain order writing authority on their patients compared to 37% of surgeons ($p<0.001$). Of the surgeons preferring to retain authority, 93% felt it was appropriate for consultants to write orders after a verbal discussion. Orthopedic surgeons wanted consultants to write orders and co-manage the patient significantly more than general surgeons and obstetricians ($p<0.001$). Few physicians (29%) felt literature references were useful in consults, but most (75%) desired direct verbal communications with the specialist answering the consult. Most (78%) family medicine providers felt little need for general internal medicine input, preferring to consult subspecialists of internal medicine directly.
CONCLUSIONS: Distinct differences in consultant expectations are present depending on the specialty of the referring physician. Orthopedic surgeons desire more hands-on, comprehensive consultant involvement including order writing and patient co-management. General internists and family medicine physicians wish to retain control over order writing and want specialists to focus on a narrowly defined clinical problem.

PREVALENCE AND CONTENT OF PHYSICIAN COUNSELING REGARDING SMOKING AND EXPOSURE TO SECOND HAND SMOKE FOR PREGNANT WOMEN IN ARGENTINA. E.J. Perez-Stable[1]; V. Martinez[2]; R. Mejia[2]. [1]University of California, San Francisco, San Francisco, CA; [2]Universidad de Buenos Aires, Buenos Aires, *(Tracking ID # 154363)*

BACKGROUND: Brief physician counseling has been shown to increase the smoking cessation rates of patients and is cost effective with a minimum time of 5 minutes. In Latin America, the role of physician counseling in smoking cessation has not been emphasized. As smoking rates increase among women, the prenatal visit provides an opportunity for physician counseling intervention to promote smoking cessation and decrease second hand smoke (SHS) exposure. The objective of the study was to estimate the prevalence and describe the type of smoking cessation and SHS exposure counseling provided by physicians during prenatal visits in Argentina.
METHODS: A cross-sectional self-administered survey was distributed to all physicians taking care of pregnant women in 13 hospitals. Physicians were sampled from three different cities: Salta (5) and Jujuy (5) in the Northwest and Buenos Aires (3). Questions asked about knowledge, attitudes, frequency, type and duration of smoking cessation and SHS exposure counseling, barriers to tobacco counseling, communication skills, level of understanding, and personal smoking status,
RESULTS: Of 250 questionnaires distributed, we received 183 (73.2% response rate) completed to date. Respondents were 55% men, had a mean age of 45 y, and 23% were trained as obstetricians only. Among respondents 21.2% were in public hospitals only, 20.2% in private hospitals only and 58.6% in both. Of the physicians, 46.4% were current smokers, 15.7% were former smokers and 34.5% never smoked. Among smokers, 33.3% did not want to stop smoking and 50% never tried to stop smoking. Only 20% of respondents received previous training in smoking cessation counseling and only 17.8% considered themselves capable of advising patients to stop smoking. Almost half of physicians (46.7%) did not consider themselves to have enough knowledge to advise their patients, 53.3% never encouraged their patients to use nicotine replacement therapy, and 92.1% never advised patients about the use of bupropion for smoking cessation. 74.4% of the obstetricians agreed that it was not risky for pregnant women to smoke up to 5 cigarettes per day, although 91.2% always advised women to stop smoking when pregnant. The risk of SHS exposure was always discussed by 48.3% of physicians and limited time during the appointment was given as the principal barrier by 20.2%.
CONCLUSIONS: Smoking cessation counseling by clinicians caring for women during pregnancy in Argentina occurs infrequently and physicians sanction smoking up to 5 cigarettes as not increasing risk. Interventions directed at health professionals who take care of pregnant women are needed to motivate their patients and advise them to quit smoking and avoid SHS exposure.

PREVALENCE AND CORRELATES OF PAIN IN PATIENTS WITH DIABETES. M.J. Bair[1]; E.J. Brizendine[2]; R.T. Ackermann[2]; C. Shen[2]; K. Kroenke[2]; D.G. Marrero[2]. [1]Richard L. Roudebush VA Medical Center Health Services Research Center for Excellence, Indianapolis, IN; [2]Indiana University School of Medicine, Indianapolis, IN. *(Tracking ID # 156037)*

BACKGROUND: Chronic pain is highly prevalent and associated with poorer diabetes self-management. The extent of pain and its impact in patients with diabetes has received little attention. We sought to determine the prevalence of pain among urban, mostly African American, patients with diabetes and the effect of pain on health-related quality of life, depression, and glycemic control.
METHODS: We analyzed cross-sectional baseline data for 1,244 adults with diabetes who completed a baseline questionnaire and had available chart review data as Indiana University participants in the Translating Research Into Action for Diabetes (TRIAD). TRIAD is a multi-site prospective cohort study to identify barriers to optimal diabetes care across different health systems. The primary outcome measures were the Mental and Physical Component Summary-12 scores (MCS-12 and PCS-12) and Hemoglobin A1c (A1c) value. We also dichotomized outcomes: MCS-12<42 to indicate clinical depression and A1c>8 for poor glycemic control. Primary predictors included pain severity and interference with activities. Current pain severity was recorded as no pain, moderate, or extreme pain. We used Chi-square tests and ANOVA models to assess the relationship between pain and MCS-12, PCS-12, and A1c. We used multivariable linear and logistic regression to assess the independent effect of pain on HRQL, depression, and glycemic control while controlling for demographics (age, sex, race, education, and income), duration of diabetes, general health state, smoking history, and body mass index (BMI). Analyses were performed using SAS V9.1 (SAS Institute, Cary, NC).
RESULTS: Participants had a mean age of 56 and included 70% women and 52% African-Americans. The mean duration of diabetes was 11 years. Seventy-three percent reported moderate to extreme pain and 49% had at least moderate activity limitations because of pain. Compared to those without pain, participants with pain were younger (55.3 vs. 56.7, $p=0.05$), had higher BMI's (35.5 vs. 32.2, $p<0.001$), were more often depressed or anxious (47% vs. 21%, $p<0.001$), and were less likely to report good health (33.8% vs. 53.8%, $p<0.001$). Patients with extreme pain had higher A1c values than those with no or moderate pain (8.8 vs. 8.3, $p<0.045$). In regression models, pain severity and interference were strongly associated with worse MCS-12 ($p<0.001$), PCS-12 ($p<0.001$), and depression status ($p<0.001$), but not glycemic control ($p=0.19$). Compared to patients in the no pain group (reference), there was an incremental association between pain severity and depression (MCS-12<42): adjusted odds ratios were 1.5 (95% CI 1.1–2.1) for moderate pain and 2.7 (1.7–4.5) for severe pain.
CONCLUSIONS: Moderate to extreme pain was present in approximately three fourths of urban, mostly African-American patients with diabetes. Almost half reported at least moderate activity limitations due to pain. Not surprisingly, pain severity was strongly associated with poor physical health, but also with poor mental health, including depression. Pain severity and interference with activities was not independently associated with worse glycemic control. Clinicians should be aware of the high prevalence of pain in diabetes, its negative health consequences, and the management challenges it poses.

PREVALENCE OF DEPRESSION AMONG LOW-INCOME PATIENTS IN A COUNTY EMERGENCY DEPARTMENT. S.A. Mohanty[1]; I.T. Lagomasino[1]; D. Anglin[1]; L. Gelberg[2]; S.M. Asch[3]. [1]University of Southern California, Keck School of Medicine, Los Angeles, CA; [2]University of California, Los Angeles, Los Angeles, CA; [3]Veterans Administration Greater West Los Angeles Healthcare System, Los Angeles, CA. *(Tracking ID # 153188)*

BACKGROUND: Depression, the most common mental illness, is identified as the leading cause of disability worldwide and results in increased health services use and health care costs. Low-income Latinos may be particularly likely to suffer from depression but frequently lack access to depression care. Low-income, underserved patients often disproportionately use EDs as a source of primary care due to lack of insurance or a usual source of care. Patients, however, are rarely screened for depression in EDs. We tested a depression screening tool administered by community health workers (Promotoras) in a predominantly Latino ED patient population to identify both depression prevalence and the predictors of depression.
METHODS: Bilingual and bicultural Promotoras approached 221 adult patients in ED waiting areas of a large Los Angeles public hospital. Those 202 patients who consented (91%) were screened for depression using the Patient Health Questionnaire-8 (PHQ-8), a valid instrument for assessing both the presence and severity of major depression among ethnically-diverse primary care patients. Functional impairment was ascertained based on the question "How difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?" Patients were surveyed on sociodemographics and health care utilization. We calculated univariate statistics for potential predictors of depression. Significance testing of individual items was done using univariate logistic regression analyses. We constructed multivariate models using stepwise logistic regression on a dichotomized depression outcome (depressed = score $\geq$ 10; not depressed = score $<$ 10).
RESULTS: Seventy percent (70%) of patients sampled identified themselves as Latino; 50% of surveys were conducted in Spanish. Over 1/3 (37%) had a PHQ-8 score consistent with probable moderate to severe depression. Depressed patients reported more functional impairment compared to non-depressed patients (70% vs.16%, $p<0.0001$). In univariate analyses, we found that the following patients had greater odds of being depressed: unemployed (vs. working full- or part-time, OR 2.0, 95% CI 1.1, 3.6, $p=0.03$); Spanish-speaking (vs. English-speaking, OR 2.3, 95% 1.3, 4.2, $p=0.006$). No other predictors were significant in our univariate analyses. In multivariate analyses, unemployment status and Spanish-speaking remained the only significant predictors of being depressed (unemployed AOR 2.2, 95% CI 1.1, 4.0; Spanish-speaking AOR 2.4, 95% CI 1.3, 4.4).
CONCLUSIONS: A considerable proportion of patients within a County ED screened positive for depression, many of whom reported difficulty with functioning. Social pressures such as unemployment may have significant influence on depression or may result from untreated depression. Spanish speakers' greater rates of depression in the ED need to be better understood, as this measure may be a proxy for low-acculturation or reflect poor access to quality depression care. Depression screening in EDs may be warranted for patients who rely on the ED as a surrogate for primary care. Future work will involve studying the validity of the PHQ-8 and other depression screening modalities in ED settings as well as developing ED-based depression interventions that can improve access to depression care in outpatient primary care and mental health settings. These interventions, which must be culturally appropriate and practical for public health systems, have the potential to reduce ED overcrowding.

PREVALENCE OF OBESITY IN A SUBURBAN WOMEN'S HEALTH CENTER OF EXCELLENCE CLINIC. S. Gadiwalla[1]; J. Beltran-Keeling[1]; B. Johnson[1]. [1]Virginia Commonwealth University, Richmond, VA. *(Tracking ID # 153136)*

BACKGROUND: Obesity has escalated globally to a major public health problem. In the US, the most recent published data from the National Health and Nutrition Examination Survey (NHANES 1999–2000) indicates a striking increase in prevalence of overweight and obese persons over the past four decades. The Virginia Commonwealth University Institute for Women's Health is one of 21 nationally designated Centers of Excellence whose Women's Health Clinic provides comprehensive, multidisciplinary, and integrated health care for women.
METHODS: To assess the prevalence of obesity in a female suburban population, in 2005, we measured the height and weight of 300 patients presenting in our Women's Health Clinic. Body Mass Index (BMI) was calculated and compared to national data.
RESULTS: Of the 300 patients enrolled in our study, 227 (75.6%) were non-Hispanic whites and 68 (22.6%) were non-Hispanic blacks. The overall prevalence of overweight (BMI 25) and obesity (BMI 30) was 72% and 38% respectively. For blacks, the mean BMI was significantly higher than the mean BMI of whites (33 vs. 28, $p<.05$). Comparing blacks to whites, blacks had a much higher prevalence of overweight (BMI 25; 91.2% vs. 65.2%, $p<.001$) and obesity (BMI 30; 61.8% vs. 31.7%, $p<.001$). After age-adjusting our results and comparing our data to the NHANES 1999–2000 data, our overall prevalence of overweight was higher (71.2% vs. 61.9%) as was our prevalence of obesity (38.8% vs. 33.4%). Both white and black females in our sample had a higher prevalence of overweight compared to the NHANES 1999–2000 data (white; 65.4% vs. 57.3%; black; 90.6% vs. 77.3%). The prevalence of black females in our sample who were obese exceeded the prevalence of obese black females in the NHANES 1999–2000 study (62.5% vs. 49.7%) but the prevalence of obese white females was similar in the two studies (32.2% vs. 30.1%).
CONCLUSIONS: The prevalence of overweight and obese females in our sample was higher than the NHANES 1999–2000 data, perhaps reflecting the results of an additional five years of increasing imbalance between caloric intake and energy expenditure. In concordance with national data, blacks were significantly more overweight and obese than whites. This study provides baseline data and helps target high-risk groups for biopsychosocial interventions in this unique clinic.

PREVENTIVE COUNSELING OF DIABETIC WOMEN OF REPRODUCTIVE AGE. E.B. Schwarz[1]; J. Maselli[2]; R. Gonzales[2]. [1]University of Pittsburgh, Pittsburgh, PA; [2]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 151569)*

BACKGROUND: Individuals with diabetes require counseling regarding the impact of diet, exercise, and medications on disease progression and clinical outcomes. Diabetic women of reproductive age require additional counseling on family planning, since birth defects occur in about 5–8% of their offspring, which is approximately twice the rate in the general population. While about half of all pregnancies in the United States are unintended, nearly two-thirds of pregnancies in diabetic women are unplanned. The goal of this study was to determine whether preventive counseling provided to diabetic women of reproductive age differs from that provided to nondiabetic women.
METHODS: We examined 40,304 visits made by non-pregnant women aged 14–44 years contained in the National Ambulatory Medical Care Survey (NAMCS) and National Hospital Ambulatory Medical Care Survey (NHAMCS); 918 of these visits were made by women with diabetes. To compare visits in which women with diabetes received preventive counseling (about diet/nutrition, exercise, and family planning) with those in which women without diabetes received counseling, we used chi-square tests. To examine patient, provider, and visit characteristics associated with provision of contraceptive counseling to all women of reproductive age, we used bivariable and multivariable models that accounted for the design effects of NAMCS and NHAMCS data.
RESULTS: Most visits (60%) made by women with diabetes were to internists or family practitioners. A comparison of visits of women with and without diabetes showed that a larger proportion of diabetic women received counseling about diet/nutrition (43.2% vs. 10.9% of visits; $P<0.001$) and exercise (18.3% vs. 9.4%; $P=0.002$) but that a smaller proportion of women with diabetes received counseling about contraception (4.0% vs. 11.5%; $P<0.001$). In multivariable analyses, adjusting for age, race, ethnicity, insurance status, relationship with physician, and primary reason for visit, we found that women with diabetes were still less likely than women without diabetes to receive contraceptive counseling (OR, 0.25; 95% CI, 0.13–0.46). In addition, we found that women with diabetes under 25 years old were less likely to receive contraceptive counseling than older women with diabetes (OR, 0.17; 95% CI, 0.06–0.50). Women were more likely to receive contraceptive counseling if their primary reason for visit was family planning (OR, 35.3; 95% CI, 14.3–87.2).
CONCLUSIONS: Although diabetes is affecting a growing number of women and caries an increased risk of adverse pregnancy outcomes if glucose levels are not tightly controlled, outpatient physicians are providing contraceptive counseling less frequently to women with diabetes than to nondiabetic women. Our results suggest that women with diabetes require more contraceptive counseling and perhaps need to have visits scheduled primarily to address family planning.

PREVENTIVE HEALTH CARE AMONG ELDERLY WOMEN. M.A. Schonberg[1]; E.P. McCarthy[2]; E. Marcantonio[1]. [1]Division of General Medicine and Primary Care, Beth Israel Deaconess Medical Center, Boston, MA; [2]Harvard University, Boston, MA. *(Tracking ID # 153638)*

BACKGROUND: There are many health prevention measures available to elderly women with variable degrees of evidence supporting their use. Women aged 80 and older may receive some screening tests for which they have little chance to benefit, such as mammograms or pap smears, instead of other health prevention measures. We examined the prevalence of health prevention measures (screening tests, healthy lifestyle counseling, and immunizations) among women aged 80+ compared to women aged 65–79.
METHODS: We randomly identified women aged 65 and older stratified by age (65–79 and 80+) at one academic primary care clinic using the online medical record. Anticipating greater exclusion criteria (death, dementia, terminal illness), among women aged 80+, we randomly selected 400 women 80+ and 275 women 65–79. We collected data on screening for cancer (breast, cervical, and colon) and osteoporsis, healthy lifestyle counseling (exercise, diet, mood), and immunizations (flu shot, pneumovax) for women who had seen a primary care clinician in the past year. We also collected data on race, insurance, median income of zipcode, language, physician gender, Charlson Comorbidity Index (CCI), and number of primary care visits in the past year.
RESULTS: Our final sample consisted of 546 women; 235 aged 65–79 and 311 aged 80+. Women 80+ were significantly more likely to have Medicaid, CCI 2+, 5+ clinic visits in the past year, reside in areas with median income of zipcode $<$ \$20,000, and were less likely to speak English ($p<0.05$). Table 1 compares the prevalence of screening, healthy life style counseling, and receipt of immunizations among women 80+ and women 65–79. Compared to women 65–79, women 80+ were less likely to receive screening, have their mood or exercise discussed, but were more likely to receive immunizations and equally likely to have their diet discussed in the past year. Women 80+ were most likely to receive a pneumovax or flu shot and least likely to have a pap smear. Women 65–79 were most likely to have a recent mammogram and least likely to have their mood discussed. For all women, healthy lifestyle counseling was less prevalent than mammography or colon cancer screening. However, being up to date with immunzations was more prevalent for women 80+ than mammography or colon cancer screening.

CONCLUSIONS: Women aged 80+ are less likely to receive most screening tests and healthy lifestyle counseling than women aged 65–79 but are more likely to be up to date with immunizations. As counseling is inexpensive and its benefits can be achieved in a short time frame, healthy lifestyle counseling may be an important underutilized preventive health measure for women aged 80+.

Table 1

	65–79 (n=235) %	80+ (n=311) %	Adjusted OR
Pap Smear in past 3 years	40	10	0.2 (0.1–0.3)
Mammogram in past 2 years	78	53	0.3 (0.2–0.4)
Colon Cancer Screening in past 10 years	71	54	0.5 (0.3–0.7)
Mood Discussed in past year	35	23	0.5 (0.3–0.7)
Bone Densitometry in past 10 years	60	46	0.6 (0.4–0.9)
Exercise Discussed in past year	46	35	0.7 (0.5–1.0)
Diet Discused in past year	42	46	1.0 (0.7–1.5)
Flu shot in past 2 years	54	68	1.5 (1.0–2.2)
Receipt of Pneumovax	55	68	1.7 (1.2–2.4)

PRIMARY CARE FOR PTSD AND TRAUMA-RELATED MENTAL HEALTH SYMPTOMS IN COMMUNITY/MIGRANT HEALTH CENTERS. L.S. Meredith[1]; D.P. Eisenman[2]; B.L. Green[3]; A.N. Cassells[4]; J.N. Tobin[5]. [1]The RAND Corporation, Santa Monica, CA; [2]University of California, Los Angeles, Los Angeles, CA; [3]Georgetown University, Washington, DC; [4]Clinical Directors Network, New York, NY; [5]Clinical Directors Network, Inc., New York City, NY. *(Tracking ID # 153462)*

BACKGROUND: Primary care clinicians (PCCs) are often the first point of contact with the health care system for patients suffering from posttraumatic stress disorder (PTSD) or subthreshold PTSD, because most people with common mental health disorders do not seek treatment from mental health specialists. The majority of individuals report having experienced some form of trauma and the estimated lifetime prevalence of PTSD is 7.8% in the general population. However, it is higher among primary care patients especially for underserved populations, due to their exposure to interpersonal, political, and community violence. Yet, we know very little about how PCCs' attitudes influence the delivery of PTSD care or whether they vary according to different organizational structures. The objective of this study is to describe PCC and Medical Director attitudes and their practices regarding the delivery of care for PTSD and trauma-related mental health symptoms in a range of Community/Migrant Health Centers (C/MHCs).
METHODS: We conducted site visits and in-person semi-structured interviews with the Medical Directors and 2–3 PCCs in each of 5 C/MHCs serving a high proportion of Latino immigrants. Sites were purposely selected to represent structural characteristics hypothesized to be associated with PTSD delivery. We selected 4 C/MHCs representing each combination of mental health integration (low vs. high) and community linkages for social/legal services (low vs. high) low linkage with social/legal services). A fifth site was selected in Lower Manhattan to study differences based on 9/11 exposure. All sites were part of the Clinical Directors' Network (CDN), a practice-based research network with many practices located in New York/New Jersey.
RESULTS: Interviews with Medical Directors identified several key themes related to care for PTSD in C/MHC settings. They recognized the importance of caring for patients with PTSD, yet noted that few formal, written policies and procedures are in place for identifying or managing these health problems. PCCs held similar views, endorsing screening and assessment for PTSD, particularly for their Latino immigrant patients; although few reported that they routinely screen for or assess PTSD. This reported tendency was stronger among the C/MHCs with greater capacity to provide needed mental health and social/legal services. When PCCs do have patients that present with PTSD symptoms, referral to behavioral health is the norm. Reported barriers to PTSD care included poor access to behavioral health care, lack of clinical training and incentives to treat PTSD, and time limitations.
CONCLUSIONS: Though Medical Directors and PCCs held overall positive attitudes about recognizing, treating, and providing referrals for PTSD and its symptoms, Medical Directors had not established policies or procedures. Structural factors such as having mental health specialty care available on-site and established relationships with social and legal services may be associated with more positive attitudes toward providing PTSD care. Identification of PCC attitudes and practices and their association with different organizational structures will uncover potential intervention strategies to improve the quality of primary care for PTSD, and identify perceived barriers to overcome as part of intervention.

PRIMARY CARE PHYSICIAN ATTRIBUTIONS FOR WHY PATIENTS DID NOT RECEIVE ADEQUATE ANTIDEPRESSANT TREATMENT. P.A. Pirraglia[1]; V. Murthy[2]; J.B. Weilburg[2]. [1]Providence VA Medical Center, Providence, RI; [2]Massachusetts General Hospital, Boston, MA. *(Tracking ID # 153323)*

BACKGROUND: Antidepressants are commonly prescribed by primary care physicians. However, there is a low rate of attainment of minimal standards for treatment guideline concordance for antidepressant treatment in primary care. Our objective was to identify themes regarding primary care physicians' perceptions of the causes for patients not attaining an adequate course of antidepressant treatment.
METHODS: Our participants were primary care physicians in the intervention arm of a controlled study examining the effect of feedback and education on antidepressant treatment adequacy. We conducted a qualitative analysis of written responses to feedback on antidepressant prescribing. Grounded Theory, a common approach in qualitative research through which themes are derived from the interviews, guided the analytic approach to the data. Two of the authors independently analyzed the data. We gathered all written responses and labeled them. We organized and grouped the quotes and created categories of responses. Lastly, we examined the categories to determine if overarching themes emerged. Based on the content and wording of the quotes within the categories, we developed themes regarding physicians' responses to our report of treatment inadequacy. Categories and themes were compared and discrepancies were discussed and resolved.
RESULTS: Thirty-seven primary care physicians from four primary care practices received feedback on patients who had not received an adequate course of antidepressant treatment. Twenty-five (68%) primary care physicians completed and returned a response form regarding the feedback they received on their patients and were therefore included in our analyses. Five themes emerged regarding the reasons primary care physicians gave for why their patient had not received an adequate course of antidepressant treatment: Others Were Responsible, Patient Related Causes, Treatment Was Correct, Not on Antidepressant, and Uncertainty. Others Were Responsible was a predominant theme, often represented by notations that the patient has a psychiatrist.
CONCLUSIONS: Our findings suggest that primary care physicians may not see themselves as responsible for the adequacy of depression or anxiety treatment. Knowledge of these themes of primary care physician attributions for inadequate pharmacologic treatment in their patients may be of use in further shaping a primary care oriented system of care for mood and anxiety disorders that can be readily implemented and sustained.

PRIMARY CARE RESIDENTS DO NOT HAVE INCREASED COMPLIANCE WITH DIABETIC STANDARDS OF CARE. F.A. Ganz-Lord[1]; M. Rozenberg[1]. [1]Cornell University, New York, NY. *(Tracking ID # 153503)*

BACKGROUND: Primary care residency programs are predicated on the assumption that more exposure translates into greater expertise in outpatient medicine. To date, there is limited research that either supports or refutes that assumption. The American Diabetes Association publishes a standard of care for diabetic patients each year. These guidelines represent a target for high quality care of diabetic patients. The goal of this study was to compare the categorical and primary care residents from the Internal Medicine Residency Program at New York Presbyterian Hospital/Cornell Campus in terms of outcomes and compliance with the standard of care for diabetic patients at Cornell Internal Medical Associates.
METHODS: A computer chart review pulled information about all diabetic patients seen by one of the 104 categorical or 13 primary care residents at least two times between 1/05 and 12/05. A provider report was generated for each of the 117 residents stating the percent of that resident's diabetic patients who had 2 hemoglobin A1c tests (at least 3 months apart), urine microalbumin testing, influenza vaccine, ophthalmology order or visit documented on the flow sheet, and LDL testing in the year prior to or at the last office visit. In addition, the report stated the percent of diabetic patients with their last hemoglobin A1c <7, 7–9, and >9 as well as the percent of patients achieving an LDL <100. These values were compared between the two resident groups using an unpaired t-test.
RESULTS: There was no statistically significant difference between the two resident groups in any of the above tests and/or values. See Table 1.
CONCLUSIONS: Primary care and categorical residents in Internal Medicine at the New York Presbyterian Hospital/Cornell Campus provide statistically equivalent care in terms of outcomes for diabetic patients. This implies that increased exposure to outpatient medicine alone may not impart any increased compliance with standards of care in diabetes. Future research is necessary both to identify which teaching methods would positively influence care of diabetics and to provide outcomes data for the benefits of primary care residencies.

Table 1

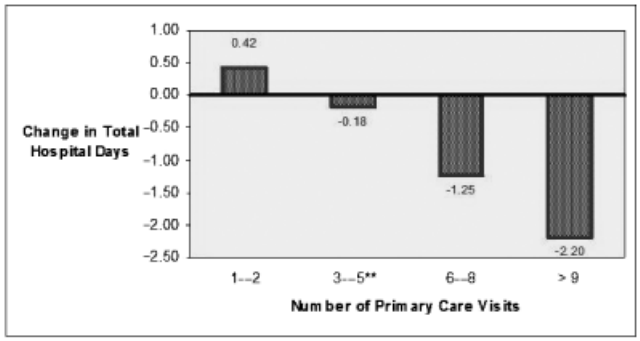
	Mean percent for categorical residents	Mean percent for primary care residents	P value
2 hemoglobin A1c tests ordered	67.77	61.94	0.34
Microalbumin testing done	69.89	72.45	0.66
Influenza vaccine given	48.36	55.61	0.25
Ophthalmology order/visit	36.66	35.08	0.82
LDL tested	84.06	82.81	0.78
LDL <100	51.05	50.65	0.95
Last HbA1c <7	38.34	41.40	0.62
Last HbA1c 7–9	36.24	42.52	0.26
Last HbA1c >9	20.47	14.31	0.21

PRIMARY CARE TEAMS: EFFECTS ON THE QUALITY OF CLINICIAN-PATIENT INTERACTIONS AND PATIENTS' PRIMARY CARE EXPERIENCES. H.P. Rodriguez[1]; W.H. Rogers[1]; R.E. Marshall[2]; D.G. Safran[3]. [1]Tufts-New England Medical Center, Boston, MA; [2]Harvard Vanguard Medical Associates, Newton, MA; [3]Tufts University, Boston, MA. *(Tracking ID # 153934)*

BACKGROUND: Multidisciplinary care teams are increasingly seen as important for advancing the quality of chronic disease management and primary care practice generally. This study examines the influence of primary care teams on patients' reported experiences in their primary care practices, including the quality of clinician-patient interactions.
METHODS: From March 2004 through March 2005, a large multispecialty practice in Massachusetts administered surveys monthly to a random sample of patients visiting each of 145 primary care physicians. Eligible patients were those with at least one visit to their PCP the month prior. Our analytic sample includes 14,835 patients (average per physician = 102) with 2 or more primary care visits over the prior 6 months. Patients' primary care experiences were assessed using the Ambulatory Care Experiences Survey (ACES), a well-validated survey comprised of 9 summary measures across two domains: clinician-patient interaction quality and organizational features of care. Using administrative data, standardized indices of visit continuity were calculated, indicating the type and extent of each patient's continuity over 6 months preceding the survey. Information on team composition (primary care physician [PCP] matched with specific physician assistants, nurse practitioners, and registered nurses) was used to classify each primary care visit as either PCP, on-team, or off-team. For each ACES measure, regression models controlling for patient characteristics and utilization, evaluated the effects of continuity on patients' reported primary care experiences, including the quality of interactions with their PCP and other team members.
RESULTS: Among patients with 2 or more visits, 35% saw only their PCP, 15% had only "on-team" visits (PCP and team members), 9% had both on- and off-team visits, and the remainder (41%) had only "off-team" visits when not seeing their PCP. Higher PCP continuity was associated with more favorable assessment of physician-patient interactions, including communication, knowledge of the patient, health promotion, and patient willingness to recommend the physician. Effects ranged from 0.6–1.9 points for every standard deviation increase in PCP continuity ($p < .001$ for all measures). Patients' assessments of the clinical team were significantly better for those with "on-team" vs. "off-team" visits (1.5 points, $p < .01$). However, for all other ACES measures, the effect of PCP discontinuity was the same for patients with on-team vs. off-team visits.
CONCLUSIONS: Our findings suggest that visit discontinuities between patients and their PCPs are associated with a decrement in patients' assessments of their care, irrespective of whether those discontinuities involve visits to clinicians who are formally part of the team vs. others in the practice. The sole exception to this involved patients' assessments of their team interactions, where on-team visits were associated with more favorable assessments than off-team visits. The findings highlight the challenges of incorporating teams into primary care practice in ways that positively affect patients' overall experiences and don't impede strong PCP-patient relationships. The finding that on-team vs. off-team visits were equally negative in their effects on most aspects of patients' experiences suggests the need for improving the coherence and value of team approaches from patients' perspectives.

PRIMARY CARE VISITS REDUCE HOSPITAL UTILIZATION OF MEDICARE BENEFICIARIES AT THE END OF LIFE. A.C. Kronman[1]; K.M. Freund[1]; A. Ash[1]; A. Hanchate[2]; E. Emanuel[3]. [1]Boston University School of Medicine, Boston, MA; [2]Boston University Medical Center, Boston, MA; [3]National Institutes of Health (NIH), Bethesda, MD. *(Tracking ID # 153664)*

BACKGROUND: At the end of life, 6% of the Medicare beneficiaries who die each year consume 27 % of Medicare expenditures. Patients are often under-treated for symptoms, or over-treated with care inconsistent with previously stated wishes. Little is known about the role of primary care in the quality and utilization of health services at the end of life. Our study objective was to examine the relationship between primary care physician visits and subsequent hospital utilization at the end of life.
METHODS: Retrospective analysis of a national sample of Medicare beneficiaries over 65 years of age who died in the second half of 2001; Blacks and Hispanics were over-sampled. We excluded beneficiaries not in the fee-for-service Medicare parts A and B, and those in the End Stage Renal Disease Program. Our outcome variables were measured during the last 6 months of life: total hospital days, and the presence of each of 4 types of potentially preventable hospital admissions (Ambulatory Care Sensitive Conditions; ACSC). Number of primary care physician visits and potential confounders were measured during the 12 preceding months. We used bivariate and multivariate analyses to identify and address county-level variations in healthcare utilization, and adjust for nursing home use, Medicaid receipt, comorbidity, and demographics.
RESULTS: Study sample (N = 162,992) characteristics: mean age, 81 (range 66–98); female, 56%; White, 40%; Black, 36%; Hispanic, 10%; Other, 14%. The number of primary care visits in the 6–18 months prior to death were inversely associated with total hospital days in the final 6 months of life (15 days for those with no primary care visits vs. 13.8 days for those 6–8 visits vs. 12.8 for those with >9 visits); the inverse association persisted after adjusting for all covariates ($P < 0.001$). Among those with an ACSC diagnosis, those with more preceding primary care visits were less likely to be hospitalized for the respective ACSC: diabetes mellitus, congestive heart failure, and chronic obstructive pulmonary disease (ORs from .7–.8, $P < .001$).
CONCLUSIONS: More primary care visits in the preceding year are associated with fewer days in the hospital, and admissions for ACSC during the last 6 months of life. Increased primary care access to Medicare beneficiaries may decrease costs and improve quality of care at the end of life.



* Those with 0 primary care visits, averaged 15.3 total hospital days
** All values statistically significant $p < 0.0001$ except 3 – 5 visits

Association of Preceding Primary Care Visits and Change in Total Hospital Days at the End of Life*

PROCEDURAL AND INTERPRETIVE SKILLS OF MEDICAL STUDENTS: EXPERIENCE AND ATTITUDES. E.H. Wu[1]; D.M. Elnicki[1]; E.J. Alper[2]; E.C. Corbett[3]; M.J. Fagan[4]; A.J. Mechaber[5]; P.E. Ogden[6]; J.L. Sebastian[7]; D.M. Torre[7]. [1]University of Pittsburgh, Pittsburgh, PA; [2]University of Massachusetts Medical School (Worcester), Worcester, MA; [3]University of Virginia, Charlottesville, VA; [4]Brown University, Providence, RI; [5]University of Miami, Miami, FL; [6]Texas A&M University, Temple, TX; [7]Medical College of Wisconsin, Milwaukee, WI. *(Tracking ID # 150568)*

BACKGROUND: There is general agreement among medical educators that medical students should learn procedural and interpretive skills. Recent data do not exist on the experience and attitudes of students regarding procedural and interpretive skills.
METHODS: From June through September 2005 at 7 U.S. medical schools, we asked a subset of medical students from the Class of 2006 to report their estimated frequency in performing 21 procedural and interpretive skills since they entered medical school. The skills comprised those from the Association of American Medical Colleges' (AAMC) 1998 Medical School Objectives Project (MSOP) Report I and a recent study of Clerkship Directors in Internal Medicine (CDIM) members. We asked students to use a 5-point Likert scale to indicate their self-confidence in performance (1 = Not at all Confident; 5 = Very Confident) and perceived importance (1 = Not at all Important; 5 = Very Important) of these skills. We also asked students whether or not they were presented with curricular materials, formally taught, or formally evaluated regarding these skills. We calculated incidence rate ratios (IRR) to investigate the effect of these items on frequency of performance.
RESULTS: The response rate was 71% (122/171). Individual schools' students comprised 9% to 21% of the total respondents. Mean age was 27 years, and 60% were female. At least 90% of students completed clerkships in medicine, surgery, pediatrics, obstetrics/gynecology, psychiatry, and family medicine. Less than 8% of students had completed a subinternship in medicine, surgery, or pediatrics. The most common anticipated residencies included internal medicine (12%), family medicine (10%), pediatrics (9%), and obstetrics/gynecology (9%). A majority of students reported never having performed cardioversion (92%), thoracentesis (88%), purified protein derivative (PPD) placement (75%), blood culture (74%), cardiopulmonary resuscitation (72%), paracentesis (66%), and lumbar puncture (65%). Many students reported never having performed basic, common procedures including phlebotomy (24%), arterial blood sampling (33%), and peripheral intravenous catheter insertion (35%). Students reported lowest mean self-confidence in thoracentesis (1.4), cardioversion (1.7), lumbar puncture (1.8), and paracentesis (1.9). Students' mean reported perceived importance was greater than 3.5 for all skills, and 4.0 or greater for 16 skills. An IRR > 1 in frequency of performance, indicating an increased expected number of procedures performed, was associated with the presence of formal teaching in 9 of the skills, formal evaluation in 7 skills, and curricular materials in 3 skills (all $p < .05$).
CONCLUSIONS: A majority of students who have completed the third year have never performed procedural skills such as lumbar puncture, blood culture, paracentesis, thoracentesis, and PPD placement, and many students have not performed basic skills. Educators need to investigate the potential reasons for this, including barriers to procedure performance, emphasis of their instruction, or student interest. Students feel procedural skills are important; those skills in which students report lowest self-confidence and highest perceived importance represent priority areas for further instructional and curricular development.

PROCESSES AND OUTCOMES OF 'USUAL' PRIMARY CARE FOR ANXIETY DISORDERS. R.A. Drayer[1]; B. Herbeck Belnap[1]; F. Zhu[1]; C.F. Reynolds[1]; K. Shear[1]; B.L. Rollman[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 152009)*

BACKGROUND: The majority of patients with panic disorder (PD) or generalized anxiety disorder (GAD) receive mental health services in primary care. However,

little is known about the way primary care physicians (PCPs) diagnose and treat these disorders. We analyzed data from the "usual care" arm of a randomized trial of telephone-based care management to determine the processes and outcomes of anxiety care delivered by PCPs in the community.
METHODS: We used the PRIME-MD Anxiety Module to detect cases of PD and GAD among patients aged 18–64 at four Pittsburgh-area primary care practices. Patients were randomized to the intervention arm of the study or to usual care only if they had a severity score ≥ 14 on the 14-item Structured Interview Guide for the Hamilton Anxiety Rating Scale (SIGH-A) or a score ≥ 7 on the 7-item Panic Disorder Severity Scale (PDSS). At baseline and at 12 months, we assessed mental and physical health-related quality of life, depression and anxiety severity, self-reported treatment of anxiety, health services utilization, and employment status. We compared baseline characteristics between patients with GAD alone and those with PD ± GAD. We also compared 12-month outcomes for patients who received any anxiety treatment and patients who received no treatment.
RESULTS: We randomized 75 patients to the usual care condition. Thirty-two (43%) had GAD alone and 43 (57%) had PD with or without comorbid GAD. Patients with PD ± GAD had more psychiatric comorbidities and more severe comorbid depression than patients with GAD alone (Hamilton Rating Scale for Depression score 19.1 vs. 15.5, $p=0.03$). At baseline, 52 patients (69%) were receiving anxiolytic pharmacotherapy. Patients in the PD ± GAD group were more likely to use benzodiazepines than patients with GAD only (21% vs. 13%, $p=0.03$), but there were otherwise no differences in baseline medication treatment. 12-month follow-up data were available for 61 patients (81%). Of these, 35 (57%) were receiving any medication treatment. Most received SSRIs, SNRIs, and/or benzodiazepines. Patients with PD ± GAD were again more likely to use benzodiazepines at guideline concordant doses than patients with GAD only (16% vs. 4%, $p=0.04$) but there were no other differences in guideline-based pharmacotherapy. PCPs counseled 21 patients (29%). Mental health specialist referrals were recommended for 19 patients (26%), but only 6 patients (8%) followed through with the recommendation. There were no differences in either counseling or referral by anxiety diagnosis. SIGH-A scores at 12 months improved by an average of 5.6 points compared to baseline regardless of whether patients received any anxiety-related treatment.
CONCLUSIONS: Patients who received active treatment for their anxiety disorders from their PCPs were no more likely to improve than patients who received no treatment from their PCPs. Further study is needed to determine why relatively small numbers of patients are receiving appropriate treatment and how this can be improved.

PROFESSIONAL CHARACTERISTICS AND JOB SATISFACTION AMONG SGIM MEMBERS: A COMPARISON BY PART-TIME AND FULL-TIME PHYSICIAN STATUS. R.B. Levine[1]; H.F. Mechaber[2]; R.A. Harrison[3]; T.H. Gallagher[4]. [1]Johns Hopkins University, Baltimore, MD; [2]University of Miami, Coral Gables, FL; [3]Oregon Health & Science University, Portland, OR; [4]University of Washington, Seattle, WA. *(Tracking ID # 152873)*

BACKGROUND: As more physicians work part-time, professional organizations, medical centers and physician groups should understand the factors that motivate and satisfy PT physicians. We surveyed members of a national general internal medicine organization to compare personal and professional characteristics and identify factors associated with job satisfaction among part-time (PT) and full-time (FT) physicians.
METHODS: All active Society of General Internal Medicine (SGIM) members were invited to participate in a web-based survey in June of 2004. Information on part-time status, personal and professional characteristics, and job satisfaction was collected. Comparisons were made by part-time status. Multivariable analysis was used to determine predictors of job satisfaction among part-time and full-time physicians.
RESULTS: Surveys were completed by 1,396 of the 2,772 reachable SGIM members for a response rate of 50%. Eleven percent reported working PT. The mean full-time equivalent (FTE) of part-timers was 56% (SD 25%). PT physicains were more likely than FT physicians to be female (76% vs. 24% $p<0.01$), clinicians or clinician-educators (82% vs. 56%, $p<0.01$) and to have a lower academic rank (instructor, assistant or other) (74% vs. 60%, $p=0.01$). PT physicians report spending more time in clinical and teaching activities and less time in research compared to FT physicians. Thirty-eight percent and 11% of PT physicians report spending greater than 50% of their time in clinical and teaching roles, respectively, compared to 25% and 5% of FT physicians ($p<0.01$, $p=0.02$). Only 16% of PT physicians spent greater than 50% of their time in research compared to 28% of FT physicians ($p<0.01$). Compared to their current positions, PT physicians stated that they would prefer to spend more time in teaching roles ($p=0.01$), less time in clinical work ($p=0.02$) and would not alter the amount time spent conducting research ($p=0.32$). Full-timers would choose to spend more time in research ($p=0.04$) and the same amount of time in clinical ($p=0.26$) and teaching ($p=0.11$) activities in their ideal jobs compared to their current activities. There were no differences in overall job satisfaction between PT and FT physicians (7.1 vs. 7.4, $p=0.06$). However, FT physicians were significantly more likely than PT physicians to report that the following factors were very or extremely important to their overall job satisfaction: obtaining research funding (39% vs. 17%, $p<0.01$), record of publication (44% vs. 21%, $p<0.01$), administrative skills (43% vs 35%, $p=0.04$) and achieving local and national recognition (49% vs 26%, $p<0.01$). In multivariable analysis, among PT physicians, having a lower rank was associated with decreased job satisfaction ($p=0.01$). Among FT physicians, lower job satisfaction scores were associated with being female ($p=0.026$) and having a lower rank ($p=0.027$).
CONCLUSIONS: Part-time and full-time physician SGIM members differ by sex, rank, work activities, and in the factors that may contribute to their overall job satisfaction. Knowing more about PT physicians and what motivates them in their work may help medical centers create faculty positions that are satisfying and allow PT physicians to achieve their fullest potential.

PROFESSIONALISM IN RESIDENCY TRAINING: IS THERE A GENERATION GAP?. S. Borrero[1]; R. Conigliaro[2]; K.A. McGinnis[3]; M. McNeil[1]; J. Frank[1]. [1]University of Pittsburgh Medical Center, Pittsburgh, PA; [2]University of Kentucky, Lexington, KY; [3]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 153667)*

BACKGROUND: Professionalism in Residency Training: Is There a Generation Gap? Teaching and evaluating professionalism is part of the Accreditation Council for Graduate Medical Education's (ACGME) training requirements for postgraduate education. However, often the translation of these concepts into concrete defined behaviors is difficult. Recent literature has tried to account for this difficulty on the basis of generational differences between teachers and trainees. We hypothesized that different generational views about professionalism exist, and that these differences might pose substantial challenges for programs seeking to develop a framework from which to teach and role model professional behavior. We sought to explore the magnitude of these differences by asking faculty and residents at one large, urban medical center to evaluate behaviors along a continuum of professionalism.
METHODS: We created a questionnaire of 16 vignettes describing unprofessional behaviors and distributed this to first and second year Internal Medicine (IM) trainees and a random sample of general medicine faculty. The vignettes were based on the American Board of Internal Medicine's (ABIM) identification of the core components of professionalism (altruism, accountability, excellence, duty, honor and integrity, respect). We generated additional vignettes based on a focus-group discussion with a sample of our third year IM trainees who described specific unprofessional behaviors from actual experiences. For each specific behavior described in the vignettes, participants were asked to rate the severity of the infraction as "not a problem, minor, moderate, or severe". We dichotomized answers into minor (not a problem and minor) or major (moderate and severe) infractions of professional behavior. To determine whether there was consensus for each vignette, we used two-sided exact binomial probability tests to determine whether the percent identifying infractions as minor or major was statistically significantly greater than 50%. To compare responses between groups, we used two-sided Fisher's Exact tests. Differences were considered statistically significant if $P<0.05$.
RESULTS: Of the 78 first and second year IM trainees, 58 completed the questionnaire and of the 40 questionnaires given to a random sample of general medicine faculty, 27 were completed, for a response rate of 72%. For the overall group, there was consensus that scenarios depicting lying, lateness, responsibility toward one's patients, professional appearance, and patient respect were major infractions. We found no significant differences between IM trainees and faculty for all vignettes except one regarding teams delegating days off for team members (35% of trainees identified as major vs. 7% of faculty, $P=0.008$). Within the faculty group, only one vignette differed between older (>40) and younger ((40) faculty regarding a resident being ill-prepared to present at morning report (0% vs. 42%, respectively, regarded as major, $P=0.045$).
CONCLUSIONS: Our study demonstrates consensus on the delineation of professional and unprofessional behaviors in this Internal Medicine Department across ages and training versus attending status. Thus, attributing difficulties in teaching and assessing professionalism may not have a generational basis; there may be common ground for teaching and evaluating professional behaviors.

PROGNOSTIC UTILITY OF PREDISCHARGE B-TYPE NATRIURETIC PEPTIDE LEVEL IN PREDICTING READMISSION AND DEATH IN DECOMPENSATED HEART FAILURE. L. Luo[1]; L. Calhoun[2]; A. Bost[3]; S. Hamann[3]; J. Pino[4]. [1]Coast AHEC (New Hanover Reginal Medical Center), Wilmington, NC; [2]Wilmington Cardiology, Wilmington, NC; [3]Coastal Area Health Education Center, Wilmington, NC; [4]New Hanover Regional Medical Center, Wilmington, NC. *(Tracking ID # 154789)*

BACKGROUND: Heart failure is estimated to affect 4.6 million Americans and is a leading cause of costly hospitalizations. The neurohormone B-type natriuretic peptide (BNP) has been increasingly recognized as an important marker for the decompensated heart. The purpose of our study was to determine whether the predischarge BNP is correlated with the rate of rehospitalization and death at a community hospital.
METHODS: A retrospective chart review was performed on patients discharged with a primary diagnosis of congestive heart failure (CHF) admitted between July 2003 and September 2004. Patients without a predischarge BNP or with serum creatinine of 2.0 or greater were excluded. 207 patients were included in the study. We collected information on the patient's demographics, co-morbidities, severity of illness, treatment, echocardiogram, chest X-ray at admission, and BNP at admission and discharge. Fisher's extract *t*-tests, chi-squares, correlation and logistic regression multivariable analysis were used for data analysis.
RESULTS: Among the 207 patients, thirteen (6%) patients died and forty-one patients (20%) were readmitted within six months. The sample was divided into two groups: predischarge BNP level below 350 pg/ml or 350 pg/ml above. Of the forty-one patients readmitted, 10 (12%) were in the low predischarge BNP group and thirty-one (25%) were in the high predischarge BNP group ($p=0.018$). There was a statistically significant difference between the predischarge BNP in the group who were readmitted and/or died versus the group who were not readmitted ($p<0.01$). There was a significant correlation ($p<0.05$) between the elevated predischarge BNP and: the three-month readmission rate, the six-

month readmission rate, and death within 6 months. One person (1%) in the low predischarge BNP group and twelve persons (10%) in the high predischarge BNP group died within six months of discharge. The mean number of days between discharge and readmission for those readmitted was 85.9 days versus 51.6 days for the low versus high predischarge BNP groups respectively ($p=0.037$). Logistic regression multivariable analysis revealed the strongest predictors of readmission were presence of diabetes ($p=0.01$), predischarge BNP ($p=0.03$), and presence of COPD ($p=0.05$).
CONCLUSIONS: The data from this study suggests that the predischarge BNP is a strong, independent prognostic indicator for readmission and death for patients with heart failure. Predischarge BNP level less than 350 were associated with a better prognosis. Use of this marker may help risk stratify patients with need for closer outpatient follow-up or use of more aggressive management strategies for heart failure.

PROMISING PRACTICES FOR PATIENT-CENTERED COMMUNICATION WITH DIVERSE POPULATIONS: LESSONS FROM 8 INNOVATIVE HOSPITALS NATIONWIDE. M. Wynia[1]; J. Matiasek[1]; M. Johnson[1]; J. Jarosch[1]. [1]American Medical Association, Chicago, IL. *(Tracking ID # 152231)*

BACKGROUND: Hospitals face increasingly diverse patient populations, some with limited English proficiency, low health literacy, and cultural beliefs that are unfamiliar to health care providers. Optimal practices for effectively addressing the health communication needs of these populations are not known.
METHODS: In early 2005 the Ethical Force Program (comprising 21 leaders from hospital, patient, clinician, employer, accreditation and other groups) disseminated a nationwide call for nominations of hospitals conducting innovative communication programs. An Expert Advisory Panel on Patient-Centered Communication for Vulnerable Populations was appointed to review nominees and select 8 hospitals to visit. Selection criteria included geographic, size and population diversity and the innovative nature and transferability of programs. We then conducted 2-day site visits to each hospital, including semi-structured interviews and focus groups with hospital executives, clinical staff, program managers, front line staff and others. We sought (1) drivers of change, (2) lessons-learned, and (3) transferable recommendations for action.
RESULTS: Five features were noted in every hospital selected. (1) All have missions that include providing high quality care to diverse populations. Most are considered their local "safety-net" facility. (2) Every hospital could document the demographic profile of the local community and had performed some type of needs-assessment with regard to health communication. Some contacted elementary schools for enrollment demographics, conducted volunteer and patient interviews, or implemented "secret shopper" programs as well as fielding traditional patient and staff surveys. (3) Community outreach was emphasized in addition to patient-centered care for individuals. This included formal collaboration with adult literacy groups, community centers, churches and immigrant advocacy groups, and informal networking such as program leaders' service on community boards. (4) Recruting and training a diverse staff. Examples included offering payment differentials for foreign language speakers and providing trainings in concert with local colleges. (5) Program evaluation, including cost and benefit calculations, was a key focus. Most face regular budget crises and proving the clinical and business merits of programs for effective communication with vulnerable populations is a high priority. In addition to business rationales such as improving quality, reducing unnecessary testing, improving adherence and bringing in new patients, communication initiatives were seen as especially critical to concomitant efforts to reduce medical errors and liability risks. Many other innovations varied according to the unique needs of the community and clinical staff, as well as the interests of program leaders, though sites generally focused on communication across three primary communication barriers - language, culture and/or health literacy - with many programs addressing more than one barrier.
CONCLUSIONS: The eight hospitals studied are improving different aspects of health communication, using different tools and initiatives; but there are remarkable similarities in what has driven these initiatives and how they have evolved. These similarities constitute shared lessons that can be of help to hospitals nationwide.

PROSPECTIVE VALIDATION OF A RISK ASSESSMENT QUESTIONNAIRE FOR HEPATITIS C IN A PRIMARY CARE SETTING. T. McGinn[1]; N. O'Connor[1]; D. Gardenier[1]; A. Federman[1]. [1]Mount Sinai School of Medicine, New York, NY. *(Tracking ID # 156129)*

BACKGROUND: Estimates of hepatitis C virus (HCV) antibody prevalence among primary care populations in the US are between 3 and 5%. Since universal antibody screening is neither cost effective nor practical, screening for HCV risk factors is a critical tool for primary care providers to identify appropriate patients for antibody testing. To this end we performed a prospective study to validate the accuracy of an HCV risk assessment questionaire, to refine it and to simplify its implementation in a primary care setting.
METHODS: The study was conducted in four urban hospital based primary care practices in East Halrem. A screening questionnaire was administered over a one year period to a random sample of 1,000 patients who had come for scheduled or urgent care visits with their providers. The 24-item questionnaire was divided into four exposure domains: occupational, medical, general exposure, and high-risk behaviors. All patients enrolled were administered the risk factor questionnaire and blood was drawn for HCV antibody titers. A positive response was defined as a single positive resposne in one or more domains. We calculated the sensitivity, specificity, likelihood ratios and their 95% confidence intervals. Finally we determined the area under the ROC curve.
RESULTS: 1,486 patients were approached; 1,000 agreed to participate (67%). Among study participants, the mean age was 51, 74% were female, 55% Hispanic, 34% were African-American, and 55% had Medicaid insurance. HCV antibody prevalence was 8 %, with 30% of those being new diagnoses. Using one positive response as the cutoff, a positive test had a sensitivity of 94% (95% CI 86%–98%), a specficity of 22% (95% CI 19–25), a positive likelihood ratio of 1.21 (95% CI 1.13–1.29) and negative likelihood ratio of 0.27 (95% CI 0.11–0.64). The area under te ROC curve was 0.74. Therefore, in a population with a prevalence of 8%, a negative risk assessment questionnaire would reduce the probability of of HCV seropositivity to approximately 2%.
CONCLUSIONS: Our validation demonstrates that a negative result on a risk assessment questionnaire can eliminate the majority of patients at risk for having HCV and avoids the need for further diagnostic testing. A greater number of positive responses on the questionnaire increases the likelihood of having HCV antibodies. In populations with low to moderate risk, this risk assessment can be used to decide if a patients needs to be screened for HCV antibodies.

PROVIDER COUNSELING ABOUT HEALTH BEHAVIORS AMONG CANCER SURVIVORS. S.A. Sabatino[1]; R.J. Coates[1]; R.J. Uhler[1]; L.A. Pollack[1]; L.G. Alley[1]; L.J. Zauderer[1]. [1]Centers for Disease Control and Prevention (CDC), Atlanta, GA. *(Tracking ID # 154251)*

BACKGROUND: More than 10 million people in the United States are cancer survivors. Health behaviors may influence cancer survivors' quality of life and conditions for which survivors may be at risk. Little is known about provider counseling of survivors about health behaviors.
METHODS: We used the 2000 National Health Interview Survey to examine reported provider discussions about diet, recommendations to begin/continue exercise, and inquiries about smoking within the prior year among cancer survivors ($n=1600$) and adults without cancer ($n=24,636$). Exclusion criteria included missing cancer history information, age <18 yrs, cancer diagnosis <1 yr prior and not having seen/talked to a provider within 1 year. We evaluated all survivors combined and survivors of the most commonly reported cancers separately. For each cancer type, we defined a subgroup of adults without cancer no younger than the youngest survivor for that cancer type, to limit age differences between groups. For sex-specific cancers, the comparison group of adults without cancer was limited to the same sex. We used generalized linear contrasts in bivariable analyses and logistic regression to estimate adjusted percentages (predicted marginals) of reported counseling, adjusted for age, sex, illness burden, usual source of care and number of visits within 1 year. Separate models were used for each outcome. To adjust for possible baseline differences in body mass index (BMI) or health behaviors, the diet model was further adjusted for BMI, the exercise model for BMI and physical activity, and the smoking model for smoking status.
RESULTS: Few survivors reported counseling about all three behaviors (10% vs. 9% of adults without cancer, $p=.57$), with few survivors reporting that providers discussed diet (30% vs. 23% of adults without cancer, $p<.0001$), asked about smoking (42% vs. 41% of adults without cancer, $p=.41$), or recommended exercise (26% vs. 23% of adults without cancer, $p<.005$). Of survivors who smoke, 63% (95% CI 56.5–68.5%) reported being advised to quit, vs. 52% of adults without cancer (95% CI 50.1–53.7%). After adjustment, survivors were as likely as adults without cancer to report discussing diet (25% vs. 25%, $p=.93$) and less likely to report exercise recommendations (22% vs. 24%, $p=.02$). Colorectal cancer survivors were less likely than adults without cancer to report exercise recommendation (16% vs. 27%, $p<.003$) or being asked about smoking (31% vs. 41%, $p<.05$). Cervical cancer survivors were more likely than adults without cancer to report being asked about smoking (58% vs. 43%, $p<.001$). When further adjusted for BMI, physical activity and smoking, survivors remained somewhat less likely to report exercise recommendations (22% vs. 24%, $p=.06$), with colorectal cancer survivors remaining less likely than adults without cancer to report exercise recommendations (16% vs. 27%, $p<.003$) or being asked about smoking (31% vs. 41%, $p=.04$) and cervical cancer survivors more likely to report being asked about smoking, although differences were weakened (52% vs. 43%, $p=.05$).
CONCLUSIONS: Findings from this nationally representative sample suggest many providers may miss opportunities to counsel cancer survivors about healthy behaviors. As the population of survivors continues to grow, issues in long-term care of survivors, including behavioral risk management, will likely become increasingly important.

PROVIDERS VARY SUBSTANTIALLY IN THEIR PROPENSITY TO INTENSIFY BLOOD PRESSURE TREATMENT. T.P. Hofer[1]; M. Klamerus[2]; B. Zikmund-Fisher[2]; E.A. Kerr[1]. [1]Ann Arbor VA Center of Excellence & University of Michigan, Ann Arbor, MI; [2]Veterans Affairs Health Services Research & Development Center of Excellence, Ann Arbor, MI. *(Tracking ID # 154657)*

BACKGROUND: For people with diabetes, blood pressure (BP) control is the single most important intervention in preventing cardiovascular mortality. Differences in often difficult treatment intensification decisions made by providers may explain the variable levels of blood pressure control seen in diabetic patients. We developed a "propensity to intensify treatment" scale from responses to brief clinical scenarios.
METHODS: 370 VA primary care providers, selected from a random national sample, completed mailed surveys about hypertension and diabetes (a 74% response rate). Respondents were presented with four scenarios involving a patient with a clinic BP of 145/90 on 2 medications(Scenario 1), and then in 3 alternate scenarios with the same patient already on 3 medications (Scenario 2), or with an new comorbid condition (depression) (Scenario 3), or with a report of

normal home measurements (Scenario 4). The responses included accept the BP, recheck within 3 months, or change or add an antihypertensive medication. Multilevel ordinal two parameter item response models were used to analyze the results and to produce a provider scale.
RESULTS: We found substantial variation in the provider propensity to intensify treatment across the scenarios. For providers 1 standard deviation (sd) above the mean on the propensity to intensify scale the probabilities of changing or adding a medication are .99, .87, .66 and .25 for Scenarios 1–4 respectively. For providers one sd. below the mean, the probabilities of intensification are .87, .45, .16 and .03. The reliability of the scale score was .75. Independently we asked providers to rate the importance of intervening on a DBP=88 or SBP=145 and these ratings explained over a third of the variance in the propensity to intensify scale score. However the scale score was not explained by provider characteristics like gender, years in practice, or provider type.
CONCLUSIONS: Provider propensity to intensify treatment can be measured reliability using brief scenarios. For the same BP level it varies substantially across providers and is correlated with the importance attributed to meeting BP goals. It does not appear to vary substantially across provider demographic characteristics. This measure can be used to explore reasons for lack of intensification of BP treatments and clinical inertia.

PROVIDERS' AND WOMEN'S BELIEFS ABOUT HORMONE THERAPY AND BREAST CANCER AFTER THE WOMEN'S HEALTH INITIATIVE: A QUALITATIVE STUDY. L. Nekhlyudov[1]; T. Bush[2]; A.E. Bonomi[2]; K.M. Newton[2]. [1]Harvard Medical School/Harvard Pilgrim Health Care, Boston, MA; [2]Group Health Cooperative, Seattle, WA. *(Tracking ID # 153811)*

BACKGROUND: The Women's Health Initiative (WHI) Estrogen plus Progestin Trial established that the risks of post-menopausal hormone therapy (HT), including an increased incidence of breast cancer, outweigh its potential benefits. The use of HT has significantly declined since WHI, but the extent to which concerns about breast cancer are contributing to this change is unknown. This study aimed to describe and compare the patient and provider beliefs about HT and breast cancer risk after WHI.
METHODS: We conducted qualitative in-depth interviews with 22 primary care providers (internists, obstetrician-gynecologists and family practitioners) and 30 female patients at a large multi-specialty medical practice in Boston and a large integrated health plan in Washington state. A single investigator led the interviews. Transcripts were reviewed for major content areas by two investigators, and a third investigator reviewed the transcripts for breast cancer related themes.
RESULTS: Almost two-thirds of the providers acknowledged that breast cancer risk factors, primarily personal and family history of breast cancer, influence their HT recommendations. While many providers stressed that breast cancer risk is only slightly increased by HT, they did not favor using HT among women at a higher risk for breast cancer. Providers stated that breast cancer is a major area of concern for women considering HT. Whereas breast cancer was mentioned in all in-depth interviews with providers, only one-third of women raised the issue of breast cancer during their interviews. Two women recalled an association between HT and "cancers." Five women stopped HT due to concerns about breast cancer; the others considered the risk, but continued HT for relief of menopausal symptoms or because they felt they lacked personal risks for breast cancer. It is unclear to what extent the beliefs of both patients and providers were based on WHI results or on prior data suggesting an association between HT and breast cancer risk.
CONCLUSIONS: Primary care providers may overestimate female patients' concerns about breast cancer risk related to HT. It is important that providers educate women about non-breast cancer risks associated with HT and offer options for treating menopausal symptoms.

PSYCHIATRIC DISORDERS AND TREATMENT AMONG BLACK AND WHITE PATIENTS IN AN URBAN PRIMARY CARE SETTING. A. Thompson[1]; O. Carrasquillo[1]; M. Gameroff[1]; M.M. Weissman[1]. [1]Columbia University, New York, NY. *(Tracking ID # 153260)*

BACKGROUND: Primary care serves a crucial role in the early detection and treatment of psychiatric disorders, especially for vulnerable groups with limited access to specialized mental health services. This study examines the racial differences in prevalence and treatment of psychiatric disorders among patients at a primary care clinic that serves a racially and ethnically diverse community.
METHODS: A systematic sample of 348 non-Hispanic black (NHB) and 57 non-Hispanic white (NHW) patients were assessed for current psychiatric disorders using the PRIME-MD Patient Health Questionnaire. Information on treatment for mental health conditions was based on self-reports. We modeled the association between race and psychiatric disorders using logistic regression to control for income, education and marital status. In examining treatment, we also controlled for psychiatric severity.
RESULTS: NHB's had significantly lower rates of all psychiatric disorders than NHW's [OR: 0.5, CI: 0.03–0.9]. Among those with a psychiatric disorder, NHB's tended to report less mental health treatment than NHW's in the last month (23% vs. 42%) and the last year, (30% vs. 47%). However, the low number of NHWs limited the power of our statistical comparisons, with adjusted OR: 0.7, CI: 0.2–2.5 and OR: 0.8, CI: 0.2–2.8, respectively. Similar patterns between NHB's and NHW's were observed for being prescribed a psychiatric medication, (28% vs 50%), but again OR: 0.6, CI: 0.2–2.0. Interestingly, among those without a psychiatric disorder, NHWs were significantly more likely than NHB's to receive mental health treatment (42% vs. 6%) or be prescribed a psychiatric medication (43% vs. 5%) within the past month, with adjusted OR: 12.8, CI: 5.2–31.5. and OR: 13.6, CI: 5.5–33.5, respectively.
CONCLUSIONS: Consistent with previous studies we found that blacks had lower rates of psychiatric disorder than NHW's, but among those with a disorder blacks tended to be less likely to receive treatment than NHW's. These findings reiterate a need to increase recognition and access to treatment of psychiatric disorders among minority groups. Our findings of greater mental health treatment among NHW's without a positive PRIME-MD screen warrant additional investigation. Plausible hypotheses include lack of sensitivity of our instrument in this group of predominantly immigrant low-income NHW's, treatment effects or overuse of mental health services by some NHW's.

PSYCHOMETRIC ASSESSMENT OF AN EXPERIENCE WITH CARE SURVEY FOR AMERICAN INDIANS. R. Hays[1]; P. Johansson[2]; B. Weidmer[3]; D. Wharton[4]; D. Dalpoas[4]; C. Darby[2]. [1]University of California, Los Angeles, Los Angeles, CA; [2]Agency for Healthcare Research and Quality, Rockville, MD; [3]The RAND Corporation, Santa Monica, CA; [4]Choctaw Nation Health Services Authority, Talihina, OK. *(Tracking ID # 154637)*

BACKGROUND: Limited research on perceptions of care by American Indians have been conducted, but one study found that those who score high on American Indian ethnic identity tended to have worse perceptions of health care providers social skill and attentiveness. (Garroutte E.M., et al. Patient satisfaction and ethnic identity among American Indian older adults. Social Science & Medicine. 2004:59; 2233–44.) The Choctaw Nation Health Services (CNHS) was interested in documenting perceptions of care at their clinics in Oklahoma.
METHODS: We drafted a survey based on items in the CAHPS® and other patient experiences with care survey instruments. We conducted cognitive interviews with 20 patients recruited from CNHS outpatient clinics to evaluate a draft survey instrument. A revised survey consisting of 81 questions assessing a variety of aspects of care and background information (health, having a chronic condition, age, gender, educational attainment, race, and language spoken at home) was administered by mail to randomly selected adult patients treated at 5 CNHS outpatient clinics. Respondents who completed and returned the survey were mailed a thank you letter with a $10 Wal-Mart gift card.
RESULTS: We obtained a total of 696 returned surveys (raw response rate of 58%). Item missing data rates were 1% or less for most of the items. Internal consistency reliability coefficients were generally acceptable: getting needed care (5 items, 0.66), health education (5 items, 0.68), getting care quickly (5 items, 0.71), perceived discrimination (2 items, 0.83), communication (9 items, 0.88), and clerks and receptionists (2 items, 0.92). Correlations among scales ranged from 0.07 (health education with perceived discrimination) to 0.54 (communication with getting needed care), indicating that the scales were related to one another but not redundant. The communication scale had the largest correlations with both the global rating of the primary provider (r=0.75) and with the rating of the primary clinic (r=0.64). We found significant differences in perceptions of care between clinics in terms of reports about getting care quickly and clerks and receptionists, and for the global rating of the clinic. On a 0–100 possible score (higher being better), the average score for the highest rated clinic was 66 compared to 53 for another clinic on getting care quickly, 83 versus 66 for clerk and receptionists, and 86 versus 68 for the global rating of the clinic.
CONCLUSIONS: A psychometrically sound survey was developed that can be used to assess experiences of care at Choctaw Nation health care facilities and allow comparison with perceptions of ambulatory care at other health care facilities in the U.S.

PSYCHOMETRIC PROPERTIES OF THE CAHPS HOSPITAL SURVEY. K.A. Hepner[1]; M.S. Nelson[2]; R.D. Hays[3]. [1]The RAND Corporation, Santa Monica, CA; [2]California Institute of Health Systems Performance, Sacramento, CA; [3]RAND Corporation/UCLA Department of Medicine, Santa Monica, CA. *(Tracking ID # 154040)*

BACKGROUND: The CAHPS Hospital Survey assesses patient experience in receiving hospital care. The survey was designed to provide consumers with comparative information about hospital performance and to provide hospitals with a benchmark to set and evaluate progress toward performance goals. The objective of this study was to estimate the psychometric properties of the CAHPS Hospital Survey.
METHODS: The CAHPS Hospital Survey includes 27 items that are used to create 6 multi-item scales: Nurse Communication, Nursing Services, Doctor Services, Physical Environment, Pain Control, Information for Patients. Either 300 or 600 patients, depending on hospital size, were selected from each of the 200 participating hospitals, representing participation from 51% of general acute care hospitals in California after excluding psychiatric, rehabilitation, and long term care facilities. Adult medical, surgical, and maternity patients who were admitted to the hospital and stayed for at least one night were eligible. The survey was adminstered by mail. A total of 36,183 patients responded to the survey. Adjusted response rates by hospital ranged from 23 to 64%, with an average response rate of 43%. Analyses reported here include only English language respondents (n=31,941). Evaluation of psychometric properties included confirmatory factor analysis, internal consistency reliability, correlations among composites, and correlations of composites with willingness to recommend hospital and the global hospital rating. We used multiple regression to estimate the variance in willingness to recommend the hospital that is explained by survey items.
RESULTS: A six-factor model, representing the six reporting composites, provided the best fit to the data (CFI=.98, RMSEA=.054). Internal consistency reliability of scales exceeded .65 for all but two scales (Physical Environment

and Information for Patients. Hospital-level reliabilty estimates exceeded .70 for all six scales. Correlations among composites ranged from .29 (Physical Environment with Information for Patients) to .64 (Nurse Communication with Nursing Services), suggesting a low to moderate degree of overlap among the composites. Nurse Communication had the strongest correlation with a willingness to recommend the hospital to family or friends (r=.61), while Information for Patients had the lowest (r=.36). Composite correlations with the global hospital rating followed a similar pattern, showing the highest correlation with Nurse Communication (r=.61) and the lowest with Information for Patients (r=.37). Composites and global rating items (nurse, doctor, hospital) accounted for 53% of the variance in patients' willingness to recommend a hospital.
CONCLUSIONS: This study provides support for the reliability and validity of multi-item measures of the six domains of hospital care assessed in the CAHPS Hospital Survey domains. The survey provides a useful tool for assessing patient experience in receiving hospital care and comparing patient experience across hospitals. The survey can be used by patients to guide hospital choice or hospitals to evaluate progress toward performance goals.

QUALITY AND INEQUALITY IN MEDICARE MANAGED CARE. A.N. Trivedi[1]; A. Zaslavsky[1]; E.C. Schneider[1]; J.Z. Ayanian[1]. [1]Harvard University, Boston, MA. *(Tracking ID # 152784)*

BACKGROUND: Public reports about the quality of health-care organizations rarely assess whether care is provided equitably to racial subgroups. Our objectives were to assess variations in quality and racial disparity within Medicare health plans, determine whether high-quality plans have smaller racial disparities in quality, and develop a model for publicly reporting racial disparities in the quality of care of health plans.
METHODS: We analyzed 448,790 observations for black and white Medicare enrollees in 164 managed care plans from 2001 to 2003 who were eligible for 4 HEDIS outcome measures assessing control of blood pressure for hypertension, glucose for diabetes, and cholesterol for diabetes or coronary disease. To determine the correlation between quality and disparity, we fitted multilevel linear models predicting receipt of each HEDIS indicator, adjusted for demographic and health-plan characteristics. For each measure, we classified each health plan with twenty or more eligible black enrollees as having above average, average, or below average quality and disparity by testing whether the plan's performance rate was both statistically different ($p<0.05$) from the average rate (using the *t*-test) and also in the top or bottom quartile for performance among all plans. Similarly, for each measure, we classified plans as having above average, average or below-average white-black disparity.
RESULTS: The mean performance on each HEDIS measure was significantly lower for black enrollees than white enrollees (all $P<0.001$), with absolute differences ranging from 5% for blood pressure control to 15% for LDL control after a coronary event. For each measure, over three quarters of the total disparity was attributable to differences within plans. Among all plans, the standard deviation of mean clinical performance rates, derived from multilevel models, ranged from 7.3% for the blood pressure measure to 14.2% for cholesterol control after a coronary event. No significant relation between quality and racial disparity was evident on any of the four outcome measures after controlling for age, gender, and year of measurement. After also controlling for other individual and health-plan characteristics, a larger racial disparity in hemoglobin A1c control was noted in higher quality plans ($r=0.4$, $p<0.001$) but no significant association was found for any of the other three HEDIS measures. In adjusted analyses, three health plan characteristics predicted performance for at least 3 of the 4 HEDIS outcome measures we studied. Plans in operation >25 years, plans with >100,000 Medicare enrollees, and staff- or group-model plans had higher performance than younger, smaller and non-staff/group model plans. No plan-level characteristics were consistently associated with racial disparity. Based on our statistical criteria, only one plan achieved both high quality and low disparity for more than one performance measure.
CONCLUSIONS: The results of HEDIS outcome measures vary widely across Medicare health plans and often reveal disparities within health plans. Because the magnitude of racial disparity in outcomes is not associated with the HEDIS outcomes achieved by a plan, plan-specific performance reports stratified by race can provide additional information about equity, a dimension of quality not assessed by most current public reporting systems.

QUALITY DIFFERENCES BETWEEN SAFETY NET AND NON-SAFETY NET URBAN HOSPITALS FOR ELDERLY ACUTE MYOCARDIAL INFARCTION PATIENTS. S. Cha[1]; A. Epstein[2]; Y. Wang[2]; E.H. Bradley[2]; J.S. Ross[2]; J. Herrin[3]; J.H. Lichtman[2]; H.M. Krumholz[2]. [1]Veterans Affairs/Yale University, New Haven, CT; [2]Yale University, New Haven, CT; [3]Flying Buttress Associates, Charlottesville, VA. *(Tracking ID # 152812)*

BACKGROUND: As providers of last resort, safety net hospitals (SNH) care for millions of vulnerable Americans. Recent developments, including the rise of Medicaid managed care, growing rates of uninsurance, and the Balanced Budget Act of 1997, have limited cross-subsidization of care and have increased fiscal pressures on safety net hospitals. Our objective was to compare the quality of care for Medicare beneficiaries with acute myocardial infarction (AMI) treated in safety net hospitals versus in non-safety net urban hospitals.
METHODS: Our sample consisted of 148,079 fee-for-service Medicare beneficiaries treated in 1,643 hospitals for AMI (International Classification of Diseases, 9th Revision, Clinical Modification codes 410.X1) in Metropolitan Statistical Areas in the 2003 CMS Medicare administrative data. We used the Medicare Enrollment Database and 2004 CMS Hospital Quality Initiative data to examine two primary quality outcomes: (1) 30 day all- cause mortality and (2) quality indicator process measures. Quality indicator processes were summarized using two composite scores for AMI: the percent of recommended AMI non-reperfusion processes completed, and the percent of reperfusion processes completed. We used the American Hospital Association 2002 Annual Survey to determine our primary independent variable: hospitalization in a SNH or non-SNH. SNHs were defined as public hospitals, or private hospitals with a Medicaid caseload greater than one standard deviation above the states' mean private hospital caseload. For our analysis of mortality, we adjusted for patient (age, sex, race, zip code level income, and comorbidities), hospital (teaching status, ownership type, number of beds, presence of cardiac facilities), and area (area size and geographical region of country) characteristics using hierarchical logistic regression models that accounted for patient clustering at the hospital and metropolitan statistical area levels. For our analysis of hospital-level process measures, we adjusted for hospital and area characteristics only, using hierarchical binomial regression models.
RESULTS: In the population studied, 31,474 patients (21.3% of patients) were treated in 455 SNHs (27.7% of hospitals). Adjusting for patient, hospital and area characteristics, patients hospitalized at SNHs were modestly but significantly more likely to die than patients hospitalized at non-SNHs, with an odds ratio of 1.06 (95% CI: 1.01–1.11), translating to a number needed to treat of 125. Adjusting for hospital and area characteristics, SNHs were also less likely to complete processes indicative of high quality care (non-reperfusion process measures: OR=0.88, 95% CI: 0.81–0.95; reperfusion process measures: OR=0.79, 95% CI: 0.70–0.89).
CONCLUSIONS: Safety net hospitals are associated with modestly lower quality of care for elderly insured patients admitted for AMI, as measured by higher mortality and lower completion rates of quality indicator processes. While prior work suggests that safety net hospitals are maintaining solvency in this environment, our analysis raises concerns that the quality of patient care is lower at safety net hospitals, even when examining insured patients. Further investigation is warranted to identify policy interventions that improve the quality of care delivered at SNH.

QUALITY IMPROVEMENT EFFORTS AND HOSPITAL PERFORMANCE: RATES OF BETA-BLOCKER PRESCRIPTION FOR ACUTE CORONARY SYNDROME. A.B. Olomu[1]; M. Stommel[1]; A. Siddiqi[1]; A. Prieto[1]; W.D. Corser[1]; M. Holmes-Rovner[1]. [1]Michigan State University, East Lansing, MI. *(Tracking ID # 154456)*

BACKGROUND: Substantial resources are being directed at Quality Improvement (QI) strategies in hospitals. However, relatively little is known about long-term effectiveness of QI. With the increased focus on evidence-based medicine, there is an urgent need to strengthen the evidence base to evaluate efforts to improve care. The Center for Medicare & Medicaid Services, and the National Committee for Quality Assurance have adopted beta-blocker (BB) use following ACS as a quality indicator. The objective of this study was 1) to determine current rates of BB prescription to ideal candidates (patients with absolutely no contraindications) one year after QI initiatives in 5 mid-Michigan community hospitals, 2) determine the predictors of BB prescription.
METHODS: We enrolled and reviewed the charts of all patients prospectively identified with ACS (n=709) in five mid-Michigan community hospitals (January 2002 to April 2003) following the implementation of the Guidelines Applied to Practice (GAP) QI initiative (September 1–December 15, 2000). BB contraindications included: sinus bradycardia (pulse rate <60), hypotension requiring intervention, overt heart failure, second degree AV block or greater, cardiac arrest or cardiogenic shock, severe peripheral vascular disease and chronic obstructive pulmonary disease. Multivariate logistic regression was used to assess predictors of BB prescription.
RESULTS: Of 689 ACS patients with complete documentation, 327 were ideal candidates for BB therapy (no contraindications). During index hospitalization 88.1 % of ideal candidates received a beta-blocker, and 82.0% were discharged on a BB. 80.4% non-ideal patients (patients with one or more contraindications to BB) also received BB and 69.6% were discharged on a BB. Overall 84.0% of 689 ACS patients received BB therapy in hospital. 166 patients had a previous history of MI and only 44.6% of them were on BB at the time of admission. Significant predictors of receiving a BB were: index hospital (OR 0.339 p=0.013; 0.477, p=.071; 0.195, p=0.003; 0.430, p=.042), minority race (OR, 2.07, p=0.041), cardiac catheterization (OR 2.93, p=.005), PTCA (OR 2.05, p=.013) and pre-admission use of BB (OR 2.61, p=.001). Patients with history of congestive heart failure (OR .451; p=.029) or >2 Charlson's comorbidy score were less likely to be prescribed BB. Age, gender, contraindications to BB, ejection fraction, and history of MI were not significant predictors of BB prescription or absence.
CONCLUSIONS: QI efforts improved BB use following ACS in these hospitals, and it was maintained at one year. However, the rate of prescription varied significantly between hospitals. A high proportion of non-ideal candidates were also prescribed BB suggesting that many physicians consider the potential benefits of these drugs to outweigh the risks. However, improvement to 100% should be achieved in the ideal BB candidates. Substantial opportunity to prevent recurrent acute myocardial infarctions through the use of BBs is still being missed.

QUALITY OF ANTIDEPRESSANT DOSAGE & DURATION OF THERAPY AMONG VETERANS WITH AND WITHOUT DIABETES MELLITUS. L.E. Johnes[1]; C.C. Doebbeling[2]. [1]Richard L. Roudebush VA Medical Center Health Services Research Center for Excellence, Indianapolis, IN; [2]Indiana University School of Medicine, Indianapolis, IN. *(Tracking ID # 153854)*

BACKGROUND: The literature reports wide variation (11–90%) for receipt of an adequate antidepressant dosage and duration in the general US and Veterans

Affairs (VA) populations. Persons with diabetes mellitus (DM) may be less likely to receive adequate treatment of depression due to low recognition rates and competing clinical demands. No research has focused on the quality of depression care among veterans with DM. The objective of this study was to assess adherence to VHA clinical practice guidelines for depression among veterans with and without DM and a new-onset depression.
METHODS: A 100% sample of clinical data (1997–2005) from the Roudebush VAMC in Indianapolis was analyzed. Subjects with and without DM were included if they had a new-onset depression diagnosis, had neither schizophrenia nor bipolar disorder, and received antidepressant therapy. Two dichotomous outcome measures¡[a]antidepressant dosage and duration¡[a]were assessed during the 84-day acute and 180-day continuation phase of treatment. Dosage was adequate if the average daily dose was above the VHA recommended minimum dose. Duration of therapy was adequate if the medication possession ratio (MPR) was $\geq$80%. Multivariate logistic regression, adjusted for demographic, clinical, and healthcare utilization factors, was used to determine whether DM was associated with receipt of an adequate antidepressant dosage and duration during the acute and continuation phases.
RESULTS: 2,167 had DM and a new-onset depression; 6,707 had a new-onset depression without indication of DM. 2,332 subjects, 33% with DM, met study inclusion criteria. Most subjects (55%) were excluded due to non-receipt of antidepressants. Subjects with DM were more likely to be male (95% vs. 86%), married (56% vs. 44%), to have a high school education or less (76% vs. 68%), and to be older (62 vs. 53 yrs). They had more medical comorbidity (2.8 vs. 1.4 conditions) but less psychiatric comorbidity (1.1 vs. 1.3 conditions) than subjects without DM. They were 1.5-fold less likely to have received any mental health care in the acute or continuation phase of treatment. More than 87% received an adequate dose during the acute phase, whereas only 58% received an adequate dose during the continuation phase. Subjects with DM were 1.5-times more likely (CI_{95}: 1.1–2.1) to have received an adequate dose in the acute phase in multivariate analyses adjusted for demographic, clinical, and healthcare utilization factors, but were similarly likely (OR=1.2; CI_{95}: 0.9–1.4) to have received an adequate dose in the continuation phase as compared to subjects without DM. Duration of antidepressant therapy was poor in both populations. Less than 10% of the population had a MPR $\geq$80% during the acute or continuation phase and duration was not associated with presence of DM (OR=1.1; CI_{95}: 0.8–1.6). The average MPR during the entire 264-day treatment phase was 27% (approximately 71-days) for all subjects.
CONCLUSIONS: Under-treatment of depression exists in the VA but may not be limited to the DM population. Veterans with DM are more likely to receive an adequate dose during the acute phase than veterans without DM. Receipt of an adequate duration is poor, regardless of DM status, and diminishes over time. More work is needed to determine why depression guideline-based process measures may not be followed in the VA. Further research is required to identify patient, provider, and system level interventions that will help align current practice with evidence-based practices in the VA.

QUALITY OF CARE FOR HYPERLIPIDEMIA IN HYPERTENSIVE PATIENTS AT A PRIMARY CARE VISIT: POORER CARE BY PROVIDERS WITH A HIGH PATIENT WORKLOAD OR COMPLEX PATIENTS. M.G. Weiner[1]; R. Gross[1]; S. Tang[2]; Y. Lin[1]; B.J. Turner[1]. [1]University of Pennsylvania, Philadelphia, PA; [2]Pfizer Global Pharmaceuticals, New York, NY. *(Tracking ID # 154405)*

BACKGROUND: Pressures to see ever more patients and distractions from caring for comorbidities may limit primary care providers' ability to address hyperlipidemia in patients at increased risk of coronary artery disease (CAD). We examined hyperlipidemia management in older patients with hypertension (HTN) to evaluate whether busy providers were less likely to address an elevated LDL. We also examined the effect of uncontrolled HTN and other comorbidities on LDL care.
METHODS: From electronic medical records, administrative, and physician data, we identified 11,309 patients aged 45+ (if male) and 55+ (if female) with elevated CAD risk per the National Cholesterol Education Program in one of 7 academic-affiliated, primary care practices from 1/1/03 to 2/28/05. Of these, 4,141 patients (37%) had a high LDL (i.e., >130 mg/dl or >100 mg/dl if diabetes, CAD, or CAD equivalent). Of these, 2,822 patients (68%) had >2 visits after the high LDL to 210 providers. The outcome, LDL care, was defined as lipid-lowering therapy prescribed or a normal LDL on recheck. HTN control was classified per JNC VI guidelines. If HTN was uncontrolled, HTN management was defined as addressed if HTN medication was initiated or intensified. Using patient visit as the unit of analysis (N=10,497) and random effects logistic regression to account for clustering of visits within patients and patients within providers, we determined the adjusted odds of LDL care for the following provider factors: workload (quartile of annual patient visits), gender, race, and type (i.e., resident, attending, RN). Key clinical predictors are: HTN control, HTN management if uncontrolled, HTN drugs before the visit (N), CAD risk (moderate vs high), and non-CAD comorbidities from Elixhauser's measure (N). We also adjust for patient age, race, gender, income, insurance, smoking, obesity. Because of an interaction between provider workload and visits with uncontrolled HTN (p=0.02), we estimated separate models for visits with and without uncontrolled HTN.
RESULTS: Overall, providers with the highest workload were less likely to provide appropriate LDL care (adjusted odds ratio [AOR] 0.77, 95% confidence interval [CI] 0.60–0.99). However, in separate models of controlled and uncontrolled HTN visits, high provider workload was significantly associated with LDL care only in the uncontrolled HTN visits (AOR 0.71 CI 0.52–0.98). No other provider factor was associated with LDL care. Compared to the first visit after the high LDL, the AORs of LDL care were at least 75% lower at subsequent visits (P<0.001). The AOR of LDL care was increased for high CAD risk (2.13, CI 1.77–2.57) but reduced for 4 or more non-CAD comorbidities (0.71, CI 0.58–0.87). Compared with visits with controlled HTN, visits with uncontrolled HTN that was addressed had a higher AOR for LDL care (1.20, CI 1.04–1.39) while visits with uncontrolled HTN that was not addressed had a lower AOR of LDL care (0.75, CI 0.66–0.85).
CONCLUSIONS: High patient workload was associated with poorer LDL care, especially if the patient has uncontrolled HTN. Providers who fail to treat uncontrolled HTN are also unlikely to address the elevated LDL. LDL care rarely occurs after first visit following the abnormal result. LDL care was more likely for patients at high CAD risk but less likely for patients with many other comorbidities. These data offer important clues about detrimental effects of time pressures and complex patients on receipt of important treatment to reduce CAD risk.

QUALITY OF DIABETES CARE AMONG CANCER SURVIVORS WITH DIABETES. N.L. Keating[1]; L.J. Herrinton[2]; A. Zaslavsky[3]; J.V. Selby[2]; J.Z. Ayanian[1]. [1]Brigham and Women's Hospital and Harvard Medical School, Boston, MA; [2]Kaiser Permanente Division of Research, Oakland, CA; [3]Harvard Medical School, Boston, MA. *(Tracking ID # 154230)*

BACKGROUND: Cancer survivors have higher rates of diabetes than patients without cancer. Elevated fasting glucose may promote growth of cancer cells, so blood glucose control may be particularly important for cancer survivors. A prior study found that cancer survivors receive fewer preventive services than patients without cancer, but this study did not address diabetes care. Thus, we compared the quality of diabetes care delivered to diabetic patients who were cancer survivors to those of diabetics without cancer.
METHODS: In a large regional integrated delivery system, we studied 5,318 diabetic patients who had been diagnosed with invasive cancer before December 31, 2001, and 20,316 diabetic patients who never had cancer. We used propensity score weights to control for baseline differences between diabetic patients with cancer and diabetic patients without cancer and assessed diabetes care delivered during 2003, including hemoglobin (Hb) A1c testing in the past 6 months, HbA1c control <8%, low-density lipoprotein (LDL) cholesterol testing, LDL control <100 mg/dl, microalbuimin testing in the past year, and opthalmology exams in the past year.
RESULTS: The mean age of the cohort was 63.1 years, 53% were men, 10% were African American, and 65% had a history of hypertension. In propensity score-adjusted analyses, diabetic patients with a history of cancer were more likely than diabetics without cancer to have a HbA1c testing (66.5% vs. 64.6%; P=0.01), HbA1c<8% (73.5% vs. 71.4%; P=0.006), and microalbumin testing (59.1% vs. 55.5%; P<0.001) but did not differ in rates of LDL testing (84.8% vs. 84.7%; P=0.87), LDL<100 mg/dl (40.9% vs. 42.4%; P=0.07), or ophthalmology exams (67.6% vs. 67.0%; P=0.47).
CONCLUSIONS: Despite the potential for cancer-related services to compete with the delivery of diabetes care, diabetic patients with cancer received diabetes care of similar or better quality relative to diabetic patients without cancer in this large integrated delivery system. Nevertheless, there remains substantial room for improvement in the quality of diabetes care delivered to all patients.

RACE AND NON-ADHERENCE TO PRESCRIPTION MEDICATIONS AMONG SENIORS: RESULTS OF A NATIONAL SURVEY. W.F. Gellad[1]; J.S. Haas[1]; D.G. Safran[2]. [1]Brigham and Women's Hospital, Boston, MA; [2]Tufts University, Boston, MA. *(Tracking ID # 151643)*

BACKGROUND: Prescription drug coverage and prescription use are currently at the forefront of public discussion in healthcare. Patient non-adherence to prescription regimens results in poorer control of chronic health conditions. While non-adherence due to financial factors ("cost-related non-adherence") might be addressed by drug coverage, other types of non-adherence will not. Because of significant racial/ethnic disparities in the prevalence of many chronic health conditions, we examined whether reasons for non-adherence (cost, self-assessed need, personal experience) varied by race and ethnicity among seniors.
METHODS: Cross-sectional analysis of data from a 2003 national survey of Medicare beneficiaries >65 years of age, who reported their race/ethnicity as white, black or Hispanic and who reported taking at least one medication (n=14,829). Respondents were asked about non-adherence to prescriptions during the last 12 months, specifically asking about cost-related non-adherence, non-adherence due to experiences (e.g. "skipped doses because it was making you feel worse"), and non-adherence due to self-assessed need (e.g. "skipped doses because you felt you were taking too many medicines)." We compared each of these causes of non-adherence among races using Chi-square tests, with sampling weights applied. Multivariable logistic regression was used to calculate odds ratios for each type of non-adherence, controlling for age, insurance status, number of chronic conditions, and income.
RESULTS: 41.5% of these seniors reported some form of non-adherence. Blacks and Hispanics were more likely to report cost-related non-adherence than whites (35.1%, 36.5%, 26.7% respectively, p=.0001). When asked if they had "spent less on food, heat, or other basic needs to afford prescriptions," 11.3% of whites said yes, 26.6% of blacks, and 23.9% of Hispanics (p=<.0001). There were no racial/ ethnic differences in non-adherence due to experiences or non-adherence due to self-assessed need (p all >0.39). Among respondents who reported any non-adherence, there was a significant relationship between race and the types of non-adherence reported (p<.0001): among those reporting some non-adherence, 38.9% of blacks and 41.4% of Hispanics reported only cost-related non-adherence, versus 28.4% of whites. Blacks had 1.48 times the odds of being non-adherent due to cost (95% CI 1.19,1.86) compared to whites,

and Hispanics had an odds ratio of 1.58 (95% CI 1.22,2.04), and these values did not change when controlling for age, number of chronic conditions, and the presence of drug coverage. When income was added to the model, race was no longer a significant predictor for non-adherence due to cost.
CONCLUSIONS: This 2003 national survey of seniors suggests that racial/ethnic disparities in non-adherence are largely explained by cost concerns and not by self-assessed need or differences in experience. The disparity in cost-related non-adherence persists even when accounting for the presence of drug coverage, but the relationship is substantially attenuated when income is taken into account. If physicians are going to be successful at reducing the racial disparities in chronic disease, prescription cost issues need to be explicitly and aggressively addressed in the clinic and in health policy, especially for the poor. This is particularly important as outreach efforts are underway to encourage low-income Medicare beneficiaries to sign up for subsidies for the new drug benefit.

RACIAL AND ETHNIC DIFFERENCES IN PREFERENCES FOR END-OF-LIFE TREATMENT. A.E. Barnato[1]; D.L. Anthony[2]; P.M. Gallagher[3]; J.S. Skinner[2]; F.J. Fowler[3]; E.S. Fisher[4]. [1]University of Pittsburgh, Pittsburgh, PA; [2]Dartmouth College, Hanover, NH; [3]University of Massachusetts at Boston, Boston, MA; [4]Dartmouth Medical School and the VA Outcomes Group,White River Junction,VT. *(Tracking ID # 154760)*

BACKGROUND: Blacks are more likely to die in the hospital, less likely to use hospice, and have higher overall spending in their last 12 months than whites. Many scholars have tried to explain these phenomena by citing differences in patient preferences, often based on local samples. We sought to confirm that preferences for end-of-life treatment exist by race/ethnicity in a national sample.
METHODS: We surveyed a national probability sample of fee-for-service Medicare beneficiaries over the age of 65. We asked respondents imagine that they had a very serious illness with less than 1 year to live and then asked them a series of questions about what their concerns and preferences would be in that situation. We compared concerns and preferences for blacks and Hispanics compared to non-Hispanic whites (NHWs) using Pearson's chi-square tests and multivariable logistic regression adjusted for socio-demographics, health status, and estimation of full recovery after MV.
RESULTS: 2,515 of 3,840 eligible sampled Medicare enrollees completed the survey, for a response rate of 65%. The mean age of respondents was 75.6 (SD 6.6), 42% were men, 87% NHW, 7% black , 5% Hispanic, 20% percent had less than a high school education, 27% were in fair or poor health, 29% reported that financial issues were very important in their decisions to get medical care, and 17% believed there was a 50% or greater chance of return to normal activities after MV. Compared to NHWs, blacks were less concerned about receiving too little treatment (26% vs. 46%, $p<0.0001$) and more concerned about receiving too much treatment (69% vs. 47%, $p<0.0001$) in the last year of life. And yet blacks preferred more intensive treatment than NHWs, including dying in the hospital (17% vs. 8%, $p<0.0001$), wanting drugs to prolong life despite making them feel worse all the time (29% vs. 15%, $p<0.0001$), not wanting palliative drugs that might shorten life (39% vs. 23%, $p<0.0001$), and wanting MV for 1 weeks' (26% vs. 11%, $p<0.0001$) or 1 months' (44% vs. 20%, $p<0.0001$) life extension. Hispanics were more likely than NHWs to prefer a hospital death (15% vs. 8%, $p=0.009$), to avoid potentially life-shortening palliative drugs (43% vs. 23%, $p<0.0001$), and to prefer MV for 1 weeks' (22% vs. 12%, $p<0.004$) or 1 months' (29% vs. 20%, $p=0.02$) life extension. In multivariable analyses, compared to NHWs, blacks were significantly less concerned about receiving too little treatment (OR=0.42[95% CI 0.31–0.55]), more concerned about receiving too much treatment (2.4[2.0–3.0]), more likely to prefer spending their last days in a hospital (1.8[1.01–3.4]), to receive life-prolonging drugs (1.9[1.2–3.0]), not to receive potentially life-shortening palliative drugs (2.0[1.3–2.9]), and to receive MV for 1 week (2.8[1.7–4.6]) or month's (3.2[2.6–4.0]) life extension. Hispanics were more likely not to want palliative life-shortening drugs 2.0[1.6–2.6] and were more likely to want MV for 1 week (1.9[1.2–2.9]) or month's life extension (1.6[1.1–2.3]). Belief in a 50% or greater chance of return to normal activities after MV was significantly associated with all measures of preferences for higher intensity treatment ($p<0.0001$).
CONCLUSIONS: Black and Hispanic Medicare enrollees prefer more intensive care at the end of life than NHWs. Optimistic expectations regarding the outcome of MV suggest that a misunderstanding of the effectiveness of intensive care may underlie some preferences for more intensive treatment.

RACIAL AND ETHNIC DIFFERENCES IN TREATMENT OF DEPRESSION: A SYSTEMATIC REVIEW. A. Cintron[1]; S. Morrison[1]. [1]Mount Sinai School of Medicine, New York, NY. *(Tracking ID # 153685)*

BACKGROUND: In response to growing awareness in the U.S. of the burden of disability associated with mental illness, the Surgeon General has renewed attention to the importance and urgency of treating and preventing depression. However, evidence suggests that obstacles still exist that may limit the use of mental health services by some Americans, particularly those from racial and ethnic minorities. Therefore, we conducted a systematic review of the literature describing the relationship between patient race/ethnicity and the assessment and treatment of depression.
METHODS: We conducted a MEDLINE search for peer-reviewed journal articles published in the U.S. between January 1, 1990 and December 31, 2005 using the following MeSH terms: depression, ethnic groups, and minority groups. We limited our search to journal articles focusing on the assessment and treatment of depression that made direct comparisons between adults from at least two different racial/ethnic backgrounds. We included studies describing current practice patterns, utilization of available treatments, treatment outcomes, and patient and provider knowledge, attitudes, and behaviors.
RESULTS: Our search identified eight studies directly addressing the effect of patient race/ethnicity on assessment and management of depression. Of these, five were cross-sectional surveys, two were secondary analyses of administrative databases, and one was a prospective cohort study. Despite investigational evidence that clinicians' ability to diagnose depression is not affected by patient race or ethnicity, evidence from current practice reveals that African Americans with depressive symptoms are less likely to be identified as depressed compared to whites with similar symptoms. Among patients with a diagnosis of depression, clinicians do not appear to differ in treatment recommendations by patient race/ethnicity. However, four studies revealed that African Americans were significantly less likely to receive antidepressant medications or any mental health care as compared to whites, while one showed similar rates of antidepressant use across these groups. Comparing Hispanics to whites, both analyses of administrative data demonstrated that Hispanics receive antidepressant medications at similar rates to whites, but a cross-sectional survey revealed that Hispanics are much less likely to take antidepressants than whites. A study of patient attitudes toward depression care revealed that African Americans and Hispanics were less likely than whites to find antidepressant medications acceptable even after controlling for other variables. Hispanics were more likely than other groups to find individual counseling acceptable. Hispanics were also significantly more likely to perceive individual counseling as more effective treatment than antidepressant medication. The only identified study on outcomes revealed that African Americans were more likely than whites to remit from depression despite continued disability and less likely to experience depression despite continued disability.
CONCLUSIONS: Despite evidence that clinicians' ability to diagnose depression and recommend appropriate therapy does not seem to be affected by patient race/ethnicity, racial and ethnic disparities exist in patient use of any mental health therapy, particularly antidepressants. These disparities may be driven by patient attitudes toward effective therapy for depression.

RACIAL AND ETHNIC DISPARITIES IN APPROPRIATENESS OF CAROTID ENDARTERECTOMY. E.A. Halm[1]; S. Tuhrim[1]; J. Wang[1]; M. Rojas[1]; E.L. Hannan[2]; M.R. Chassin[1]. [1]Mount Sinai School of Medicine, New York, NY; [2]University at Albany, SUNY, Albany, NY. *(Tracking ID # 153084)*

BACKGROUND: Most studies of health disparities have focused on underuse of effective care. It is often assumed that widespread under-use among minorities might protect against over-use of inappropriate care. Prior work showed that carotid endarterectomy (CEA), surgery to prevent stroke, is under-used among potentially eligible minority patients (Pts). The goal of this study was to assess whether among Pts who actually had carotid surgery there were disparities in over-use of services, i.e., Are population-based rates of inappropriate CEA in minorities the same or different compared to Whites?
METHODS: Using federal and state administrative billing data, we identified all Medicare Pts who underwent CEA (ICD-9 code 38.12) from 1/98 to 6/99 in NY State. Detailed clinical data on neurologic symptoms, % carotid stenosis, comorbidity risk, and surgeon complication rates were successfully abstracted from medical charts on 9588 cases (94% of eligible Pts). Appropriateness was based on a validated list of 1557 indications for CEA generated by national experts using the RAND appropriateness method which drew on published RCTs and national guidelines. Asymptomatic (ASX) Pts with high comorbidity were deemed inappropriate candidates because the peri-op risk of death and stroke outweighed the potential long-term benefits. Disparities in appropriateness were assessed with chi square tests and multiple logistic regression to control for other Pt and surgeon characteristics associated with inappropriate CEA.
RESULTS: Mean age was 75 years, 72.3% had ASX carotid disease and 27.8% had prior stroke or TIA. Overall, 93% of Pts were White, 2.5% Black, 2.2% Hispanic, and 2.3% other race/ethnicity. The 9588 CEAs were performed by 488 surgeons in 166 different hospitals. Rates of inappropriate surgery were higher in Hispanics (16.4%) and Blacks (12.4%) than for Whites (8.3%, $p<.001$). Disparities were greatest among ASX Pts (who have the least to gain from CEA compared to those with strokes or TIAs) where inappropriateness rates were 18.1% in Hispanics, 15.4% in Blacks, and 8.2% in Whites ($p<.0001$). The main reason for inappropriateness did not differ among the 3 groups—most were ASX Pts with high comorbidity. Among all Pts, more Hispanics and Blacks had high comorbidity (that made them inappropriate candidates) than did Whites (21.2%, 17.0%, and 10.6%, $p<.0001$). However, among Pts with high comorbidity, the percentage of inappropriateness was similar among the 3 groups (54.5%, 51.2%, and 48.7%, $p=.72$). In multivariate analyses that controlled for other Pt and surgeon factors associated with inappropriateness, Blacks and Hispanics had higher adjusted odds of inappropriate CEA compared with Whites (OR=1.58; CI, 1.09–2.30 and OR=2.14; CI, 1.50–3.06). However, additional multivariate models that adjusted for higher levels of comorbidity among minorities eliminated the disparity.
CONCLUSIONS: There appears to be a 'disparities double whammy' as CEA is both under-used and over-used in minorities. Minorities had higher rates of inappropriate CEA because more came to surgery with a high comorbid illness burden that increased their risk of complications to unacceptable levels (according to our expert panel and national guidelines). Further work is needed to understand the upstream factors that resulted in more high risk minority Pts being selected for surgery.

RACIAL DIFFERENCE IN INFLUENZA VACCINATION RATES FOR NORTH CAROLINA MEDICARE BENEFICIARIES AGED 65 YEARS AND OLDER. J.D. Joines[1]. [1]The University of North Carolina at Chapel Hill and the Moses Cone Health System, Greensboro, NC. *(Tracking ID # 157002)*

BACKGROUND: Immunization against influenza is an important component of preventive health care for older adults, yet vaccination rates have remained well below the 90% target set by the Healthy People 2010 Objectives for those aged 65 years and older. Surveys have also shown lower rates of influenza vaccination among African Americans compared to whites. In this study, Medicare claims data were used to assess county-level variability in vaccination rates for African American and white Medicare beneficiaries aged 65 years and older in North Carolina.
METHODS: Data on influenza vaccination rates by county of residence from 1995 to 2000 for North Carolina Medicare Part B fee-for-service beneficiaries aged 65 years and older were obtained from the Medical Review of North Carolina Surveillance Web Site; these data are based upon Medicare claims submitted for influenza virus vaccine and its administration during the last four months of each calendar year. Multiple linear regression analysis was used to model county-level influenza vaccination rates separately for African Americans and whites as a function of aggregate socioeconomic and health resource predictors.
RESULTS: Claims data for North Carolina Medicare beneficiaries aged 65 and older from 1995 to 2000 showed average statewide annual influenza vaccination rates of 49.2% for white beneficiaries and 25.5% for African American beneficiaries. Average county-level rates varied from 23.4% to 66.1% for whites and from 17.5% to 49.7% for African Americans. In multiple linear regression analysis, county-level predictors including income, poverty rate, percent high school graduates, percent urban population, and primary care physician density explained little of the variation in county-level vaccination rates for either African Americans or whites (R-squared ≤ 0.11). However, county-level vaccination rates for African Americans and whites were significantly correlated with each other (R-squared $=0.37$).
CONCLUSIONS: Medicare claims data indicated substantially lower influenza vaccination rates for African American beneficiaries compared to white beneficiaries aged 65 and older in North Carolina. For enrollees of either race, the variability in county-level vaccination rates was not explained by aggregate measures of income, poverty, education, urbanization, or primary care physician density. Counties with higher vaccination rates for whites tended to have higher rates for African Americans, suggesting that certain factors may similarly limit or facilitate access to vaccination for both African Americans and whites in specific counties.

RACIAL DIFFERENCES IN DIFFUSION OF NEWER AND OLDER CARDIAC TECHNOLOGIES AMONG COMMERCIAL MANAGED CARE PLANS. A.M. Fremont[1]; S. Wickstrom[2]; M. Shah[2]; J. Escarce[1]. [1]The RAND Corporation, Santa Monica, CA; [2]Ingenix, Eden Prairie, MN. *(Tracking ID # 157371)*

BACKGROUND: Recent studies of trends in use of cardiac technologies over suggest little change in the pattern of disparities. However, these studies have focused on Medicare patients over the age of 65. Relatively little is known about patterns of disparites in cardiac technologies over time among commercially insured adults. We examine changes in the use of cardiac technolgies and associated racial disparities during the last decade within a large commercial health plan.
METHODS: We obtained 7 years (1994–2000) of claims data from commercial managed care plans affiliated with a large health plan. . Eight diagnostic and therapeutic cardiac technolgies in varying stages of diffusion were identified: exercise stress test, radionuclide stress test, stress echo, coronary angiogram, coronary angioplasty, artherectomy, stent, and coronary artery bypass surgery. Annual cohorts were constructed based on enrollee age and having diagnoses that could reasonably lead to a diagnostic or therapeutic procedure. Eligible enrollees aged 45–64 from 17 health plans in 3 regions After sampling and geocoding, the analytic cohort size for the diagnostic technology cohorts was approximately 13,700 for each year. Analytic cohort sizes for therapeutic cohorts after geocoding (no sampling done) ranged from 2932 enrollees in 1994 to 8,712 in 2000. Validated measures of race (living in a predominantly black neighborhood) and SES (living in a high poverty neighborhood) were obtained by geocoding enrollees' address to Block-Group level Census data. Diffusion curves for each racial subgroup were constructed to assess differential patterns by technology over time. Unadjusted utilization rates for each cohort were compared using Chi-Square tests. Multiple logistic regression models adjusted for age, gender, race or SES (depending on the model), cardiac diagnoses, and plan.
RESULTS: Blacks were less likely than NonBlacks (Black-NonBlack RR$<.82$, P$<.05$) to receive 4 of 8 services: exercise stress test, radionuclide stress test, exercise echo, and cardiac stent. However, the pattern varied substantially by year and technology. For example, exercise stress tests, a well-established technology that was decreasingly used among NonBlacks over time, showed large racial disparities in 1994 (162 per 1000 for Blacks vs. 253 for NonBlacks, P$<.001$) that narrowed and became insignificant by 1998 (194 vs. 201, P$=.72$). In contrast, no disparities were apparent for stress echos until 1996 (27 vs. 47, P$=.03$) when the technology began to rapidly diffuse in the plans considered; the gap persisted through 2000 (70 vs. 101, P$=.02$). Similarly, once rapid diffusion of cardiac stents began, a racial disparity developed favoring NonBlacks and remained significant for 1997–2000 (1997 rate: 107 vs. 181, P$=.007$; 2000 rate: 173 vs. 252, P$<.001$). Adjusting for age, potential confounders did not alter the basic pattern of unadjusted results.
CONCLUSIONS: As in other recent studies we found persistent racial disparities for many cardiac technolgies. However, the pattern of disparities over time appeared was more complex among commercial enorollees than emphasized in previous studies involving Medicare patients. In particular, racial disparities varied depending on the stage of diffusion of the specific technology with larger disparities observed for relatively new and rapidly diffusing technologies (e.g. stress echo) and smaller or no disparities for more established technologies (e.g. CABG) or those with newer alternatives.

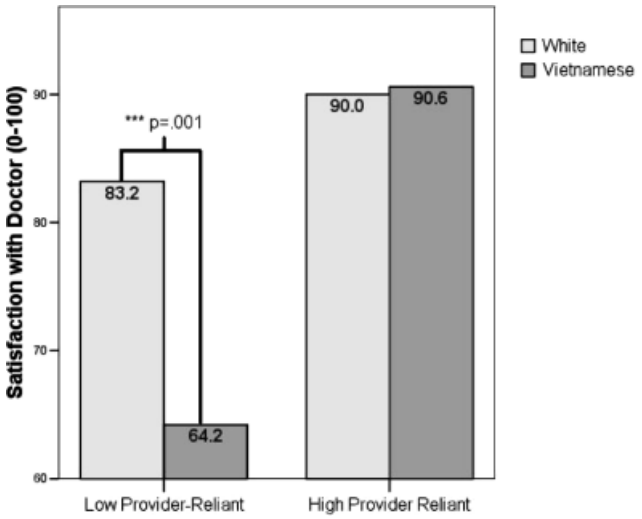
RACIAL DIFFERENCES IN DISTRUST IN CLINICAL RESEARCH AMONG ELDERLY WHITES AND ELDERLY AFRICAN AMERICANS. R.W. Durant[1]; A.T. Legedza[1]; G.M. Corbie-Smith[2]; M.B. Freeman[3]; B.E. Landon[4]. [1]Beth Israel Deaconess Medical Center, Boston, MA; [2]University of North Carolina at Chapel Hill, Chapel Hill, NC; [3]Hebrew Senior Life Research and Training Institute, Boston, MA; [4]Harvard University, Boston, MA. *(Tracking ID # 152506)*

BACKGROUND: Some previous studies have suggested that African Americans are more distrustful of clinical research than whites. It is not known, however, if African Americans' distrust in research arises from their historical and cultural perceptions of physicians and the health care system or from their relationships with individual physicians.
METHODS: We conducted a mail survey of community-dwelling elderly (age >50) whites and African Americans in the Boston metropolitan area. We assessed responses to 7 previously validated items from a distrust index examining attitudes about clinical research in terms of societal distrust (e.g. general perceptions of physicians and research) and interpersonal distrust (e.g. perceptions of research related to one's relationship with an individual physician). Trust in one's primary care provider (PCP) was assessed as an independent variable using the 8-item trust subscale from the Primary Care Assessment Survey (PCAS). Respondents were grouped into quartiles of trust in a PCP. We also examined other independent variables including sociodemographic factors, knowledge of the Tuskegee Syphilis Experiment, and personal experiences with discrimination in health care. We performed bivariable and multivariable analyses to examine the associations between these factors and responses to the items in the distrust in clinical research index.
RESULTS: We received responses from 829 eligible persons (58% response rate). The study population was 60% white and 40% African American. For two of the index items assessing societal distrust, African Americans were more likely than whites to think that they could potentially be "used as guinea pigs" without giving their permission (54% vs. 28%, p<0.0001) or to think that health care providers, in general, prescribe medications as a way of "experimenting on people without permission" (58% vs. 41%, p<0.0001). However, in the 3rd item assessing societal distrust, African Americans were less likely than whites to believe that they had actually ever received treatment from any health care provider as part of an experiment without giving permission (1.6% vs. 2.9%, p$=0.23$). There were no racial differences in responses to the index items focused on interpersonal distrust. In a multivariable model, African Americans (OR 2.6, 95% CI 1.9,3.7) and respondents with the least trust in their PCPs (OR 2.8, 95% CI 1.8,4.4) thought it was likely that they might be used as "guinea pigs" without permission. African American race (OR 1.9, 95% CI 1.3,2.6) and the lowest level of trust in one's PCP (OR 1.7, 95% CI 1.1,2.7) were also associated with concerns of unknowingly being involved in an experiment through the routine receipt of prescription medications. When trust in one's PCP was removed from these models, however, there was no significant change in the coefficient for African American race. Neither a history of discrimination in health care or knowledge of the Tuskegee Syphilis Experiment was significantly related to concerns about unwanted experimentation in any of the three societal distrust items in multivariable models.
CONCLUSIONS: Older African Americans have higher levels of societal distrust in clinical research compared to older whites, but there were no racial differences in interpersonal distrust. Race and trust in PCPs are independently related to societal distrust in clinical research. Improving African Americans' trust in their PCPs alone may not eliminate racial differences in societal distrust.

RACIAL DIFFERENCES IN HEALTH CARE EXPECTATIONS: RESULTS FROM A SAMPLE OF WHITE AND VIETNAMESE PATIENTS WITH DIABETES. Q. Ngo-Metzger[1]; D. Sorkin[1]; O. Chida[1]; B. Leong[1]; J. Sweningson[1]; M. Nguyen[1]; S. Greenfield[1]; S. Kaplan[1]. [1]University of California, Irvine, Irvine, CA. *(Tracking ID # 153858)*

BACKGROUND: Type 2 Diabetes is a chronic disease that requires providers and patients to effectively work together for optimal management. Two components that may affect health care expectations include patient's self-reliant and provider-reliant healthcare orientations. We sought to examine whether differences exist between white and Vietnamese patients in self-reliant and provider-reliant healthcare orientations, and examine their association to patient satisfaction.
METHODS: We conducted a cross-sectional survey of 240 patients with Type 2 Diabetes seen at three university-based practices. Self-reliant health care orientation (HCO) was measured using a three item scale that included questions such as whether patients tended to rely on self rather than clinicians for health care. Provider-reliant HCO was measured using a three item scale that included questions such as whether patients prefer that clinicians make all decisions about medical care. The main outcome of interest was satisfaction with provider. We conducted bivariate analyses to examine racial differences in healthcare orientations. We then conducted multivariable linear regression to examine the effects of race and healthcare orientations on satisfaction with provider (range 0–100, higher score is more satisfied), adjusting for patient age, gender, education, marital status, and self-rated health.

RESULTS: The sample was 30% non-Hispanic white and 70% Vietnamese. Compared to the white sample, Vietnamese patients were more likely to be less educated ($p=0.001$) and have worse self-rated health ($p=0.01$). There were no racial differences in patients' self-reliant HCO. However, Vietnamese patients were more likely to be provider-reliant compared to white patients (mean 80.6 vs. 56.0, range 0–100, $p<0.001$). Vietnamese patients also reported lower satisfaction with their providers. However, this racial difference was found only in patients who were not able to rely heavily on their providers for decision-making (low-provider reliant). There were no racial differences in satisfaction among those able to rely heavily on their providers. Multivariable analyses predicting satisfaction showed a significant race x provider-reliant interaction term ($p=0.001$).
CONCLUSIONS: Although Vietnamese and white patients have similar self-reliance levels in diabetes management, being able to also rely on the provider for decision-making is more important for patient satisfaction for Vietnamese than for white patients. Providers who are aware of cultural differences in health care orientations may be able to adapt their communication styles according to the expectations of the patients.



RACIAL DIFFERENCES IN LONG-TERM ADHERENCE TO GLUCOSE SELF-MONITORING AMONG PATIENTS INITIATING DIABETES MEDICATIONS IN AN HMO. C.M. Trinacty[1]; A.S. Adams[1]; S.B. Soumerai[1]; F. Zhang[1]; J.B. Meigs[2]; J.D. Piette[3]; D. Ross-Degnan[1]. [1]Harvard Medical School/Harvard Pilgrim Health Care, Boston, MA; [2]General Medicine Unit, Massachusetts General Hospital, Boston, MA; [3]University of Michigan Health Care System/HSR&D VA Ann Arbor Health Care System, Ann Arbor, MI. *(Tracking ID # 154683)*

BACKGROUND: Despite the importance of self-management, many diabetes patients fall short of recommended standards of self-care, particularly minority patients. Even in a managed care group practice where variations in quality of care and insurance are minimized, some blacks with diabetes have poorer glycemic control and face greater barriers to self-monitoring blood glucose (SMBG). Epidemiological evidence for the relationship between race and adherence to SMBG over time is limited. We evaluated racial differences in initiation, prevalence, and intensity of SMBG, and compared rates of adherence over five years using well-established guidelines for SMBG practice.
METHODS: Based on 10 years of computerized medical record and claims data, we used longitudinal survival methods and generalized estimating equations to examine racial differences in the incidence of SMBG (first test strip use), prevalence of SMBG (any test strip use), intensity of use (mean number of test strips), and rate of adherence to American Diabetes Association (ADA) standards for SMBG. Our study cohort included 2500 adult patients of black or white race initiating diabetes medications, who were insured by Harvard Pilgrim Health Care and receiving care within 14 multi-specialty health centers of a large staff model HMO.
RESULTS: We found racial differences in unadjusted SMBG initiation among patients using oral hypoglycemic medication, but no differences across racial groups among insulin users. Blacks on oral therapy initiated SMBG somewhat earlier from the start of drug therapy than white patients (Hazard Ratio $=1.2$, $p=0.002$). However, after controlling for key demographic, clinical, and service utilization covariates, these differences disappeared (HR $=0.95$, $p=0.7$). Irrespective of drug therapy group, discontinuation rates in SMBG use were greater among blacks than whites. For both racial groups, the prevalence of SMBG dropped sharply within the first year of initiation. Among insulin users, less than 70% of whites and blacks who had initiated SMBG continued self-monitoring in the second year; while only 56% of blacks and 62% of whites on oral therapy continued use. Prevalence of SMBG continued to decrease thereafter for both drug and race groups. Intensity of SMBG remained lower among blacks than whites in all years of follow-up (Rate Ratio: 0.52, $p<0.001$), with both racial groups monitoring well below ADA-recommended levels. Among insulin users, $<1\%$ of blacks and 10% of whites were self-monitoring 3 times per day (ADA recommended standard); only 36% whites and 10% blacks were self-monitoring at least once per day.
CONCLUSIONS: Among insulin therapy users, for whom there is a clear evidence-based standard, racial differences in glucose self-monitoring exist and persist within a health system that provides equal financial access to services. Racial differences do not exist in initiation of SMBG; however, large gaps are evident in sustainability and intensity of use over time. Early and continued emphasis on adherence to self-monitoring may be necessary to improve and maintain optimal levels of SMBG. Integration of additional culturally tailored interventions may reduce existing and persistent racial differences in SMBG practice.

RACIAL DIFFERENCES IN PERCEPTIONS OF BIAS AND PROFESSIONAL SATISFACTION AMONG ACADEMIC PHYSICIANS. E.G. Price[1]; N.R. Powe[2]; D.E. Kern[2]; S. Golden[2]; G.S. Wand[2]; L.A. Cooper[2]. [1]Tulane University School of Medicine, New Orleans, LA; [2]Johns Hopkins School of Medicine, Baltimore, MD. *(Tracking ID # 153950)*

BACKGROUND: Faculty perceptions regarding the diversity climate of an academic institution may either facilitate or hinder the institution's efforts to increase ethnic diversity. In a previous qualitative study we found that academic physicians believed visible dimensions of cultural diversity (race/ ethnicity, gender, and foreign-born status) often provoke bias and cumulative advantages or disadvantages in the workplace. To help our institution prioritize future activities to improve its diversity climate, we conducted a study to quantify differences between majority and minority faculty perceptions of bias and professional satisfaction.
METHODS: We conducted a cross-sectional survey of full-time, tenured or tenure track, faculty physicians with appointments in clinical departments for at least one year at a large, urban academic medical center. The questionnaire, developed from the qualitative study and administered June 2004 to September 2005, contained items regarding biases in department operational activities (e.g. recruitment practices, networking opportunities, ethnic diversity of colleagues) and professional satisfaction. We compared the perceptions and satisfaction of underrepresented minority (URM) and majority faculty using chi-square tests for differences in proportions.
RESULTS: Of 701 eligible faculty, 352 (50.4%) completed the survey. Compared to non-responders, a higher proportion of responders were women, ethnic minority, had attained senior status (associate or full professor), or were from non-surgical departments. Among responders, there were no significant differences between URMs and majority faculty in rank, gender or specialty; however, a higher proportion of URMs were foreign born (33% vs. 18%, $p=0.04$). Compared to majority faculty, a lower percentage of URMs believed that recruitment to their department occurs in an unbiased manner (23% vs. 52%, $p=0.03$), that they had full access to the same professional opportunities as their colleagues (43% vs. 67%, $p=0.04$), or that networking opportunities for career advancement included ethnic minorities (10% vs. 35%, $p<0.01$). A larger proportion of URMs believed that networking occurs in social settings compared to majority faculty (50% vs. 23%, $p=0.02$). Among women faculty, a lower percentage of URMs reported satisfaction with networking opportunities within the institution (17% URM vs. 39% majority, $p<0.001$); however, this was not observed among men faculty (72% URM vs. 70% majority, $p>0.05$). In contrast, there were no differences between URMs and majority faculty in satisfaction with outside networking opportunities. A much lower percentage of URM faculty reported satisfaction with the racial diversity of their colleagues (13% URM vs. 47% majority, $p<0.01$). While most faculty believed they would be working in academic medicine 5 years from now (87% URM vs. 84% majority), a lower percentage of URMs reported that they were likely to remain at the institution beyond 5 years (40% URM vs. 70% majority, $p<0.01$).
CONCLUSIONS: URM and majority faculty had disparate views about their opportunities for advancement and different levels of satisfaction with the degree of faculty diversity. In their efforts to promote an ethnically diverse faculty, academic medical institutions may wish to assess and address perceptions of bias and sufficient diversity among their URM faculty.

RACIAL/ETHNIC DIFFERENCES IN BARRIERS TO VACCINATION AGAINST HEPATITIS A AMONG PATIENTS WITH CHRONIC LIVER DISEASE DUE TO HEPATITIS C INFECTION. C.T. Tenner[1]; N. Shukla[1]; A. Aytaman[2]; G. Villanueva[3]; G. Punla[4]; C. Patterson[5]; J. Comas[2]; E.J. Bini[1]. [1]VA Medical Center/New York University School of Medicine, New York, NY; [2]VA Medical Center, Brooklyn, NY; [3]Bellevue Hospital Center & NYU School of Medicine, New York, NY; [4]VA Medical Center, New York, NY; [5]Bellevue Hospital Center, New York, NY. *(Tracking ID # 153286)*

BACKGROUND: Hepatitis A virus (HAV) superinfection is associated with a high risk of acute liver failure and death in patients with underlying chronic liver disease. Despite widespread recommendations from the Advisory Committee on Immunization Practices, National Institutes of Health, World Health Organization, and other expert panels to vaccinate all patients with chronic hepatitis C virus (HCV) infection against HAV, only 25% of susceptible patients have received at least one dose of the vaccine in clinical practice, and vaccination rates are even lower among racial/ethnic minorities. The aim of this study was to evaluate racial/ethnic differences in barriers to HAV vaccination among patients with chronic liver disease due to HCV infection.
METHODS: Patients with chronic HCV infection completed a detailed questionnaire at the time of their scheduled visit to the outpatient primary care or gastroenterology clinic at 3 study sites. Data collected included patient demographics, personal vaccination history, and barriers to vaccination.

RESULTS: Among the 819 patients enrolled, 195 were white, 352 were black, 165 were Hispanic, and 107 self-reported their race/ethnicity as other. Overall, 223 of the 819 patients (27.2%) were told by their doctor that they had been exposed to HAV, including 15.4% of whites, 29.5% of blacks, 35.8% of Hispanics, and 28.0% of other races ($P<0.001$). Among the 596 patients who were not previously exposed to HAV, only 157 (26.3%) reported that they received the vaccine, 343 (57.6%) were not vaccinated, and 96 (16.1%) did not know if they were vaccinated. The proportion of patients vaccinated against HAV differed significantly according to race/ethnicity (40.0% whites vs. 20.6% blacks vs. 19.8% Hispanics vs. 24.7% others; $P=0.001$). In the 343 subjects who were not vaccinated, the median number of self-reported barriers to HAV vaccination was 1 in whites, 3 in blacks, 3 in Hispanics, and 4 in other racial/ethnic groups ($P<0.001$). In addition, there were significant racial/ethnic differences in the types of barriers (see table).
CONCLUSIONS: Racial/ethnic minorities with chronic HCV infection are significantly less likely to be vaccinated against HAV and have more barriers to vaccination than whites. Public health programs to increase awareness of HAV vaccination and to overcome barriers to immunization are needed, especially among minority populations.

Self-Reported Barriers to Hepatitis A Vaccination

Barrier	White	Black	Hispanic	Other	P-Value
My doctor did not offer the vaccine to me	55.3%	57.1%	57.4%	65.1%	0.76
I am afraid of the vaccine	10.5%	27.6%	44.1%	25.6%	<0.001
I am afraid of needles	11.8%	18.6%	36.8%	30.2%	0.001
I don't like visiting the doctor	9.2%	8.3%	32.4%	11.6%	<0.001
I don't understand why I need the vaccine	26.3%	47.4%	51.5%	55.8%	0.003
I was feeling too sick	6.6%	9.6%	7.4%	25.6%	0.006
It takes me too long to get to my doctor	13.2%	15.4%	7.4%	9.3%	0.35
I did not know about the vaccine	36.8%	71.8%	73.5%	76.7%	<0.001
I could not afford to pay for the vaccine	18.4%	38.5%	50.0%	23.3%	<0.001

RACIAL/ETHNIC DIFFERENCES IN PATTERNS OF CARDIOVASCULAR DISEASE RISK FACTORS AMONG US IMMIGRANTS. D.L. Koya[1]; L.E. Egede[1]. [1]Medical University of South Carolina, Charleston, SC. *(Tracking ID # 152189)*

BACKGROUND: In spite of the rapid rise in the US immigrant population during the past three decades, there have been relatively few national studies on cardiovascular disease (CVD) risk factors in immigrant population. We analyzed data from the 2002 National Health Interview Survey (NHIS) to provide racial/ethnic differences in patterns of CVD risk factors among US immigrants.
METHODS: NHIS is a comprehensive nationally representative survey of US non-institutionalized civilian population. We analyzed data on 5,328 adult immigrants. We focused on three ethnic groups - Hispanic, White and Black. We identified 6 CVD risk factors - over weight/obesity, hypertension, diabetes, hyperlipidemia, smoking, and physical inactivity. Diabetes, hypertension, and hyperlipidemia were based on self-report. Overweight/obesity was defined as body mass index of 25+; physical inactivity was defined as no moderate/vigorous activity per week; and smoking was defined as currently smoking. We created a composite CVD risk score based on number of risk factors. STATA was used for statistical analysis to account for the complex survey design.
RESULTS: See table below
CONCLUSIONS: Patterns of CVD risk factors among US immigrants differ significantly by race/ethnicity. Physicians need to be aware of these racial differences in CVD risk factors. These differences need to be accounted for in developing tailored interventions for CVD risk reduction in immigrant population.

CVD risk factors by Race/Ethnicity

CVD Risk Factor	Hispanic (n=3,948) (%)	White (n=1,009) (%)	Black (n=371) (%)	p-Value
Over weight or Obesity	63.4	55.3	63.8	0.0004
Hypertension	15.8	21.9	18.7	0.0007
Diabetes	6.9	6.3	7.2	0.84
Hyperlipidemia	14.6	19.5	13.1	0.002
Current smoking	13.7	17.4	10	0.005
Physical inactivity	84	71.5	76	0.0000
Composite Risk Score (# of Risk Factors)				0.01
0	6.3	10.4	8.5	
1	31.5	30.3	30.6	
2	37.6	32.4	37.1	
3	16.7	17.8	15.3	
≥4	7.6	9	8.3	

RADICAL PROSTATECTOMY VOLUME AMONG U.S. UROLOGISTS. T. Denberg[1]; F. Kim[1]; T.V. Melhado[1]; J.F. Steiner[2]. [1]University of Colorado Health Sciences Center, Denver, CO; [2]University of Colorado Health Sciences Center, Aurora, CO. *(Tracking ID # 147093)*

BACKGROUND: In general, higher surgical volume is associated with better surgical outcomes. The number of radical prostatectomies (RP's) performed each year by individual U.S. urologists is unknown. The aim of this study is to describe sociodemographic and practice characteristics of U.S. urologists who treat prostate cancer and to relate these to prostatectomy volume.
METHODS: We carried out a mailed, nationally-representative survey of 2,000 urologists. The sample was derived from the AMA Masterfile and limited to urologists who are prescribers of hormonal therapies used exclusively in the treatment of prostate cancer. The survey included a $10 cash incentive and assessed urologist sociodemographic and clinical practice characteristics, including yearly RP volume.
RESULTS: The response rate was 65.9%. Respondents were overwhelmingly male (97.9%) and non-Latino white (83.3%), mean age was 52.8 years, mean years in practice was 19.5, 7.0% were in academic practice, 64.0% practiced in cities with fewer than 100,000 inhabitants, and 7.2% completed a fellowship in urologic oncology. Among urologists who perform RP, 84.1% do fewer than 30 per year (2.5/month), and 37.3% do fewer than 10 per year (1.2/month). Predictors of at least 30 RP's/year include academic practice ($p<0.0001$), hospital bed size >300 ($p<0.0001$), completion of urologic oncology fellowhip ($p<0.0001$), city size 100,000 ($p=0.003$), and 10–19 years in practice ($p<0.0001$).
CONCLUSIONS: A large majority of urologists perform relatively few RP's per year, raising concerns about surgical skill and impotence and incontinence outcomes. Additional study is needed to definitively link prostatectomy volume with such outcomes.

RADIOLOGIC EVALUATIONS AND INVASIVE PROCEDURES FOLLOWING BREAST-CONSERVING SURGERY IN A LARGE COHORT OF WOMEN WITH DUCTAL CARCINOMA IN SITU. L. Nekhlyudov[1]; L. Habel[2]; N. Achacoso[2]; I. Jung[1]; R. Haque[3]; S. Schnitt[4]; S.W. Fletcher[1]. [1]Harvard Medical School/Harvard Pilgrim Health Care, Boston, MA; [2]Kaiser Permanente Northern California, Oakland, CA; [3]Kaiser Permanente Southern California, Pasadena, CA; [4]Beth Israel Deaconess Medical Center, Boston, MA. *(Tracking ID # 153745)*

BACKGROUND: Although breast-conserving surgery has been found to be an effective treatment for ductal carcinoma in situ (DCIS), how much post-treatment breast surveillance women receive is not known. We assessed the rates of radiological evaluations and invasive procedures following completion of treatment in a cohort of 3,105 women diagnosed with DCIS.
METHODS: In three health maintenance organizations, we identified and reviewed the medical records of all women who were diagnosed with DCIS between 1990 and 2001 and were treated with breast-conserving surgery. We used descriptive statistics to assess the characteristics of the patient population, the rates of surveillance and diagnostic mammograms after completion of treatment, and the rates of invasive breast procedures performed during the years following treatment. Chi-square statistics were used to assess the associations between the rates and patient characteristics.
RESULTS: The 3,105 women with DCIS had a mean age of 58.3 years (standard deviation 11.4 years) and a median follow up 4.2 years (range 1.5–11.6 years). During the follow-up, 322 (10.7%) women developed recurrent DCIS or invasive breast cancer. Among all women in the cohort, a total of 13,864 mammograms were performed (mean 0.91 mammograms per person-year); 93% were surveillance (no prior abnormalities), 5% diagnostic (prior symptom or finding) and 2% unknown. The mammogram results were normal for 12,359 (89.1%), abnormal for 1,006 (7.3%) and unknown for 499 (3.6%). Of the abnormal mammograms, 88 (8.7%) resulted in a recurrent cancer diagnosis. Among 2,640 women with benign follow-ups and complete surgical data, a total of 522 invasive breast procedures were performed (mean 0.04 procedures per person-year). Approximately 50% were open biopsies; 30%, core needle biopsies; 15%, fine needle aspirations; and 4%, mastectomy. Younger age was related to both radiologic and surgical evaluations. Mammograms following DCIS were less common among women 70 years of age and older compared with women younger than 70 years (mean 0.83 vs. 0.93 per person-year, respectively, $p<0.0001$). Invasive surgical procedures were more common among women under age 50 compared to women 50 years and older (mean 0.05 vs. 0.03 per person-year, respectively, $p<0.0001$).
CONCLUSIONS: After breast-conserving treatment for DCIS, on average women received about one mammogram per year and 4 in 100 women underwent an invasive breast procedure per year. Compared to published data in healthy populations, it appears that women with DCIS treated with breast-conserving have higher frequencies of radiologic evaluations and invasive procedures, and that abnormal mammograms after DCIS are more likely to result in breast cancer diagnoses.

RANDOMIZED TRIAL OF A MULTIDIMENSIONAL EDUCATIONAL INTERVENTION TO IMPROVE ANTIBIOTIC USE FOR ADULTS WITH ACUTE RESPIRATORY TRACT INFECTIONS MANAGED IN THE EMERGENCY DEPARTMENT. J.P. Metlay[1]; C.A. Camargo, Jr[2]; T. MacKenzie[3]; C.E. McCulloch[4]; J. Maselli[4]; S.K. Levin[4]; A.S. Kersey[1]; R. Gonzales[4]. [1]VA Medical Center, Philadelphia, PA; [2]Massachusetts General Hospital, Boston, MA; [3]Denver Health and Hospital Authority, Denver, CO; [4]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 154436)*

BACKGROUND: We conducted a cluster randomized trial of hospital emergency departments (EDs) to evaluate the effectiveness of a provider and patient educational program targeting reduction in unnecessary antibiotic prescrip-

tions for acute respiratory tract infections (ARIs), particularly colds, nonspecific upper respiratory tract infections (URIs) and uncomplicated acute bronchitis. For these viral infections, antibiotic prescription rates should approach 0%.
METHODS: Sixteen hospitals were recruited nationwide, pairing Veterans Administration (VA) and non-federal hospitals within metropolitan regions. Four pairs of sites were randomized to receive the following intervention: provider education (practice guidelines) and performance feedback (antibiotic prescription rates for colds/URIs/bronchitis from the previous year); and patient education consisting of waiting room and examination room printed materials, as well as an interactive, bilingual (English and Spanish) informational video kiosk. Local opinion leaders conducted feedback and education sessions at each intervention site, however, the format of these sessions varied by site ranging from large faculty group sessions to small one-on-one sessions. Seven sites served as control sites (one of the non-federal hospital control sites dropped out of the study prior to baseline year data collection). Medical records of a random sample of 200 ARI visits from each site were abstracted from baseline (winter 2003/04) and intervention (winter 2004/05) periods. The primary measure of effect was the percentage of visits for colds, URIs and uncomplicated acute bronchitis that were treated with antibiotics, adjusting for differences between groups in case mix, patient sociodemographics, provider type and baseline year antibiotic treatment rates. Multivariable, alternating logistic regression models were used to account for provider- and hospital-level clustering.
RESULTS: Colds, URIs and uncomplicated acute bronchitis represented approximately 56% of total ARI visits that were abstracted across all sites and both periods (total number of visits reviewed with complete data =5665). The proportion of visits coded as URI or acute bronchitis did not change over time between intervention and control sites ($p=0.76$). In adjusted analyses, at control sites, antibiotic prescribing for URI/acute bronchitis remained stable at 47% of visits in both years. At intervention sites, antibiotic prescribing for the same diagnoses declined from 54% in the baseline year to 43% in the intervention year ($p=0.06$ for the comparison of the change in antibiotic prescribing at intervention vs. control sites). The intervention effect did not vary between VA vs. non-federal study sites ($p=0.25$). Similarly, there was no difference between intervention and control sites in changes in antibiotic prescriptions for antibiotic-responsive ARIs (sinusitis, pharyngitis, pneumonia, otitis media, and acute exacerbations of chronic bronchitis) ($p=0.42$).
CONCLUSIONS: Multidimensional educational interventions can have an important impact on reducing antibiotic overuse in the treatment of patients with ARIs managed in the ED. These interventions are effective in both VA and non-federal hospital ED settings. However, moderate antibiotic overuse persists despite these educational interventions.

RANDOMIZED TRIAL OF MINDFULNESS MEDITATION IN OLDER ADULTS FOR THE TREATMENT OF CHRONIC LOW BACK PAIN: 3-MONTH FOLLOW-UP. N.E. Morone[1]; D. Weiner[1]; C. Greco[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 153828)*

BACKGROUND: Chronic pain is a common condition among older adults that frequently is inadequately treated. Part of this is due to increased susceptibility to medication side effects. Complementary and Alternative Medicine techniques like mindfulness meditation offer a non-pharmacologic adjunct to conventional pain treatment. However, the success of any intervention for chronic pain lies not only in the immediate benefit of the intervention, but in its persistent benefit over time. We obtained 3-month follow-up data on older adults with chronic low back pain (CLBP) who had undergone a randomized controlled trial of a mindfulness meditation program.
METHODS: Thirty-seven older adults 65 years of age and older with CLBP were randomized to an 8-week mindfulness meditation program or a wait-list control group. The program was modeled on the Mindfulness-Based Stress Reduction program developed at the University of Massachusetts Medical Center. Participants met weekly for 90 minutes. Chronic pain was defined as moderate pain occurring daily or almost every day. Measures of pain (Chronic Pain Acceptance Questionnaire), function (SF-36 Physical Function scale) and attention (Trail Making Test B) were obtained at baseline, on completion of the 8-week program and on 3-month follow-up. Participants were given an additional 3-month follow-up questionnaire that included questions assessing any continued meditation. Significance of change between baseline and 8-week scores and between 8-week and 3-month scores was determined with a *t*-test.
RESULTS: There were a total of 25 participants assessed at 3-month follow-up. Nineteen (76%) continued to meditate, 18 (72%) had recommended the class to others, 16 (64%) reported they could "concentrate better" and 12 (48%) reported taking less pain medications. The Chronic Pain Acceptance Questionnaire and Physical Function scale of the SF-36 showed significant improvement between baseline and 8-week scores ($P=0.008$ and $P=0.03$ respectively) and maintained improvement at 3 months when compared to the 8 week scores. The Trail Making Test B did not show statistically significant improvement at 8-weeks, but showed borderline significant improvement at 3 months ($P=0.099$).
CONCLUSIONS: The majority of older adults continued to meditate 3 months after completing a mindfulness meditation program. They also maintained improvement on measures of pain and physical function and showed a trend toward improvement on a measure of attention. These findings suggest mindfulness meditation may potentially have on-going benefit as an adjunctive treatment for older adults with chronic low back pain.

RANDOMIZED TRIAL TO IMPROVE APPROPRIATE ASPIRIN USE IN PATIENTS WITH DIABETES. S.D. Persell[1]; T. Denecke-Dattalo[1]; D. Dunham[1]; D. Baker[1]. [1]Northwestern University, Chicago, IL. *(Tracking ID # 151670)*

BACKGROUND: Despite high cardiovascular risk, many adults with diabetes do not take aspirin. Information technology interventions targeting patients and physicians could increase appropriate prescribing beyond what is achieved through physician-directed approaches alone.
METHODS: We performed a cluster-randomized trial comparing two approaches to increase aspirin use: computerized reminders presented to clinicians at office visits alone and reminders plus an active intervention. We randomized consenting physicians from a large urban primary care practice to the two groups. Using data from the electronic medical record (EMR), we selected patients of participating physicians who had diabetes mellitus; were over age 40 years; did not have aspirin, another antiplatelet drug, or warfarin on their medication list; and did not have an allergy to aspirin or a non-steroidal anti-inflammatory drug. The active intervention consisted of 1) emailing physicians to ask whether aspirin was indicated for each patient, 2) mailing an information sheet to patients followed by a nurse telephone call to patients whose physician approved aspirin use and 3) prescribing aspirin by the nurse if she did not identify a contraindication. We randomized 19 physicians caring for 334 eligible patients. We assessed patient-reported regular aspirin use (daily or every other day) by phone at 4 to 6 months. Because the interventions were not expected to change aspirin use in current users or patients with contraindications, this outcome was also assessed for the subgroup of patients who did not report long-term aspirin use or a contraindication to aspirin. These intention-to-treat analyses used bivariable logistic regression with generalized estimating equations to account for clustering by physician.
RESULTS: Intervention group physicians answered 97% of emails and approved the intervention 64% of the time. We completed outcome assessment interviews for 242 patients (73% of intervention and 71% of reminder only patients). At follow up, regular aspirin use was reported by 60 of 130 (46%) intervention patients and 44 of 112 (39%) reminder only patients, a non-significant 7.2% difference (95% CI, −3.9 to 18 percentage points, $P=0.20$). In the subgroup reporting no aspirin use at baseline and no contraindications, 33 of 76 (43%) intervention and 22 of 74 (30%) reminder only patients used aspirin, a 10% difference accounting for clustering (95% CI, 2.2 to 18 percentage points, $P=0.013$). Of intervention patients interviewed by the nurse who were advised to start aspirin, 33/46 (72%) were taking it at the follow up assessment. Obstacles included: difficulty reaching patients by phone, real or perceived contraindications (29% of nonusers reported a medical reason for not taking aspirin), and failure to follow the nurse's advice.
CONCLUSIONS: A patient-directed intervention modestly increased aspirin use among diabetes patients beyond that achieved using computerized clinician reminders for ideal candidates. This effect is in addition to that achieved using clinician reminders alone. Logistic barriers, failure to follow the nurse's recommendation and contraindications to aspirin (real or perceived) limited the intervention's effectiveness. The beneficial effect of this patient-directed intervention is comparable in size to other quality improvement strategies, but future studies of this type of clinic-based disease management must explore ways to overcome the barriers we identified.

RAPID EVALUATION OF THE "AFGHAN FAMILY HEALTH BOOK" HEALTH EDUCATION TOOL: IMPACT ON KNOWLEDGE, ATTITUDES, AND PRACTICE. G. Kim[1]; S.Griffin[2]; L. Lawry[3]. [1]Brigham and Women's Hospital, Jamaica Plain, MA; [2]International Medical Corps, Santa Monica; [3]International Medical Corps, Santa Monica, CA. *(Tracking ID # 154622)*

BACKGROUND: Outreach by community health workers (CHW) is a standard public health educational intervention among rural Afghans. Despite community health education efforts, low levels of literacy remain a major impediment to the dissemination of public health knowledge. LeapFrog Enterprises Inc. and the US Department of Health and Human Services developed an interactive electronic book, the Afghan Family Health Book (AFHB), to communicate public health messages. We compared AFHB versus CHW for improvement in public health knowledge among rural, predominately illiterate Afghans.
METHODS: From January to June 2005, a baseline and follow-up panel survey was administered in Pashto-speaking Laghman and Dari-speaking Kabul provinces. Within each province, an intervention and a control district were randomly sampled using a stratified, two-staged cluster sample design. Over four districts, 98 clusters and 3372 households were sampled. Surveys were administered at baseline and on follow-up at three months. The survey tested knowledge of 17 public health domains, including reproductive health topics. Primary outcomes were pass rates for each health topic assessed at baseline and on follow-up. For each domain, we used multivariate logistic regression to assess the effect of the AFHB on follow-up pass rates controlling for demographics and differences in baseline knowledge.
RESULTS: At baseline, knowledge of immunizations and safety were consistently highest with over 90% pass rates in all four districts, while knowledge of malaria was lowest with average pass rates under 50% for all districts. Intervention groups had statistically significant improvements in 5 of 17 modules among Pashto-speakers and 6 of 17 modules among Dari-speakers in multivariate analyses ($p<.05$). Among the modules for which pass rates increased, malaria (65% for AHFB vs. 38% for CHW, $p<.0001$) and postpartum care (51% for AFHB vs. 33% for CHW, $p<.0001$) increased significantly for both language groups. In subset analyses comparing Pashto-speakers who received the AFHB, men had lower baseline knowledge and larger gains for immunizations and tuberculosis modules. Among Dari-speakers who received the AFHB, women had lower baseline knowledge and larger gains for malnutrition, safety, tuberculosis, upper respiratory infections, mental health, and peri-natal care.
CONCLUSIONS: The AFHB has potential to improve public health knowledge among rural Afghans. Participants, however, favored CWH over the AFHB, which they found poorly translated and difficult to use. Future efforts may benefit from attention to the nuances of local dialects in translation, pilot testing, integration with standard CHW teaching, and early integration with the Ministry of Health.

RATIONAL CLINICAL EXAM: DOES THIS PATIENT WITH HEADACHE HAVE A MIGRAINE OR NEED NEUROIMAGING?. M.E. Detsky[1]; D.R. McDonald[1]; M.O. Baerlocher[1]; G.A. Tomlinson[1]; D.C. McCrory[2]; D.L. Simel[2]; C.M. Booth[1]. [1]University of Toronto, Toronto, Ontario; [2]Duke University, Durham, NC. *(Tracking ID # 152168)*

BACKGROUND: In assessing the patient with headache clinicians are often faced with two important questions: 1) Is this headache a migraine? and 2) Does this patient require neuroimaging? The former has important therapeutic implications, and the latter is to determine if there is a significant intracranial abnormality. The objectives of this study were to evaluate the accuracy of the clinical examination in diagnosing migraine and in predicting the probability of a serious neurological lesion.
METHODS: A systematic review and meta-analysis was performed. Primary articles were identified through a search of the MEDLINE database (1966-November, 2005). Other data sources included reference lists from relevant articles and bibliographies from relevant textbooks. Articles included in this review were studies which assessed the performance characteristics of screening questions in diagnosing migraine with the International Headache Society diagnostic criteria as a gold standard. To address the neuroimaging question we searched for articles which evaluated the accuracy of the clinical examination in predicting the presence of underlying intracranial pathology with MRI/CT imaging as the reference standard. Two authors independently reviewed each article and abstracted the data to create 2 × 2 tables.
RESULTS: Four studies of screening questions for migraine (n=1745 patients) and 11 neuroimaging studies (n=3725 patients) met inclusion criteria. All four of the migraine studies illustrated high sensitivity and specificity if three or four criteria were met. The best predictors can be summarized by the mnemonic POUND (Pulsating, hOurs 4–72, Unilateral, Nausea, Disabling). If 4 of the 5 criteria are met the positive likelihood ratio is 23 (95% CI 1.5–387) and the negative likelihood ratio is 0.40 (95% CI 0.32–0.52). In the neuroimaging component of this study, several clinical features were found on pooled analysis to predict the presence of a serious intracranial abnormality. These included: an abnormal neurological exam (LR 5.3, 95% CI 2.4–11.6), normal neurologic exam (LR 0.7, 95% CI 0.6–0.8); cluster-type headache (LR 10.7, 95% CI 2.2–52.0); headache with aura (LR 3.2, 95% CI 1.6–6.6); having a headache that was an undefined type (i.e. not tension, cluster or migraine) (LR 3.8, 95% CI 2.0–7.1), having a headache of defined type (LR 0.7, 95% CI 0.4–1.0); headache with vomiting (LR 1.8, 95% CI 1.2–2.6), headache with no vomiting (LR 0.5, 95% CI 0.3–0.8); headache aggravated by exertion or a valsalva-like manoeuvre (LR 2.3, 95% CI 1.4–3.8), headache not aggravated by valsalva-like manoeuvre (LR 0.7, 95% CI 0.6–0.9). Finally, it was found that the diagnosis of migraine headache did not effectively rule in or rule out an intracranial lesion (LR 0.6, 95% CI 0.3–1.1).
CONCLUSIONS: The presence of 4 simple historical features can accurately rule in or rule out migraine. Several individual clinical features were found to be associated with a significant intracranial abnormality and patients with these features should undergo neuroimaging. However, data from the existing literature do not identify any individual, or combination of, features that effectively rule out these pathologies.

RCT OF A MAILED BROCHURE TO INCREASE ADHERENCE TO SCREENING COLONOSCOPY REFERRALS. T. Denberg[1]; T. Melhado[1]; J. Coombes[1]; L.E. Feinberg[1]; T. Byers[1]; A. Marcus[1]; J.F. Steiner[2]; D. Ahnen[1]. [1]University of Colorado Health Sciences Center, Denver, CO; [2]University of Colorado Health Sciences Center, Aurora, CO. *(Tracking ID # 151407)*

BACKGROUND: Even when primary care physicians (PCPs) have face-to-face discussions with patients prior to referral for screening colonoscopy, patient non-adherence is substantial, as high as 50% in prior studies. Often, PCPs seem to lack sufficient time to educate patients and address their potential misconceptions and fears about colorectal cancer (CRC) and colonoscopy.
METHODS: We developed a novel patient brochure that includes information about CRC and polyps, mentions similar lifetime risks for men and women, describes colonoscopy, including the preparation and the risk of perforation, and briefly reviews alternative screening tests. Within ten days of being referred for colonoscopy, we randomized 448 patients (274 women, 174 men) to receive by mail a version of the informative brochure mentioning the name of their PCP versus no brochure (usual care). We then compared the two groups in terms of adherence and days to complete a colonoscopy.
RESULTS: Overall adherence was 11.3% greater in the intervention group (69.0% vs. 57.6%, p=0.013). Among adherent patients, average days to complete a procedure was 10 fewer in the intervention group (60 vs. 70 days, p=0.009).
CONCLUSIONS: An inexpensive mailed brochure can dramatically boost patient adherence to PCP referral for screening colonoscopy, even when it explicitly mentions the risk of perforation and details about the preparation (a likely improvement in achieving truly informed consent).

REALISE STUDY: REAL LIFE SAFETY AND TOLERABILITY OF VARDENAFIL IN THE TREATMENT OF MEN WITH ERECTILE DYSFUNCTION. E. Cheng[1]; E. Goldfischer[2]; G. Karlin[3]. [1]State University of New York Health Science Center at Brooklyn, Brooklyn, NY; [2]Hudson Valley Urology, PC, Poughkeepsie, NY; [3]Lawrenceville Urology, Lawrenceville, NJ. *(Tracking ID # 154421)*

BACKGROUND: Data from clinical trials have shown that vardenafil is effective, safe, and well tolerated in men with erectile dysfunction (ED). This large postmarketing surveillance study was conducted to confirm the safety and tolerability of vardenafil in men with ED in real life conditions.
METHODS: A multicenter, open-label, prospective, observational study was conducted in 6740 centers in the United States, including 139 centers in Puerto Rico, between October 2003 and September 2004. Observation and assessment included an initial visit and 1 or 2 follow up visits up to 2 months after the first dose of vardenafil. Safety was assessed by adverse events (AEs). Subgroup analysis of patients receiving vardenafil concomitantly with alpha blockers focused on cardiovascular safety parameters, including dizziness, hypotension, syncope, stroke and myocardial infarction (MI).
RESULTS: Of the 30,010 men included in the safety/intention-to-treat analysis, 72% were white, 58% were between 50 and 70 years of age (mean age 56 years), and 74% had moderate-to-severe ED. Approximately 90% had ED >6 months duration and 62% had prior treatment with a phosphodiesterase type 5 inhibitor. The most frequently reported comorbidities included hypertension (HTN) (45%), dyslipidemia (30%) and diabetes (21%). Vardenafil treatment was well tolerated, with a physician-assessed rating of satisfied/very satisfied in 75% of men. AEs were primarily mild to moderate in intensity with an overall incidence rate of 8.7%. Headache (3.8%) and flushing (1.5%) were the most frequently reported AEs. Serious AEs, primarily in the cardiovascular (0.10%) and nervous (0.08%) systems were reported in only 0.4% of patients (113). AEs in 10 men (8 syncopes, 1 loss of consciousness, 1 MI) were considered possibly drug-related. A subpopulation of 316 men who were concomitantly treated with alpha blockers ranged in age from 42 to 89 years (mean age 65 years), with HTN (58%) and benign prostatic hyperplasia (36%) as key comorbidities. Tamsulosin (45%), terazosin (27%) and doxazosin (23%) were the most frequently used alpha blockers used by the 316 men. The rate of AEs reported by the men (10.8%) receiving alpha blockers was similar to men (8.7%) not on alpha blockers. Serious AEs occurred in 5 men: 3 dizziness, 1 loss of consciousness, and 1 decreased blood pressure. A small percentage (0.46%) of patients reported eye problems (eg, blurred vision, cyanopsia, conjunctival injection), but no loss of vision occurred.
CONCLUSIONS: Vardenafil is safe and well tolerated when used in real life conditions. Subgroup analysis of men receiving vardenafil concomitantly with alpha-blocker therapy showed a favorable cardiovascular safety profile.

REASONS FOR UNDERUSE OF EFFECTIVE BREAST CANCER TREATMENT: PATIENTS' PERSPECTIVES. N.A. Bickell[1]; K.N. Shastri[1]; K. Fei[1]; H. Leventhal[2]. [1]Mount Sinai School of Medicine, New York, NY; [2]Rutgers, The State University of New Jersey, New Brunswick, NJ. *(Tracking ID # 153876)*

BACKGROUND: To identify opportunities to improve the quality of breast cancer care, we surveyed women with breast cancer to understand why some do not undergo adjuvant therapies such as radiotherapy following lumpectomy, chemotherapy for hormone-receptor negative or hormonal therapy for hormone-receptor positive tumors ≥1 cm, respectively, therapies that have been proven to increase disease-free or overall survival. Underuse was defined as omission of these therapies.
METHODS: From a previous study of women with new primary stage I or II breast cancer surgically treated in 1999–2000, we identified & surveyed women with underuse of adjuvant therapies and a 4:1 control group of race-age matched treated women. Of the vulnerable population with underuse, 52% could not be found despite at least 20 attempts and 16% of eligible women refused. Of the treated matched-women, 30% were unreachable and 24% refused. Patient beliefs & experiences were compared between treated and underuse patients; underuse was based on patient report.
RESULTS: We surveyed 132 women about their breast cancer experiences and beliefs: 26 experienced underuse of beneficial adjuvant treatments and 106 were race-age matched and treated. On average, the women were 58 years, 29% were uninsured or had Medicaid, 45% were minority. The 26 women experienced 28 episodes of underuse: 4 had no RT, 8 no chemotherapy and 16 no hormonal therapy. There was no race, age, insurance or educational difference between treated and untreated women. We found lack of physician recommendation occurred in 3 of 4 women with omitted RT, 6 of 8 with omitted chemo & 9 of 16 with omitted hormonal therapies. Among patients for whom adjuvant treatment was recommended but did not occur, women thought therapy would be harmful. Compared to those who were treated, untreated women were more likely to report that their physician did not recommend treatment (65% vs. 8%; p<.0001), had less trust in their physician (mean score on 25 point scale=23 vs. 24; p<.05), and less belief that adjuvant treatments are effective (mean score on 25 point scale=19.5 vs. 21.2; p<.05). Logistic regression found that physician recommendation (OR=0.02; 95% CI: 0.01–0.10) and patient belief in treatment efficacy (OR=0.76 (95% CI: 0.63–0.91) are associated with underuse (model c=.89; p<.0001).
CONCLUSIONS: Lack of physician recommendation of adjuvant therapy played a big role in underuse of effective adjuvant treatment. Women with underuse are aware of the risks of adjuvant treatment but less likely to believe these treatments are beneficial. Efforts to improve cancer care should ensure recommendation of effective therapy and a balanced presentation of benefits and risks of treatment.

RECOGNITION AND REFERRAL OF CHRONIC KIDNEY DISEASE PATIENTS AMONG FAMILY PHYSICIANS, GENERAL INTERNISTS AND NEPHROLOGISTS: A NATIONAL STUDY. L.E. Boulware[1]; M.U. Troll[1]; N.R. Powe[1]. [1]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 156140)*

BACKGROUND: In the U.S. approximately 8 million patients have moderate to severe (stage 3 or 4 with GFR 15–60 mL/min/1.73 m^2) chronic kidney disease (CKD), but earlier than endstage renal disease (stage 5 with GFR<15). Many are

under the care of primary care physicians (PCPs) and some go undetected despite evidence indicating early identification and timely referral of patients with CKD to subspecialists is associated with improved clinical outcomes.
METHODS: We conducted a national study (7 mailings with telephone calls) of 178 randomly selected PCPs – 89 family physicians (FPs) and 89 general internal medicine physicians (GIMs) – as well as 126 randomly selected nephrologists (NEPs) identified through the AMA masterfile to assess: 1) generalists' and nephrologists' interest in participating in a CKD study; 2) how well they identify patients with worsening CKD; and 3) whether they appropriately recommend referral according to National Kidney Foundation practice guidelines. Physicians read a case study describing a patient with diabetes or hypertension and laboratory findings consistent with Kidney Disease Outcomes Quality Initiative stage 3 CKD progressing to stage 4 CKD with persistent proteinuria over 4 months. Using information provided (patient gender, race, age, serum creatinine, height, weight), physicians were asked to report the patient's stage of CKD and their recommendations for referral. We compared the percent of PCPs and NEPs correctly identifying patients' stage of CKD and recommending referral with adjustment for differences in physician characteristics (years in practice, practice setting and percent clinical time) using multiple logistic regression.
RESULTS: Of 959 eligible physicians, 304 responded who were no different from nonresponders with regard to age, gender, years in practice or geographic region; 39% NEPs vs 29% PCPs responded, $p<0.01$. FPs were more likely than GIMs and NEPs to practice in solo private practices (25% vs. 16% vs. 9%), and less likely to practice in university settings (11% vs. 24% vs. 32%). Overall, FPs were less likely than GIMs and GIMs less likely than NEPs to correctly identify CKD (56% vs. 71% vs. 96%, $p<0.01$, respectively) and both FPs and GIMs were less likely than NEPS to recommend referral (71% vs. 74% vs. 96%, $p<0.01$, respectively). By years of practice experience, FPs with >10 years (vs. 0–10 years) experience were least likely to correctly identify CKD compared to GIMs and NEPs with similar experience (adjusted percent (95% CI) for FPs: 56 (42–69) vs. 64 (46–79); GIMs: 76 (62–88) vs. 77 (62–77); NEPs: 99 (94–100) vs. 98 (91–100), p-trend <0.05). FPs and GIMs with >10 (vs. 0–10) years practice experience were least likely to recommend referral (adjusted percent (95% CI) for FPs: 67 (54–80) vs. 85 (68–94); GIMs: 69 (50–83) vs. 89 (76–95); NEPs: 99 (91–100) vs. 98 (91–100), p-trend <0.05).
CONCLUSIONS: FPs and GIMs (especially those with more practice experience) are less likely than nephrologists to correctly identify patients with CKD or to recommend appropriate referral according to current clinical practice guidelines. Generalists are also less likely to be interested in participating in a CKD study. Improved awareness, education, involvement of generalists in guideline development and dissemination of CKD guidelines to generalists may help improve the health of CKD patients.

RELATIONSHIP BETWEEN PATIENT CENTERED PROCESSES OF CARE AND RE-HOSPITALIZATIONS FOR CARDIAC EVENTS AFTER MYOCARDIAL INFARCTION. B. Sun[1]; P. Pantoja[2]; C. Setodji[2]; A. Fremont[2]. [1]University of California, Los Angeles, Los Angeles, CA; [2]RAND Health, Santa Monica, CA. *(Tracking ID # 153092)*

BACKGROUND: Hospital based surveys to assess patient-centered processes-of-care are becoming increasingly prevalent. However, the relationship between clinical outcomes and patient reported problems is unclear. We previously demonstrated that patient reported problems in non-technical aspects of care during an admission for myocardial infarction are associated with self-reports of chest pain and poor physical health. We examine the relationship between re-hospitalization for cardiac events and patient reported problems with hospital and subsequent ambulatory care in patients initially admitted for myocardial infarction.
METHODS: This is a prospective, cohort study of patients admitted for myocardial infarction at twenty-three New Hampshire hospitals during 1996 and 1997. Surveys asking about problems with inpatient and ambulatory care were mailed to patients 1 and 3 months after discharge, respectively. Patient responses were linked to 1996–2001 New Hampshire hospital discharge data. Patients with overall hospital care problem scores in the highest quartile were designated as receiving "worse" care, and other patients were classified as receiving "better" care. Outcomes included readmission for cardiac arrest, myocardial infarction, angina, congestive heart failure, arrhythmia, and stroke. Event rates in the "worse" and "better" care groups were compared after matching by propensity scores. Propensity scores were calculated by logistic regression using 15 covariates including demographic characteristics, self-reported physical and mental health status, co-morbid illnesses, receipt of cardiac bypass surgery or angioplasty at index admission, and duration of study participation. Sensitivity analyses included multivariate count models.
RESULTS: There were 2,272 enrolled patients. The 1-month surveys were completed by 1,346 (59%) enrolled patient, and the mean duration of follow-up was 155 months. Compared to responders, non-responders were more likely to be younger, report worse mental and total health, and have fewer co-morbidities. After matching by propensity score, there were no significant differences ($p>0.05$) on the 15 measured covariates between the "worse" and "better" hospital care groups. There was no significant difference in annual admission rate for cardiac problems between the two groups (-0.01, 95%CI: -0.06, 0.04). In exploratory analysis, we analyzed the 855 (39%) patients who completed both the 1- and 3- month surveys. We identified patients with reported problem scores in the top quartile for both hospital and ambulatory care and matched them by propensity score with patients reporting better care. There was no significant difference in the annual admission rate for cardiac problems between the two groups (-0.05, 95% CI; $-.05$,0.2). In sensitivity analyses using multivariate count models, we found no significant relationship between number of cardiac re-hospitalizations and hospital problem score, ambulatory problem score, and the interaction between hospital and ambulatory problem scores.
CONCLUSIONS: In a large cohort of patients experiencing myocardial infarction, we were unable to find a significant relationship between patient re-hospitalizations for cardiac events and reported problems with hospital and ambulatory care.

RELATIONSHIP BETWEEN PATIENT LOYALTY TO THEIR PHYSICIAN AND PROXIMITY OF THE MEDICAL PRACTICE: A NATURAL EXPERIMENT. M. Nidiri[1]; A. Gozu[1]; S.M. Wright[1]. [1]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 153171)*

BACKGROUND: Dundalk is a stable community of 62,000 people in the south-eastern part of Baltimore County. The median income in the area is $40,000 and the population is aging. This study used the preordained closure of a primary care practice to examine the factors that influenced the choices that were made by the affected elderly patients.
METHODS: We conducted a cross-sectional survey of patients older than sixty years that had previously received their primary care at the original practice. Prior to the closure, all patients were informed about the closure and they were invited to follow their primary care physicians (PCPs) to the new practice 11 miles away. Eight months after the closure, electronic databases were used to generate two lists of patients older than 60 years from the original office: (i) those that had followed their PCP to the new practice, and (ii) those that had chosen new PCPs at an affiliated clinic located near the primary site (2 miles away in the same community). From each of the two lists, 140 patients were randomly selected for inclusion in the study. These patients were mailed a 32-item questionnaire. Select elements addressed in the survey were demographic information including whether they drive and how they get to the doctor. These patients were mailed a 32-item questionnaire that collected demographic information, as well as data about health status (SF-12) and self-assessed driving ability (Drivers 55 Plus Self-Rating Form). Components of the survey also attempted to gain insight into the patients decisions regarding their choice to follow their PCP or to switch to the nearer practice. Comparisons between the two groups were made using Chi-square and *t*-tests.
RESULTS: The response rate was 64%, and 63% of respondents were female. Patients who switched to the near clinic were older (mean age: 75 versus 70 years, $p<0.01$), more likely to be using Medicare (73% versus 54%, $p=0.03$), and were more likely to be living alone (38% versus 18%, $p=0.03$) than those who followed their PCPs to the further clinic. Using the SF-12, there were no differences between the two groups on their 'mental competent scores' ($p=0.41$), however the 'physical competent scores' suggested that patients who chose the near clinic were more physically compromised (PCS score 36.8 versus 40.3, $p=0.05$). There were no differences between the patients who switched to the near clinic and those who followed their PCP to the further clinic in terms of marital status, annual income, number of comorbid conditions, number of prescribed medications, number of years they had known their PCP, their driving status, or their self-assessed driving ability (all $p>0.05$). Ninety-two percent of respondents "agreed" or "strongly agreed" that PCP's are 'important for coordinating my healthcare' and 86% believed that their PCP was more important than their specialists for their overall health.
CONCLUSIONS: The closing of an established primary care practice has important implications on the community, particularly the vulnerable elderly population. When physician loyalty is tested by the relocation of physicians, it may be hard to predict which patients will forgo convenience to remain with their physician.

RELATIONSHIP BETWEEN SMOKING AND OBESITY ACCORDING TO THE DAILY NUMBER OF CIGARETTES SMOKED. J. Cornuz[1]; A. Chiolero[2]. [1]University Hospital of Lausanne, Lausanne; [2]University of Lausanne, Lausanne, (*Tracking ID # 151932*)

BACKGROUND: Smoking increase metabolic rate and energy expenditure and may suppress the appetite. The vast majority of smokers gain weight after quitting. Smokers tend to cumulate risk behaviors, such as unhealthy diet or low physical activity, more frequently than non- or ex-smokers. Furthermore, the number of multiple risk behaviors increased strongly and steadily with daily cigarette consumption. Heavy smokers could be thus at an increased risk for obesity. We analysed the frequency of obesity according to smoking status, taking into account potential confounding factors (diet, physical activity and educational level).
METHODS: Data from the population-based Swiss Health Survey 2002 were used. Analyses were performed on 18′005 subjects aged equal or above 25 years [8′052 M, 9′953 F]. Cigarette smoking was categorised as light (1–9 cig/day), moderate (10–20 cig/day) or heavy (more than 20 cig/day). Subjects were defined as ex-smokers if they had smoked regularly for more than 6 months and did not smoke anymore. Body-mass index (BMI) was calculated as (self-reported) weight/(height)^2. Obesity was defined as a BMI above 30 kg/m^2. Low physical activity was defined as no vigorous physical activity during leisure time and low fruit/vegetable intake as no daily intake. Educational level was based on the highest degree completed.
RESULTS: In men, mean BMI was 25.1 kg/m^2 for non-smokers, 26.1 for ex-smokers, 24.6 for light smokers, 24.8 for moderate smokers and 25.3 for heavy smokers (ANOVA: $P<0.001$). In women these figures were 24.0 kg/m^2, 24.1, 22.9, 22,9 and 23.3 respectively ($P<0.001$). Nine percent of men and 8.2% of women were obese. Obesity was more frequent with increasing age, low physical activity, low fruit/vegetable intake and low educational level. Among smokers, the frequency of obesity increased with the number of cigarettes smoked, especially in men. In men, compared to non-smokers, the adjusted odds ratio

(OR) for obesity were 1.6 (95% CI: 1.3–2.0) for ex-smokers, 0.5 (0.3–0.9) for light smokers, 0.8 (0.5–1.2) for moderate smokers and 1.4 (1.0–1.8) for heavy-smokers. In women, the OR were 1.4 (1.1–1.7), 0.8 (0.6–1.1), 0.8 (0.6–1.1), and 1.1 (0.8–1.4) respectively.
CONCLUSIONS: Among male smokers obesity was positively associated with the daily number of cigarettes smoked, independently of potential confounding factors. Ex-smokers were more frequently obese in both genders.

RELATIONSHIP OF HEALTH STATUS AND PROSTATE-SPECIFIC ANTIGEN SCREENING AMONG ELDERLY VETERANS. L.C. Walter[1]; D. Bertenthal[1]; B. Konety[2]. [1]San Francisco VA Medical Center, San Francisco, CA; [2]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 150422)*

BACKGROUND: Most guidelines recommend that prostate-specific antigen (PSA) screening should not be performed in men who have a life expectancy <10 years because the known harms of screening outweigh the potential benefits. Therefore, this study was conducted to determine whether PSA screening is performed primarily in healthy elderly men with substantial life expectancies rather than in unhealthy elderly men with limited life expectancies.
METHODS: This is a cohort study of 597,642 men aged 70 years and older seen at 104 VA medical centers during fiscal years (FY) 2002 and 2003 who did not have a history of prostate cancer, elevated PSA, or prostate symptoms. The main outcome was receipt of PSA testing during FY2003 based on VA laboratory data and Medicare claims. Health status was measured by the Charlson-Deyo index using VA and Medicare claims in FY2002. Charlson scores were used to stratify older men into 3 groups, ranging from best health (score=0) to worst health (score >=4).
RESULTS: Mean age of subjects was 77 years; 7% were black. 56% of elderly men had a PSA test performed in FY2003. Although PSA rates decreased with advancing age, ranging from 64% in men aged 70–74 to 27% in men aged 90 years or more ($P<0.001$), within each 5-year age group the percentage of men with a PSA test did not substantially decline with worsening health. For example, among men aged 85–89, 36% in best health had a PSA test compared with 37% in the worst health. Although men aged 80 years or more in the worst health have less than a 10% chance of living 10 years, 11,386 (41%) of these men had a PSA test during FY2003. Among men aged 80 years or more in the worst health, factors most strongly associated with screening PSA included white race (OR 1.4, 95% CI 1.3–1.6), age 80–84 (OR 1.4, 95% CI 1.3–1.4), being married (OR 1.3, 95% CI 1.3–1.4), and living in the South (OR 1.3, 95% CI 1.2–1.4).
CONCLUSIONS: Rates of PSA screening are high among elderly veterans. PSA screening is not avoided by many unhealthy elderly men who have a life expectancy <10 years. Risk factors for inappropriate screening include white race, younger age, being married, and living in the South. PSA screening should be reduced in elderly veterans with limited life expectancies for whom the known risks of screening outweigh the low likelihood of benefit.

RELATIONSHIP OF PRIMARY CARE PANEL SIZE AND HEALTHCARE OUTCOMES IN THE VA. M.F. Mayo-Smith[1]; K. Frisbee[2]; C. Harvey[3]; T. Stefos[4]; J. Burgess[4]; M. Miller[5]. [1]VA New England Healthcare System, Manchester, NH; [2]Department of Veterans Affairs, Washington, DC; [3]Department of Veterans Affairs, Cary, NC; [4]Department of Veterans Affairs, Bedford, MA; [5]VA New England Healthcare System, Bedford, MA. *(Tracking ID # 153369)*

BACKGROUND: The Institute of Medicine has stressed the need to base health care on a strong primary care system as population based studies have shown clear correlations between the supply of primary care providers and better medical outcomes. However the relationship between the number of patients an individual primary care provider is responsible for (panel size) and healthcare outcomes is unknown. Improved understanding of this relationship would be of value for designing physician staffing standards in healthcare organizations and for guiding policies regarding primary care supply.
METHODS: Using established VA databases, we examined the relationship between average primary care panel size at 549 primary care sites to healthcare outcomes. Panel size was measured using standardized business rules set by national policy, and analyzed as both continuous and categorical (small <1000, medium 1000–1200, large >1200 patients) variables. Healthcare outcomes included timeliness measured by wait times for new patients. Patient satisfaction was measured using responses to a survey question on overall satisfaction with their VA health care. Quality was measured using results of structured chart reviews by trained reviewers from a contracted external agency. Eight evidence based quality indicators were studied, 4 preventive medicine and 4 chronic disease management, covering a range of conditions and type of interventions. Cost data was drawn from the VA's comprehensive cost accounting system. Costs for primary care services, including labor, supplies and overhead, were studied as well as total costs for all healthcare services. Multiple linear and logistical regressions were used to analyze the relationship between panel size and outcomes, controlling for characteristics of patient populations (age, sex, diagnoses, VA priority, insurance and self assessed health status) and practice site (number of support staff/provider, clinic rooms/provider, community vs. hospital based clinic).
RESULTS: Primary Care panel size was inversely related to access with longer wait times for new patients increasing from 29.7 days for smaller panels to 40.9 days with larger panels ($p<.0001$). No effect was seen on overall patient satisfaction, with an average score on a 7 point satisfaction scale of 6.07 for small, 6.05 for medium and 6.06 for large panels. Significantly better quality of care was seen with smaller panels for 6 of 8 quality measures: LDL levels after MI ($p<.001$), BP<140/90 in HTN ($p=.002$), timely diabetic eye exam ($p=.005$), colorectal cancer screening ($p=.002$), Pneumococcal vaccination ($p=.05$) and lipid screening ($p=.05$). No significant difference was seen with HgbA1c<9 in diabetics and alcohol screening. Both Primary Care and total costs decreased with increasing panel size, with average primary care cost going from $453/patient/year for small panels to $402 for large panels ($p<.001$) and average total costs from $4560 to $4072.
CONCLUSIONS: There are clear relationships between primary care panel size and healthcare outcomes in the VA. Smaller panels had improved timeliness and quality but increased cost. These findings can assist in decisions regarding primary care staffing by healthcare organizations and policy makers. Further investigation is needed on what components of care contribute to differences in total cost and whether these might be due to differences in intensity of practice style, intensity of illness or reliance on VA for obtaining all health care.

RELATIONSHIPS AMONG PATIENT PERCEPTION OF PROGNOSIS, TREATMENT AND DOCUMENTED AND COMMUNICATED CARE. K.E. Rosenfeld[1]; K. Lorenz[1]; M. Steckart[1]; D. Riopelle[1]; G. Wagner[2]. [1]Veterans Administration Greater Los Angeles Healthcare System, Los Angeles, CA; [2]The RAND Corporation, Santa Monica, CA. *(Tracking ID # 157038)*

BACKGROUND: Patient self-determination of care requires that patients understand their condition and prognosis and effectively formulate and communicate their care preferences. We sought to understand the degree these care processes are achieved, and the relationship among them in a sample of patients facing serious, life-limiting illness.
METHODS: Data were analyzed from baseline interviews administered to 154 inpatient veterans admitted with a physician-estimated one-year mortality > 25% who had enrolled in a randomized, controlled trial of palliative care case management.
RESULTS: Of the 154 patients enrolled, 99 (64%) were diagnosed with cancer and 67 (44%) had >50% estimated one-year mortality. Patients who believed they had a life-limiting illness (131/154, 85%) were more likely to report that their medical provider had communicated this to them compared to those who did not share that belief (72% vs. 23%, $p<.001$). Of the 154 enrollees, 59% believed that there was at least a "fair" chance that treatment would result in a cure, and 75% believed that there was a "good" or "excellent" chance that they would be alive in one year. There was a positive but small correlation ($r=.21$, $p<.01$) between physician prognostication and patient perception of one-year survival. Patients who understood that they had a life limiting illness were: less likely to believe they had an "excellent" or "good" chance of one-year mortality (71% vs. 100%, $p<.05$), more likely to have discussed their care preferences with their providers (56% vs. 21%, $p<.05$) and family (66% vs. 21%, $p<.01$), more likely to have chosen a surrogate decision maker (76% vs. 50%, $p<.05$), less likely to want mechanical ventilation (21% vs. 46%, $p<.05$) if their illness seriously worsened, and more likely to have a living will (37% vs. 14%, $p<.10$).
CONCLUSIONS: Among very seriously ill veteran inpatients, many lack an understanding of their illness and prognosis, which is associated with not communicating and documenting their care preferences. It is important that providers communicate with these patients about the life limiting nature of their illness and likely outcomes of treatment.

RELATIONSHIPS BETWEEN SUBJECTIVE HEALTH STATUS AND OBJECTIVE HEALTH MEASURES: IMPLICATIONS FOR ASSESSING RACIAL AND ETHNIC HEALTH DISPARITIES. J.J. Sudano[1]; P.K. Murray[1]; G. Huber[2]; B. Ruo[2]; T.E. Love[1]; D.W. Baker[2]. [1]Case Western Reserve University, Cleveland, OH; [2]Northwestern University, Chicago, IL. *(Tracking ID # 156251)*

BACKGROUND: To accurately assess racial/ethnic differences in health status, it is essential to use instruments that are "unbiased and equivalent" across racial/ethnic groups. We conducted this study to compare self-reported physical and mental health with performance-based measures of physical functioning.
METHODS: We recruited 170 adults (ages 45–64) from academic health center outpatient clinics in two large urban areas. Subjective health status was measured using the SF-36v2. We also asked subjects about work and household physical demands, social support (modified 5-item Medical Outcomes Study scale), and neighborhood safety. Subjects complete 12 performance-based measures (PBM) of physical functioning, including a 1-leg balance test, repeated arm curls, repeated chair rise, timed stair climb, dexterity test, cardio-respiratory endurance test, grip strength, upper and lower body strength, 10-meter fast walk, and 2 tests of musculo-skeletal flexibility. The administration of the survey and performance-based measures took approximately 45 minutes. We calculated the physical component summary (PCS) and mental component summary (MCS), of the SF-36v2 according to published scoring systems. We standardized each PBM, summed them, and transformed this sum to have a mean of 50 and standard deviation of 10 (PBMstd). Mean scores for the PCS, MCS, and PBMstd were calculated and differences between means for white and black patients compared using t-tests. Pearson correlation coefficients for the PCS, MCS, and PBMstd were then calculated along with the correlation between the MCS and social support.
RESULTS: A total of 99 whites and 71 blacks participated. The mean age was 53.5 overall and was similar for the two groups. Whites had more education, were more likely to be working for pay, and higher household incomes compared to blacks. Mean scores and standard deviations (SD) for whites and blacks, respectively, were 49.7 (SD=8.0) and 49.8 (SD=8.9) for the PCS ($p=0.91$ for difference), 50.5 (SD=11.4) and 51.5 (SD=11.5) for the MCS ($p=0.56$ for difference), and 50.2 (SD=3.5) and 49.8 (SD=3.8) for the PBMstd ($p=0.50$ for difference). The correlation between the PCS and the PBMstd was moderate

(0.47) for whites and somewhat lower for blacks (0.35). The correlation between the MCS and the PBMstd was negligible for whites (0.12) and somewhat higher for blacks (0.27). The relationship between social support and the MCS was similar for whites and blacks (0.43 and 0.48, respectively). None of the white/black sets of correlations were statistically significantly different.
CONCLUSIONS: These results suggest similar racial/ethnic group mean structures across both the subjective and objective measures in this clinical sample of older, working age adults. Moreover, race had no significant impact on any of the 3 sets of associations we examined. Future analyses will assess measurement equivalence by analyzing differences in the factor structure (covariance and correlation matrix, factor loadings, etc) across groups and by multivariate analysis of the relative effect of the PBMstd on PCS and MCS, controlling for other factors. This health status battery shows promise as a practical tool to measure several dimensions of health status for a varied patient population. Future results will also incorporate English and Spanish-speaking Hispanic subjects.

RELEASE FROM PRISON: A HIGH-RISK TIME FOR DEATH?. I. Binswanger[1]; M.F. Stern[2]; R.A. Deyo[3]; P.J. Heagerty[4]; A. Cheadle[4]; J.G. Elmore[3]; T.D. Koepsell[1]. [1]VA Puget Sound/University of Washington, Seattle, WA; [2]State of Washington Department of Corrections, Olympia, WA; [3]University of Washington/Harborview Medical Center, Seattle, WA; [4]University of Washington, Seattle, WA. *(Tracking ID # 151898)*

BACKGROUND: There are over 5.6 million former adult prisoners in the US and nearly 600,000 releases from prisons a year. Studies outside the US have suggested that mortality may be unusually high in the post-release period, but little research has been done on the health of former prisoners in the US. Thirty-two percent of African American men, 17% of Latino men and 3% of white men are likely to go to prison during their lifetimes, so post-release mortality may have a disproportionate impact on African Americans and Latino communities. The aims of this study were to determine mortality rates after release from prison and the causes of death, to compare the mortality rates for released inmates to those of other state residents of similar age, race and gender, and to determine the high-risk times for death.
METHODS: We performed a retrospective cohort study of all inmates (n=30,636) released from the State of Washington Department of Corrections between July 1999 and December 2003. Inmates under 18 (n=50), releases due to death in prison or execution (n=143), deaths during community placement for grave medical illness (n=5), deaths with erroneous data (n=32) and releases with missing data (n=155) were excluded from further analyses. Personal identifiers and all aliases, obtained from the electronic prison records, were linked to the National Death Index-Plus to determine deaths and causes of death during the study period. Comparison data for Washington State residents were obtained from CDC Wonder. Time during a return to prison after the first release did not count towards person-time at risk. Poisson regression was used to compare death rates among released inmates with other Washington State residents, adjusted for age, gender and race.
RESULTS: Of 30,257 released inmates, 443 (1.5%) died after release during a mean follow-up time of 1.9 years. The mean age at death was 40 years. Overall, the mortality rate was 772/100,000 person-years, which was 2.8-fold (95% CI 2.5, 3.0) higher than other Washington State residents (275/100,000), adjusted for age, gender and race. In the first 2 weeks after release, the mortality rate was 2,186/100,000 person-years, which was 10.1-fold (95% CI 7.3, 13.8) higher than other Washington residents. Accidental poisoning by drugs and other biological substances (drug overdose) represented nearly a quarter (n=103) of all deaths. In the first two weeks after release, the relative risk of death from drug overdose compared to other Washingtonians was 149 (95% CI 95, 229). Other leading causes of death were cardiovascular disease (13%), homicide (12%), suicide (9%), and cancer (9%). Lung cancer represented nearly half of all cancer deaths in this population.
CONCLUSIONS: Former prisoners are at strikingly high risk for death after release from prison, particularly in the first two weeks after release. Mortality rates after release are several times higher than both adjusted Washington state rates and reported national mortality rates in prison (243/100,000 person-years). Drug overdose, cardiovascular disease, homicide, and suicide represent significant risks to this population. General internists in the community will care for former prisoners when they return to their home communities and should be aware of the risks associated with the transition out of prison. These results demonstrate the urgent need for interventions and policies designed to reduce the risk of death after release from prison.

RESEARCH FEASIBILITY GROUP: PERCEPTION OF SUCCESSFUL OR FAILED CLINICAL TRIALS. S.H. Yale[1]; M. Holcomb[2]; G. Ingrid[1]; L. Hong[1]; G. Stu[3]. [1]Marshfield Clinic and Marshfield Clinic Research Foundation, Marshfield, WI; [2]Marshfield Clinic, Marshfield, WI; [3]Marshfield Clinic Research Foundation, Marshfield, WI. *(Tracking ID # 153468)*

BACKGROUND: Conducting a successful clinical research trial is a complex process. The evaluation of a new protocol is an important first step in determining whether a prospective clinical research trial will recruit the expected number of patients in the allocated period of time. Our research feasibility group comprised of a principle and co-investigator(s), a clinical research manager, an investigational drug pharmacist, and a clinical research coordinator is responsible for assessing all new clinical trials. We developed a protocol assessment feasibility tool to aide in predicting successful industry-sponsored clinical trials.
METHODS: A 67-item questionnaire was developed focusing on 5 specific domains: the trials' key sponsors, the institution conducting the research, the Institutional Review Board, the patient population, and the trials' protocols and procedures. Fifteen industry-sponsored clinical trials that had been successful (i.e., met study enrollment goals within the designated time) and 15 industry-sponsored clinical trials that were unsuccessful (i.e., did not meet study enrollment goals within the designated time) were identified and randomly assigned for review by our research feasibility group. Each member of the feasibility group was asked to complete the 67-item questionnaire for each of their assigned clinical trials.
RESULTS: The content validity of each of the 67 items of the questionnaire was computed and was used to select or eliminate items from the questionnaire. All items without a statistically significant nor high content validity (i.e. p-value >0.05 or $r<0.44$) were eliminated. Twenty questions with statistically significant high content validity (i.e. p-value <0.01 and $r >= 0.50$) were retained. The internal consistency reliability for the 20 retained items (raw variables) was 0.95. The Wilcoxon Rank-Sum test revealed a significant difference in the total scores of the final 20-item questionnaire between successful and failed clinical trial groups (p-value=0.0294, mean of successful group=73.79 and median=74.58; mean of unsuccessful group=70.43 and median=71.50). A total score of 70 was used as a cutoff to classify the successful and unsuccessful clinical trials (i.e., a trial with a total score greater than 70 was classified as successful). This cutoff correctly classified 70% of the trials, with a sensitivity of 0.93 and a specificity of 0.47.
CONCLUSIONS: Initial piloting of this assessment tool demonstrated ability of the tool to discriminate potentially successful and unsuccessful clinical trials. However, further testing is necessary to define sensitivity limits and tool validity.

RESIDENT ATTITUDES TOWARD A SYSTEMS-BASED PATIENT SAFETY EDUCATION PROGRAM. N. May[1]; J.D. Voss[1]; J. Schectman[1]; M.L. Plews-Ogan[1]. [1]University of Virginia, Charlottesville, VA. *(Tracking ID # 156895)*

BACKGROUND: If the patient safety movement is to succeed, we must incorporate participatory training early in physicians' careers while simultaneously addressing the culture of safety and quality improvement. This is proving to be a daunting task. As part of an ongoing evaluation of our new residency patient safety curriculum, we began conducting annual interviews with residents to improve the curriculum and to better understand its impact on residents' practice of medicine.
METHODS: All 2nd-year medicine residents participate in an 8-session curriculum in systems-based practice and practice-based learning and improvement during their ambulatory rotations. Three sessions are devoted to a hands-on patient safety experience that includes didactic instruction, individual investigations of a reported error or near-miss, and presentation of their findings to the clinic's Patient Safety Committee. All residents who completed the root cause analysis and investigation were contacted for the interview study. Of the 15 eligible residents, 13 participated in in-depth interviews. All interviews were audio taped.
RESULTS: Although residents were generally able to discuss patient safety from a systems rather than an individual blame-and-shame perspective, their actual behavior rarely incorporated the systems approach to patient safety. Few residents completed incident reports before or after the training, although they did feel the training would be useful when they were in their own practices with more control over processes of care. The training was intended, in part, to empower residents to make change, yet it often resulted in frustration that change was neither easily initiated nor lasting. Residents identified barriers to behavior change that included (1) the physicians' innate sense of individual responsibility to address the problem themselves; (2) flaws in the mechanics of the reporting system; (3) the belief that someone else, generally a nurse, will report the event; (4) fear that even an investigation of a near miss might reveal the residents' own mistakes; (5) the complexity of a systems approach and (6) diminished willingness to participate in the safety process because their stay at the institution will be limited.
CONCLUSIONS: The study suggests that successful change implementation must be part of the educational experience if residents are to truly embrace the systems approach to patient safety as learners and physicians. Culture change must continually be a focus of institutions committed to teaching and improving patient safety. Resident physicians can be a valuable resource as we examine new curricular innovations to address patient safety and the new ACGME competency requirements. We have used results from this study to improve the curriculum, adding a change implementation project for all learners.

RESIDENT PHYSICIANS' ABILITY TO ESTIMATE PATIENT LEVEL OF HEALTH LITERACY. A.G. Pereira[1]; T. Kurvers[1]; M.A. Pereira[2]. [1]Hennepin County Medical Center, Minneapolis, MN; [2]University of Minnesota, Division of Epidemiology and Community Health, Minneapolis, MN. *(Tracking ID # 152039)*

BACKGROUND: Patients' low health literacy is a marker for poor health outcomes, and many patients with low health literacy are too ashamed to disclose their literacy level to their physicians. To inform the current debate on whether patients should be screened for low health literacy during routine visits with primary care physicians (PCPs), it is important to explore whether PCPs can estimate their patients' health literacy.
METHODS: To determine how well internal medicine resident PCPs were able to estimate their patients' health literacy, we conducted a survey of English-speaking patients in a safety-net hospital-based ambulatory care clinic, from June to November, 2005. After a visit with their PCP, the patients' health literacy was measured with the Rapid Estimate of Adult Literacy in Medicine (REALM).

PCPs were asked to estimate their patient's health literacy using four REALM grade categories.
RESULTS: Surveys were completed on 289 patients who saw one of 76 PCPs. 170 (59%) of the patients were male, and average age was 49 (± 13). The majority of patients described themselves as African American (n=133, 47%) or white (n=119, 42%). 279 (93%) had completed at least nine years of education. 69 (24%) were employed, and 106 (37%) were disabled. 242 (84%) reported an annual household income less than $30,000. 174 (60%) were insured by Medicaid and 79 (27%) by Medicare. 150 (52%) reported being in fair or poor health. 5% of patients had REALM scores <3rd grade reading level, 12% 3rd to 6th grade, 32% 7th to 8th grade, and 51% > =9th grade. White patients had higher reading levels than non-white patients (p=0.0001). PCPs correctly estimated 121 (44%) patients' reading levels. However, PCP estimates were less likely to be correct for low literate (<9th grade level) patients (36% correct) than for high (75%) (p<0.0001), and for non-white patients (42% correct) than for white (69%) (p<0.0001). PCPs were much more likely to overestimate literacy in the least literate patients (<3rd grade) than to underestimate literacy in the most literate patients (9th grade or above) (77% vs. 36%, p=0.0003). Physician gender was not associated with ability to predict patient literacy levels (p=0.7). There was a trend toward better PCP prediction of patient literacy with more post-graduate training (PGY1 36% correct, PGY2 38%, PGY3 48%, p=0.11).
CONCLUSIONS: In this preliminary study, resident PCPs were unable to accurately predict patient health literacy, particularly in low literate patients where there was considerable overestimation, and in non-white patients. These results suggest that we need to improve resident PCP awareness of the high prevalence of low health literacy. They also raise concern that residents may not be communicating at a level their patients are able to understand.

RESIDENT PHYSICIANS' KNOWLEDGE AND ATTITUDES ABOUT HEALTH DISPARITIES AND THE U.S. HEALTH CARE SYSTEM. R. Manchanda[1]; A.P. Mahajan[1]; H. Fernandez[1]; A. Kuo[1]; M.F. Shapiro[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 154157)*

BACKGROUND: The SGIM's Reforming Residency Task Force and other organizations emphasize the need for residency to incorporate training in reducing health disparities. To date, training strategies largely emphasize cultural competency training as a mechanism of addressing disparities. However, few reported studies have examined residents' knowledge and attitudes regarding other societal and health system factors that contribute to health disparities.
Objectives: To determine Los Angeles County (LAC) resident physicians' 1) knowledge and attitudes regarding health disparities and the health care system, and 2) perceptions of their preparedness, training, and willingness to address cultural, social, and system factors that perpetuate health disparities.
METHODS: From December 2005 through April 2006, a confidential, anonymous, and voluntary survey will be offered to all Internal Medicine, Pediatric, Combined Internal Medicine/Pediatrics, and Family Medicine residents in each of the academic medical centers of LAC. The survey consists of 90 multiple choice questions.
RESULTS: Surveys have been collected from one academic medical center with 76 respondents to date. The large majority of respondents felt that it is 'important' to 'very important' for residents planning to work in either primary care (98%) or subspecialties (84%) to understand health disparities. However, the majority of respondents felt only 'somewhat prepared' or 'not prepared' to care for patients who are unable to speak or understand English well (59%), who are uninsured (58%), who have limited health literacy (61%), and who have income below the poverty line (53%). While a large majority of respondents felt that systems based practice skills such as understanding the features and eligibility requirements of public health insurance programs (85%) are important to their future plans for medical practice, only 21 respondents (18%) report receiving at least some training on this topic. 90% of respondents are willing to replace one noon conference (or similar didactic session) per month that usually focuses on a traditional clinical topic with one that focuses on a health disparities issue. 36% of respondents are willing to accept at least a $20,000 reduction in their future annual salary to absorb the cost of caring for traditionally underserved patients (such as the uninsured or Medicaid patients) in their clinical practice. Only about one-third of respondents could correctly answer at least 7 out of 10 basic questions regarding the health care system and health disparities.
CONCLUSIONS: Despite resident physicians' beliefs that specific skills in reducing health disparities are important to their training and future plans, their self-perceived preparedness to care for the underserved is limited. This in part may be a reflection of limited educational experiences on health disparities or the U.S. health care system. Residents' willingness to substitute portions of the clinical curriculum with health disparities training and to contribute a substantial portion of future earnings to help care for underserved patients and ensure universal coverage reflect a previously undocumented commitment to these issues. Residency programs should make greater efforts to develop curricular innovations in health disparities education and caring for underserved populations in order to train physicians with the knowledge and skills to reduce health disparities.

RESIDENT WELL-BEING: CONSEQUENCES FOR PATIENT RELATIONSHIPS, COLLEAGUE INTERACTIONS, PERFORMANCE, AND MOTIVATION. N. Ratanawongsa[1]; J.A. Carrese[1]; S.M. Wright[1]. [1]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 151351)*

BACKGROUND: Physician well-being has become a priority for the Accreditation Council for Graduate Medical Education. Although previous studies have suggested a potential relationship between residents' well-being and their capacity for providing clinical care, the quantitative scales used primarily focus on negative well-being, such as burnout or depression. We conducted this qualitative study to explore residents' conceptions of well-being and their perceptions of how their well-being status affects their work.
METHODS: One investigator conducted 45-minute semi-structured interviews with residents from 9 residency programs at 2 academic medical centers from February to June 2005. Using random sampling stratified by program and gender, 49 residents were approached for recruitment, and 26 consented. The semi-structured interview instrument was designed to elicit descriptions of well-being in residency and factors related to its promotion or reduction. Using grounded theory content analysis, 3 investigators independently coded 6 randomly-selected transcripts to develop a coding template. All remaining transcripts were coded by at least 2 investigators using this template. Final template coding categories and their application to the transcripts were discussed and agreed upon by consensus.
RESULTS: The 26 respondents were from the following programs: internal medicine (38%, 3 different programs); psychiatry (15%); surgery and emergency medicine (12% each); and anesthesia, obstetrics/gynecology, and pediatrics (8% each). 54% of respondents were women, and 19% were interns. A major theme that emerged was the impact of fluctuating well-being on 4 elements of residents' work: patient relationships, colleague interactions, performance, and motivation. Residents felt that their well-being varied with the changing equilibrium between stressors (such as physical and emotional exhaustion or frustrating tasks) and coping mechanisms (such as supportive relationships or hobbies). Residents felt that they had more frequent, higher quality discussions with patients when their well-being was high and inappropriate exchanges when their well-being was low. Residents also attributed interpersonal conflict with their colleagues to "toxic" states of well-being. Despite these lapses in professional communication, some residents denied that their well-being affected their overall performance in clinical care, equating performance with technical competence. Other residents acknowledged improved decision-making, procedural skills, and learning when their well-being was higher and the converse when their well-being was lower. One informant said: "There's a direct correlation between your quality of work and your quality of life." Finally, residents described that their overall motivation to learn and practice medicine varied with the fluctuations in their well-being during residency.
CONCLUSIONS: In this qualitative study, both higher and lower levels of well-being during residency had important effects on residents' relationships with patients and colleagues, their performance, and their motivation. The findings of this study suggest that the educational and patient care goals of residency training may be enhanced through interventions that promote resident well-being.

RESIDENT-REPORTED BARRIERS TO SCREENING MAMMOGRAPHY. J.M. Hartman[1]; D.P. Miller[1]; T.P. McCoy[1]; L.M. Gruen[1]; K.B. Feiereisel[1]; P.R. Lichstein[1]. [1]Wake Forest University, Winston-Salem, NC. *(Tracking ID # 156869)*

BACKGROUND: National guidelines recommend annual mammography for women aged 50–70 years. However, mammography rates are estimated to be only 55%. Prior studies have identified many barriers to mammography, but none have classified them in terms of system-based or patient-based factors. The goal of this study is to determine whether the majority of mammography barriers encountered in internal medicine residency clinics are due to factors related to the provider/healthcare system or to the patient.
METHODS: We instructed 36 internal medicine residents at two clinic sites to retrospectively review the charts of the last 10 female patients aged 50–70 years seen in their continuity clinics. Both clinic sites are affiliated with a single university-based training program. Residents recorded the date of each patient's last screening mammogram. If there was no mammogram in the preceding 12 months, residents recorded whether one was ordered during the most recent clinic visit, and if not, the reason why. We classified each reason as a system-based or patient-based barrier, based on whether the obstacle related to the healthcare system/provider or to an issue intrinsic to the patient. All collected information was double-key entered for accuracy and then analyzed using SAS v9 to determine the relative frequency of barriers encountered. We used logistic regression to determine the association of barrier type with patient age, race, and clinic site.
RESULTS: 30 of 36 residents completed their data abstraction forms yielding data on 198 patient encounters. Some residents had fewer than 10 charts to abstract because they had not yet seen 10 women in the relevant age group during the academic year. Of the 198 encounters, 121 (61%) were overdue for their annual mammogram, and 31 (26%) of these women had a mammogram ordered during the visit. Residents did not order mammograms for the remaining 90 (74%) and indicated a specific reason for 55 (61%) of these visits. Residents reported only system-based barriers (SB) in approximately half of their encounters (49%, 95% CI 36%–62%). Patient-based barriers (PB) alone were reported in 38% (95% CI 26%–51%), and both types of barriers in the remaining 13% (95% CI 6%–24%). Specific barriers in decreasing order of frequency were: lack of time (SB, 31%); patient had acute illness (PB, 31%); patient refused (PB, 20%); physician unaware mammogram was due (SB, 11%); provider not the primary care physician (SB, 11%); and patient followed by gynecology (SB, 11%). We found no significant association between barrier type and patient age, race, or clinic site (P>0.10).
CONCLUSIONS: Medical residents report encountering a similar proportion of system-based and patient-based barriers to screening mammography. Interventions to increase mammography use should focus on both the healthcare delivery system and the individual patient.

RESIDENTS' LIFE EXPECTANCY ESTIMATES AND COLON CANCER SCREENING RECOMMENDATIONS IN ELDERLY PATIENTS. C. Lewis[1]; A. Tytell Brenner[1]; C. Golin[1]; J.M. Griffith[1]; L. Walter[2]; M. Pignone[1]. [1]University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 152923)*

BACKGROUND: The potential benefit of colon cancer screening in the elderly depends on expected longevity. The purpose of this study is to determine resident physicians' recommendations regarding colon cancer screening for patients age 75 in three health states of varying expected longevity.
METHODS: Internal medicine residents responded to 3 clinical vignettes of women, aged 75 years, representing patients who have severe, moderate, and mild co-morbidities. Participants estimated each patient's life expectancy, and gave their recommendations about screening. Response options offered were to "discuss issues and recommend screening", "discuss issues and let the patient decide", "discuss issues and recommend against screening" or "not offer screening".
RESULTS: 52 out of 77 residents in the UNC Internal Medicine Residency Program were approached to participate and 50 surveys were completed. Life expectancy estimates are presented below in the table for each vignette and compared with life table estimates. For the mild co-morbidity vignette, a 75 year old with HTN who is active and otherwise healthy, 33 would recommend screening and 17 would let the patient decide. 23 participants reported uncertainty about the patient's potential to benefit from screening. For the moderate co-morbidity vignette, 75 year old woman with well controlled hypertension and chronic obstructive pulmonary disease who experiences shortness of breath with exertion, 13 would recommend screening, 34 would let the patient decide, and 3 would recommend against screening. 43 participants reported uncertainty about the patient's potential to benefit from screening. For the severe co-morbidity vignette, a 75 year old woman s/p coronary artery bypass graft with severe heart failure due to coronary heart disease, 1 would recommend screening, 29 would let the patient decide, 11 would recommend against screening, and 9 would not offer it. 34 participants reported uncertainty about this patient's potential to benefit.
CONCLUSIONS: Residents' recommendations varied according to health status. Many reported uncertainty about the patients' potential to benefit from screening for all three cases, but reported the highest uncertainty for the patient with moderate co-morbidities. Recommendations for patient decision making increased with reported uncertainty. Residents' life expectancy estimates were fairly accurate for the mild and severe cases, but less so for the moderate case. Interventions providing life expectancy estimates from life table may be beneficial in these patients.

Residents' Life Expectancy Estimates Compared to Life Table Estimates

Life Exp Estimates	Mild	Moderate	Severe
≤ 2 yrs	0	0	12
3–5 yrs	0	15	33
6–9 yrs	2	21	5
≥ 10 yrs	48	14	0
Life Table Estimates	17 yrs	12 yrs	≤ 5 years

RESIDENTS' PERCEIVED COMPETENCE IN CROSS-CULTURAL COMMUNICATION SKILLS. A.R. Gonzaga[1]; A.L. Spencer[1]; M.A. McNeil[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 157018)*

BACKGROUND: Diminishing health care inequities requires training physicians early in their careers to communicate effectively with patients of diverse backgrounds. While cultural competence education plays an important part in reaching this goal, it is unknown how to best integrate it into medical training. We conducted a needs assessment to identify the strengths and weaknesses of our residency program's training in the cross-cultural communication skills.
METHODS: Using an adapted version of a questionnaire designed at UC Irvine, we surveyed PGY1-PGY3 internal medicine residents at a large academic institution in December 2005. We asked residents to indicate perceived competence in specific cross-cultural communication situations. We asked respondents to rate the relevance of certain patient attributes to clinical care, and barriers to effective communication with patients of diverse backgrounds. Lastly, we asked about perceived usefulness of topics for and barriers to curricular development in cross-cultural communication. All questions used a 1–5 point ordinal scale. Descriptive statistics were used to summarize the data. IRB approval was obtained prior to survey distribution.
RESULTS: Fifty-six (63%) of 89 residents completed the survey. Forty-three percent were PGY-1, 25% PGY-2, 32% PGY-3. The majority of residents perceived themselves as competent in communicating with patients with different cultural backgrounds (68%) and socioeconomic backgrounds (75%). Residents reported 5 of 8 patient sociocultural factors (race, ethnicity, educational level, literacy, SES) are at least somewhat relevant (rating >3) to their clinical care. Residents do not feel competent in dealing with 9 of 9 clinical scenarios in which sociocultural factors play a role. The 5 lowest rated items are displayed (Table 1). Of 19 potential barriers to effective cross-cultural communication, the highest rated barrier was insufficient time (mean $\equiv 3.63 \pm 1.03$). Ninety-two percent of residents report that cultural competence can be taught with a range of curricular topics being cited as useful, including training in cross-cultural communication skills. Time-constraints and lack of relevant materials were the only items rated as moderate barriers (rating >3).
CONCLUSIONS: Residents recognize that sociocultural factors play an important role in the medical encounter, yet they are uncomfortable dealing with situations that require cultural sensitivity. Residents agree that cultural competence can be taught, and believe training in cultural competence is useful. Our results suggest that our residents are interested in further training in cross-cultural health care. Future curricular development should focus on further developing residents' skills in interviewing and counseling patients of diverse backgrounds.

Resident Perceived Competence in Situations Involving Sociocultural Factors

Scenario	Mean (SD)
Advising a patient to change behaviors or practices related to cultural beliefs that impair one's health	2.79 (0.93)
Discussing sexuality with people in whose culture such issues are highly sensitive	2.79 (1.00)
Making mental health referrals which in some cultures might be seen as stigmatizing	2.92 (0.94)
Interpreting different cultural expressions of pain, distress, and suffering	2.95 (0.84)
Being attentive to nonverbal cues that might have different meanings in different cultures	3.02 (0.98)

RESIDENTS' PERCEPTIONS OF THE EFFECTS OF WORK HOUR LIMITATIONS ONE YEAR AFTER IMPLEMENTATION. G.A. Lin[1]; D.C. Beck[2]; J. Garbutt[3]. [1]University of California, San Francisco, San Francisco, CA; [2]University of Cincinnati, Cincinnati, OH; [3]Washington University in St. Louis, St. Louis, MO. *(Tracking ID # 152878)*

BACKGROUND: Mandatory work hour limitations for residents were implemented by the Accreditation Council for Graduate Medical Education (ACGME) starting in July 2003. In order to comply with the limitations, residency programs have made changes to their call cycles and coverage schemes. The impact of these changes on residency training is largely unknown. We surveyed residents of one large internal medicine residency program one year after implementation of the limitations to assess their attitudes and behaviors regarding the work hour limitations, and their perceptions of the effects of the limitations on delivery of patient care, medical education, and quality of life.
METHODS: A 47-item survey measuring general attitudes towards the work hour limitations, compliance, and effects on patient care, teaching, and quality of life was administered to residents in the internal medicine residency program at the Washington University School of Medicine. Responses were on 4- or 5-point Likert scales for attitudinal and behavioral questions; for this report "strongly agree" and "agree" are combined and reported as "agree". Compliance was measured by self-report. Categorical data are reported as percentages of agreement with statements. For comparisons among subgroups, the Chi-squared test was used to compare proportions, with significance established as $p \leq 0.05$.
RESULTS: The survey was completed by 139 (85%) of 163 eligible residents. The majority of housestaff (94%) agreed that limiting work hours was a good idea, and improved their quality of life, as measured by having adequate time away from the hospital (62%) and positive effects on job satisfaction (68%). However, many respondents believed that work hour limitations had negative effects on patient care and patient safety, with impairment of communication with the patient and family (79%), disruption in continuity of care (60%), and delayed review of tests (55%) among the negative effects noted. These perceptions varied by training year, with residents having a more negative view of the effects of the limitations on patient care than interns (76% vs. 48%, $p=0.002$). Most housestaff also noted that the restrictions had negative effects on their education, with residents more likely to believe that their time for teaching others was limited (92% vs. 61%, $p<0.001$), while interns were more likely to miss conferences (96% vs. 78%, $p=0.005$). In addition, housestaff had difficulty complying with the limitations; 47 (94%) interns and 56 (70%) residents reported violating at least one of the restrictions during their previous call month.
CONCLUSIONS: These results suggest that while the current ACGME work hour limitations have had generally positive effects on resident quality of life, there may be adverse effects on patient care, patient safety, and medical education. In addition, compliance with the work hour limitations was difficult. More study needs to be done to find the most effective way to balance work hour limitations with the demands of patient care and the essential educational components of residency.

RISK FACTORS ASSOCIATED WITH ABUSE OF PRESCRIPTION OPIOIDS IN WOMEN: RESULTS OF A NATIONAL SURVEY. J.M. Tetrault[1]; R.A. Desai[1]; W.C. Becker[2]; D.A. Fiellin[2]; J. Concato[1]; L.E. Sullivan[2]. [1]Yale University, West Haven, CT; [2]Yale University, New Haven, CT. *(Tracking ID # 154221)*

BACKGROUND: Abuse (i.e. non-medical use) of prescription opioids is a growing problem in the U.S., with an estimated 4.7 million persons abusing pre-

scription opioid medications in 2003. Well-documented gender differences exist regarding illicit substance and alcohol use disorders but little is known about the gender differences associated with the non-medical use of prescription opioids. The purpose of this study is to investigate risk factors associated with non-medical use of prescription opioids in women compared to men.
METHODS: We performed an analysis of the 2003 National Survey on Drug Use and Health (NSDUH), an annual survey of members of U. S. households aged 12 or older. We chose independent variables based on prior reports and clinical relevance, with gender as our main variable of interest. We conducted a logistic regression model, stratified by gender, of past year non-medical use of prescription opioids. We utilized study calculated weights and SUDAAN software to adjust for the complex sampling design and non-response.
RESULTS: Among 55,230 respondents, 52% were female, 70% were white, and 4.9% reported non-medical use of prescription opioids in the prior year. Women and men differed significantly on most demographic and clinical characteristics studied. Women were less likely to have non-medical use of prescription opioids in the past year (4.5% vs. 5.2%, $p=0.009$), whereas no gender difference was found for non-medical use of other prescription medications. Compared to men, women were more likely to be on state-sponsored medical assistance programs (11.2% vs. 7.0%, $p<0.0001$), not in the labor force (34.5% vs. 20.4%, $p<0.0001$) and to have serious mental illness (11.2% vs. 6.6%). In addition, women were less likely to have used alcohol (60.0% vs. 69.2%), cocaine (1.6% vs. 3.2%), marijuana (8.0% vs. 13.2%) or heroin (0.07% vs. 0.2%) in the past year ($p<0.0001$ for all comparisons). Using stratified, multivariable logistic regression among women (only), we found serious mental illness (OR 1.63, 95% CI 1.25–2.13); cigarette smoking (OR 1.26, 95% CI 1.01–1.60); and first use of illicit substances after age 24 (OR 1.80, 95% CI 1.01–3.23) were risk factors for non-medical use of prescription opioids in the prior year, whereas no association was found among men for the same risk factors.
CONCLUSIONS: Women have different risk factors for past year non-medical prescription opioid use compared to men. Clinicians should be aware of these differences and recognize that women with serious mental illness, women tobacco smokers, and women who first use illicit substances as adults are at increased risk for non-medical use of prescription opioids compared to men. These differences should enable clinicians to better identify, prevent and treat non-medical use of prescription opioids in women.

RISK PREDICTION INDEX FOR NEW ONSET MAJOR DEPRESSION IN THE NATIONAL LONGITUDINAL STUDY OF ADOLESCENT HEALTH. B.W. Van Voorhees[1]; J.M. Ellis[1]; J. Gollan[1]; A. Basu[1]. [1]University of Chicago, Chicago, IL. *(Tracking ID # 154467)*

BACKGROUND: Nearly 25% of adolescents and young adults will experience a depressive episode by age 24. Several interventions have demonstrated efficacy in preventing major depression (MDD). However, there is no community-based prediction model to identify adolescents at risk for onset for MDD. the development of such a model would both strengthen motivation for participation and increase the cost-effectiveness of preventive interventions. We used the National Longitudinal Study of Adolescent Health (Add Health, public use) data set to develop a risk index using baseline factors to predict major depression (MDD) at one year follow-up with a minimum sensitivity of 0.8.
METHODS: This is a representative sample of United States adolescents (grades 7–12) that included a baseline survey (1995) and a 1 year follow-up survey ($N=4,791$ completed both surveys). Based on the Centers for Epidemiologic Studies Depression Scale (CES-D), we constructed a proxy measure for new onset MDD (follow-up survey) as our outcome (we excluded those who met MDD criteria at baseline). Using logistic regression, we constructed a multivariate model to predict new onset MDD as a function of baseline variables (vulnerability factors and mood) entered in a stepwise manner (retaining those with Wald P-value <0.05). We the multiplied the odds ratios times the variable values and then added them together to produce the risk index. We constructed generation model using advanced predictive techniques (boosted regression and split-sample validation) to account for significant interactions between variables and to ensure the model calibrates with observed data.
RESULTS: The sample was 48% male (mean age of 15.7 years) and 57% white, 23% African American, 11% Hispanic, 1% American Indian, 3% Asian, and 5% multiracial. We identified seven predictive factors that were incorporated into the index and multiplied by the odds ratio (x): female gender (1.8); low level of belief that they would "have a middle class income by age 30" (1.1); disagreement with the statements that "I feel socially accepted" (1.3) and "you are happy to be at school" (1.6); having experienced at least one traumatic event in the last year (1.2); and for depressed mood, the CES-D-10 short form (1.2) and agreement with the statement "I felt moody the last year" (1.2). The final model demonstrated an area under the curve (0.86, 95% CI 0.80, 0.90) and sensitivity (0.80) and specificity (0.78) at a cut-off of 24.5. The risk of developing MDD was 2.8 % for the entire sample, 0% in the bottom 30 percentile and 13.4% is the top 5% percentile. The second model using advanced predictive modeling enabled us to produce a more parsimonious 10 item model (versus 15 in the first one) with similar performance characteristics and satisfactory split sample validation.
CONCLUSIONS: A model incorporating baseline vulnerability factors, trauma exposure and mood predicts MDD at one year with satisfactory, sensitivity and specificity. This index, if validated in other samples, could provide a feasible and low cost method for identifying youth most likely to benefit from depression prevention interventions in community settings. Screening using 10 items scales could be conducted on the Internet or in community/primary care settings.

ROLE MODELING HUMANISTIC BEHAVIOR: LEARNING BEDSIDE MANNER FROM THE EXPERTS. P.F. Weissmann[1]; W.T. Branch[2]; C.F. Gracey[3]; P.M. Haidet[4]; R.M. Frankel[5]. [1]University of Minnesota, Minneapolis, MN; [2]Emory Healthcare, Atlanta, GA; [3]University of Rochester, Rochester, NY; [4]Houston VA Medical Center, Houston, TX; [5]Indiana University, Purdue University, Indianapolis, Indianapolis, IN. *(Tracking ID # 155229)*

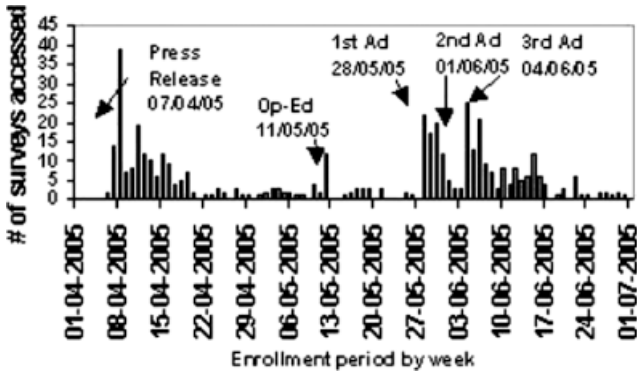
BACKGROUND: Humanistic care is regarded as important by patients and the Accreditation Council for Graduate Medical Education (ACGME) as well as other professional accrediting agencies. When physicians are perceived as humanistic, their patients are more satisfied and achieve better health outcomes. However, little is known about, how attitudes and behaviors in this domain are taught in clinical settings. To answer this question, the authors studied how excellent clinical teachers impart the behaviors and attitudes consistent with humanistic care to their learners.
METHODS: Using an observational, qualitative methodology, the authors studied twelve clinical faculty subjects identified by medical residents as excellent teachers of humanistic care on the inpatient medical services at four medical universities in the United States: University of Minnesota Medical School, Emory University, University of Rochester School of Medicine, and Baylor College of Medicine. Subjects were enrolled from 2003 to 2004. Each subject was observed by one of the investigators while making inpatient hospital rounds. Twenty-five patient encounters, conducted by the subjects in the presence of residents and students, were audiotaped and transcribed. Further observations were conducted by the authors using standardized field notes. After each encounter, the authors debriefed patients, learners (residents and medical students), and the teaching physician subjects in semi-structured interviews. In order to identify best practices for teaching humanism at the bedside, each site investigator reviewed data from all sources, including the field notes, semi-structured interviews, and transcripts. This information was synthesized into a structured abstract that included the section of transcript containing the exemplary teaching behavior, supporting field notes, additional analysis and description of the concepts involved.
RESULTS: Subjects taught primarily by role modeling. Though subjects were highly aware of their significance as role models, they did not typically address the human dimensions of care overtly. Each teaching physician exhibited unique teaching strategies, but five common modes of role modeling emerged, each of which could be taught to other faculty. None of these modes of role modeling added significantly to the time required for rounding. Additionally, the subjects identified self-reflection as the primary method by which they developed and refined their teaching strategies.
CONCLUSIONS: Role modeling is the primary method by which excellent clinical faculty try to teach medical residents humanistic aspects of medical care. Though teachers develop unique teaching styles and strategies, common themes are shared and easily described and demonstrated. None of the observed methods of role modeling added significantly to the time required for conducting rounds. These findings could be used as a basis for creating future faculty development activities that are intended to promote the teaching and learning of the human dimensions of care in medical settings.

ROLE OF HOSPITALISTS IN MANAGEMENT OF PATIENTS WITH CHEST PAIN: RESULTS OF A RETROSPECTIVE COHORT STUDY. B. Cakir[1]; K. Blue[1]. [1]Carolinas Medical Center-University, Charlotte, NC. *(Tracking ID # 151486)*

BACKGROUND: Each year over 6 million Americans present to emergency departments with complaints of chest discomfort. Of those only 20–25% eventually receives the diagnosis of acute coronary syndrome (ACS)/coronary artery disease (CAD). Despite the excess number of admissions including low risk patients with high costs, still 1.2–3% of patients with acute myocardial infarction (AMI) are reportedly missed. Objectives: 1) To review the characteristics of patients who were admitted with chest pain to evaluate the appropriateness of admissions, the care given during hospitalization and the outcomes. 2) To detect the role of hospitalists in management of chest pain patients through the length of stay and need for cardiology consultation. 3) To determine whether the use of a prediction rule could have made changes in the management of these cases.
METHODS: We performed a retrospective cohort study on all patients consecutively admitted to the hospitalist service between January and July 2005, with a diagnosis of chest pain. Those who had ST-segment elevation in ECGs were excluded. Each patient was risk stratified using Diamond and Forrester algorithm for probability of CAD, retrospectively. Results were analyzed using X2 test or exact test and student's t test.
RESULTS: Of 260 patients admitted with chest pain to the hospitalist service, only 24(9.2%) received the final diagnosis of ACS. The patients in the ACS group were older than those in non-ACS group (62.0 vs. 50.9 years, $p<0.001$) and more likely to be male, Caucasian and to have history of hyperlipidemia, CAD, peripheral vascular disease, cerebrovascular disease and percutaneous coronary intervention(PCI). Twenty six percent of patients (including all ACS patients) received cardiology consultation. Of 175 cardiac tests, 116(66.3%) were performed by hospitalists with 13(7.4%) positive results. All patients with ACS received ASA and heparin/LMWH. Of 34 patients who underwent cardiac catheterization, 20(58.8 %) had occlusive CAD with 14 of them receiving PCI. Mean length of stay was 26 $\pm$ 15.4 hours. Risk stratification of patients retrospectively, revealed 24.6% of total patient population was high risk, while 21.9% of them were low risk. Number of ACS cases was highest in the high risk group while none was detected in the low risk group.
CONCLUSIONS: Our study demonstrated using a prediction rule could have prevented one fifth of the chest pain admissions. To improve cost and care efficiency, use of risk stratification methods should be encouraged. In the meantime, hospitalists will be carrying the work load in management of chest pain patients while cardiologists are focusing on the identified cases.

SAMPLING 'HARD-TO-REACH' POPULATIONS IN HEALTH RESEARCH: YIELD FROM A STUDY TARGETING AMERICANS LIVING IN CANADA. D.A. Southern[1]; S. Lewis[1]; C. Maxwell[1]; J.R. Dunn[2]; T.W. Noseworthy[1]; G. Corbett[1]; K. Thomas[1]; W.A. Ghali[1]. [1]University of Calgary, Calgary, Alberta; [2]University of Toronto, Toronto, Ontario. *(Tracking ID # 153771)*

BACKGROUND: There are difficulties in conducting research on 'hard-to-reach' populations, beginning with the challenge of how to identify and sample them. In a recent survey study targeting Americans living in Canada, we were faced with the challenge of deriving an approach to reaching this population, given the lack of ready access to immigration records. We therefore adopted a multi-step approach to informing the public of our study. Here we report on the method used and its yield, as valuable information for researchers conducting research on such hard-to-reach populations.
METHODS: Study recruitment was open to all American-born individuals currently living in Canada. We used 5 techniques to solicit responses. We held a live media conference, supplemented by a nation-wide media release. These announced the study, highlighted its importance, and informed respondents of how to participate. Second, one month after the media conference, we prepared and nationally distributed an op-ed piece that outlined the purpose of the study, why it was unique and important, and how to participate. The intent was to reinforce the early exposure and reach new audiences. Third, we advertised the study in four newspapers. Fourth, we sent the survey information and coordinates to individuals and groups (American consulates, Democrats in Canada, and Republicans in Canada) likely to be eligible to participate and asked them to either respond as individuals, or forward the survey information to their membership or contact lists. Fifth, we asked those who had logged onto the survey site to send the information to others likely to meet the eligibility criteria. For this analysis, we use descriptive statistics to document the method's yield as the preceding steps were chronologically followed.
RESULTS: During the four months of recruitment, a nationally distributed news release, an op-ed submission, and paid advertisements in 6 newspapers led to 4 TV news interviews, 10 newspaper stories, one editorial, one letter to the editor and 4 Radio interviews repeated for a total of 13 broadcasts. The media stories appeared in 13 different cities. A total of 458 unique individuals accessed the on-line study survey in response to our sampling strategy - the survey has questions that verified the suitability of individual subjects for the study. The Figure below shows the distribution of unique survey entries by week. Fifty-six percent (56%) of respondents reported that they became aware of the survey via media outlets, while 26% learned of the survey by word of mouth (26%), and another 9% heard about the study through both the media and word of mouth (9%). Another 9% were unsure of how they found out about the survey.



Distribution of unique survey entries by week

CONCLUSIONS: A multi-step communication method of informing the public of our study through media outlets provided us with a sufficient sample of Americans living in Canada. This combination of paid and unpaid exposure in media outlets can be considered by other researchers as a methodological approach to identifying and sampling hard-to-reach populations.

SATISFACTION AND WORKLIFE OF ACADEMIC HOSPITALIST AND NON-HOSPITALIST ATTENDINGS ON GENERAL MEDICAL INPATIENT ROTATIONS. T.B. Wetterneck[1]; M. Linzer[1]; J.J. Halls[1]; D.A. Sass[2]; A.D. Auerbach[3]; J.L. Schnipper[4]; P. Kaboli[5]; V. Arora[6]; D.V. Gonzales[7]; D.O. Meltzer[6]. [1]University of Wisconsin-Madison, Madison, WI; [2]University of Wisconsin-Milwaukee, Milwaukee, WI; [3]University of California, San Francisco, San Francisco, CA; [4]Brigham and Women's Hospital, Boston, MA; [5]University of Iowa, Iowa City, IA; [6]University of Chicago, Chicago, IL; [7]University of New Mexico, Albuquerque, NM. *(Tracking ID # 154386)*

BACKGROUND: The growing attention on quality and cost of care have increased the importance of attending physician oversight in academic medical centers (AMCs). Currently, hospitalist physicians are increasingly being hired to perform attending physician duties on medical teaching services. This multicenter study aims to assess worklife and satisfaction for hospitalist and non-hospitalist ward attendings on general medical ward rotations.
METHODS: General medical ward attendings at 6 academic medical centers were sent an end-of-the-rotation questionnaire after each completed ward rotation from July 2001 – June 2003. The survey assessed perceptions of task and teaching performance, satisfaction with aspects of the rotation including cost and quality of care, overall satisfaction and stress on 5-point Likert scales (1 = very dissatisfied, strongly disagree or not at all stressful, 5 = very satisfied, strongly agree or extremely stressful). One end-of-the-rotation questionnaire was chosen at random from each physician who responded to at least one survey to create a unique survey sample. Analyzes were conducted to evaluate overall attending responses and compare Hospitalists (H) and Non-Hospitalists (NH).
RESULTS: Over two years, 349 attending physicians were eligible and 270 physicians completed at least one end-of-the-rotation survey (response rate for this sample 77.4%). H MDs comprised 16% of the sample. On average, NH MDs were 6.6 years older than H MDs, had been inpatient attendings for 5 years longer and worked 12.6 hours less per week during the rotation ($p < .001$ for all comparisons). Overall, 88% of physicians felt their presence made a difference in the quality of care provided but only half believed it made a difference in the cost of care. NH MDs were more satisfied than H MDs with their ability to get to know patients (4.2 vs. 3.8, $p = .009$), their relationships with the intern(s) (4.8 vs. 4.4, $p = .005$), medical students(s) (4.7 vs. 4.3, $p = .001$) and consultants (4.2 vs. 3.8, $p = .009$); and more likely to state their intern was involved in decision making (4.3 vs. 3.9, $p = .006$). H MDs were more likely to feel their presence made a difference in cost of care (4.1 vs. 3.4, $p < .001$), felt more comfortable caring for sick patients (4.7 vs. 4.1, $p < .001$), and more up-to-date on inpatient medicine (4.4 vs. 3.6, $p < .001$). H MDs were more worried than NH MDs about burning out in their current job (3.4 vs. 2.8, $p = .004$) and were more stressed during the rotation (3.0 vs. 2.6, $p = .01$) but there was no difference in overall satisfaction with the rotation.
CONCLUSIONS: There are significant differences in hospitalist and non-hospitalist worklife concerning for the sustainability of hospitalists careers in academia. Attention should be paid toward empowering faculty in issues central to inpatient care and cost of care and building academic hospitalist jobs that maximize quality of working life and encourage retention.

SCREENING AND TREATMENT FOR OSTEOPORORIS IN PROSTATE CANCER PATIENTS TREATED WITH ANDROGEN DEPRIVATION THERAPY. E.F. Yee[1]; R.E. White[1]; G.H. Murata[1]; C. Handanos[1]; R.M. Hoffman[1]. [1]New Mexico VA HCS, Albuquerque, NM. *(Tracking ID # 153268)*

BACKGROUND: Prostate cancer is the most common visceral malignancy in American men and is frequently diagnosed in the older Veterans Affairs (VA) population. Androgen deprivation therapy (ADT) is a mainstay for treating advanced prostate cancer, but ADT increases the risk of developing osteoporosis and associated fractures. This study evaluated veterans with prostate cancer on ADT to (1) determine whether they received osteoporosis screening, prevention, and/or treatment and (2) to identify patient factors associated with receiving osteoporosis screening, prevention, and treatment.
METHODS: We searched an electronic clinical database to identify all New Mexico VA Health Care System, patients diagnosed with prostate cancer who were currently enrolled in primary care as of July 2005 (n = 1667). Men treated with ADT (leuprolide or goserelin) (n = 171) were eligible for this study. We abstracted medical record data on patient demographic and clinical characteristics, provider specialty and clinic site, DXA scans, and prescriptions for oral or IV bisphosphonates, calcitonin, PTH, calcium, and vitamin D. We defined appropriate osteoporosis management for men treated with ADT to include obtaining a DXA scan and/or prescribing medications to prevent or treat osteoporosis. We used univariate and multivariate logistic regression to assess the patient factors associated with appropriate osteoporosis management. .
RESULTS: The mean age at diagnosis was 71 years, 40% were Non-Hispanic white (NHW), 36% Hispanic, 6% African American or Native American, and 16% unknown. The mean body mass index (BMI) was 28 kg/m^2 and the mean number of ADT shots was 8. Among the 171 subjects, 9% were diagnosed with osteoporosis, 19% were diagnosed with osteopenia, 19% had a history of a bone fracture, and 19% had bone metastases. Overall, 59 (35%) patients received appropriate management, based on DXA scans (16%) and/or treatment with oral or IV bisphosphonates (23%), calcitonin (1%), calcium (19%), and vitamin D (13%). On univariate analysis, significant predictors of appropriate management included NHW ethnicity/race, greater number of ADT shots, corticosteroid use, history of fracture, no bony metastases,and lower BMI. The only patients with bone metastases who were managed appropriately, 19/32 (60%), were those seen by hematology/oncology. Age at diagnosis, Gleason score, last PSA, smoking, alcohol use, diabetes, and prescriptions for thyroid hormone or dilantin were all nonsignificant factors. On multivariate analysis, variables significantly associated with appropriate management included NHW race/ethnicity, OR 3.60 (95% CI 1.75–7.39), and number of ADT shots OR 1.09 (1.03–1.15). Bone metastases, OR 0.19 (0.58–0.61), and higher BMI, OR 0.90 (0.84–0.96) were inversely associated with appropriate management.
CONCLUSIONS: Most prostate cancer patients who received ADT neither underwent screening for osteoporosis nor received interventions for prevention or treatment despite existing guidelines for their osteoporosis management. NHW ethnicity and number of ADT shots predicted receiving appropriate management. Bone metastases and higher BMI were inversely associated with appropriate management, though patients with bone metastases who were referred to hematology/oncology were managed appropriately. Further research is needed to evaluate clinical and sociodemographic barriers to appropriate management in this population.

SEEING THE "BIG" PICTURE: FIRST-YEAR MEDICAL STUDENTS' PERCEPTIONS OF COMMUNITY-BASED RESOURCES, BARRIERS, AND POTENTIAL SOLUTIONS TO THE OBESITY EPIDEMIC. D.W. Rudy[1]; S. King[1]. [1]University of Kentucky, Lexington, KY. *(Tracking ID # 156891)*

BACKGROUND: In order to successfully address modifiable health risk behaviors physicians not only need how to counsel individual patients, but must

have a firm understanding of the systemic issues contributing to such behaviors and advocate for system-wide changes that promote a healthier lifestyle. A good example is obesity. The causes of the obesity epidemic are complex and multifactorial involving the interplay of genetic, behavioral, environmental and social factors. Thus, in order to effectively intervene in controlling obesity, physicians need to not only address issues with individuals but also understand system-based practice issues such as community resources as well as barriers and potential solutions. While physicians are trained in how to address health-risk behaviors such as diet and exercise counseling, systems-based practice issues as outline above are just now beginning to be addressed in medical education. The purpose of our study was to determine how well first-year medical students understand these community issues regarding obesity following an early clinical experience. Such information may be useful in designing curriculum in systems-based practice in undergraduate medical education.
METHODS: Following a week-long community-based primary care experience, 103 first-year medical students were asked to write their responses to: What was the most important health-related behavioral issue leading to illness you observed? What barriers exist in the community to changing this behavior and how may these be overcome? Written responses were analyzed for thematic categories by two reviewers in an iterative process. The two reviewers then coded the students' responses for the presence or absence of the themes. Discrepancies were resolved via consensus.
RESULTS: 48% of the students reported the most important health-related issue to be obesity (inactivity, improper nutrition), 39% reported the use of tobacco (smoking, second hand smoke), and 13% gave various independent responses (stress, unprotected sex, etc.). Being that obesity-related issues were reported the most prevalent we chose to analyze the data further. The leading perceived community barrier to controlling obesity was lack of proper nutrition (51%), this was followed by lack of safe public areas to exercise (9%). 24% of students responses were directed at the level of individuals rather the community (sedimentary lifestyle, lack of desire to exercise and/or eat healthy, lack of time, etc.) Potential solutions included: education (33%), healthy food alternatives (27%), and community-based exercise areas/programs (26%).
CONCLUSIONS: More students listed obesity than tobacco use as the most important health-related issue they observed in an early clinical experience. While Students had a fairly good grasp of community barriers regarding obesity; they did not demonstrate an adequate knowledge of potential community-based solutions. Their main focus was on education rather than on development of community programs or collaborating with existing organizations such as schools, the workplace, or the state. Thus the first-year students appear to not to be thinking on the level of systems-based practice. We plan on introducing students to the concepts of systems-based practice prior to the early clinical experience in the future with the hopes helping them to see the "big picture" of health-related behaviors such as obesity.

SELF-EFFICACY AND PARTICIPATION IN DIABETES SELF-CARE AMONG OLDER AFRICAN-AMERICANS AND LATINOS. C.M. Mangione[1]; M. Seifu[1]; W.N. Steers[1]; A.F. Brown[1]; R. Brusuelas[2]; K. Norris[3]; M.B. Davidson[3]; R.M. Anderson[4]; T. Seeman[1]; C.A. Sarkisian[1]. [1]University of California, Los Angeles, Los Angeles, CA; [2]University of California, Los Angeles, 90024, CA; [3]Charles R. Drew University of Medicine and Science, Los Angeles, CA; [4]University of Michigan, Ann Arbor, MI. *(Tracking ID # 154679)*

BACKGROUND: Participation in diabetes self-care such as regular physical activity and self-monitoring of blood glucose (SMBG) improves glycemic control and may decrease serious long-term complications. Self-efficacy, persons' self-confidence in their ability to perform behaviors, may be an important mediator of participation in self-care among older African Americans and Latinos. Using baseline data from a community-based randomized trial of a behavioral intervention, we compared levels of self-efficacy and participation in self-care among older African Americans and Latinos with diabetes. We hypothesized that self-efficacy and participation in self-care would vary by race/ethnicity, and that higher self-efficacy would be associated with greater participation in self-care for both groups.
METHODS: African Americans (n=195) and Spanish-speaking Latinos (n=312) were recruited from senior centers, churches, and community clinics in Los Angeles between Feb. 2004 and Sept. 2005. Eligible participants had to speak English or Spanish, be 55 years or older, and have HbA1c 8% or higher. Through face-to-face interviews, self-efficacy was measured using Diabetes Empowerment Scale-Short Form and Self-Efficacy to Perform Self-Management Behaviors scale. Participation in self-care was measured with the revised Summary of Diabetes Self-Care Activities. To compare levels of self-efficacy and participation in self-care by race/ethnicity, we constructed multivariate models for each of the 4 self-efficacy domains (for diabetes care, for exercise, for MD communication, and for participation in social and recreational activities) and participation in 5 self-care activities (days per week of following a diet, exercising, SMBG, performing foot care, and taking diabetes medications). All models included age, sex, race/ethnicity, income, education, smoking, diabetes treatment, and medical comorbidities.
RESULTS: Mean age was 63.3+/−6.2 years, 71% were female, and mean HbA1c was 9.66%. Adjusted mean levels of self-efficacy for 3 of 4 domains were similar and in the upper quartile of the possible range for both Latinos and African Americans. However, Latinos had significantly higher self-efficacy for exercising. African Americans reported more participation than Latinos in 2 of the 5 self-care behaviors: following a diabetes diet (4.0 vs. 3.1 days/wk. p=0.007) and SMBG (4.0 vs. 2.8 days/wk., p=0.0004). In adjusted models, diabetes specific self-efficacy correlated at $p<0.05$ for all of the self-care activities except for exercise. Self-efficacy for exercise and for social and recreational activities correlated with participation in exercise (p=0.0003, p=0.02 respectively), and self-efficacy for MD communication correlated with taking diabetes medications (p=0.03). The correlations were similar for both groups.
CONCLUSIONS: Pre-intervention levels of self-efficacy were similar for the older African Americans and Latinos recruited for our community-based trial. However two important self-care behaviors, following a diabetes diet and SMBG were performed less frequently among the Latinos. Among both groups, higher self-efficacy was associated with more participation in key self-care practices. This finding suggests that interventions designed to enhance self-efficacy may increase participation in self-care behaviors that may reduce complications from diabetes among urban older African Americans and Latinos.

SELF-REPORTED INFERTILITY AND LIPID RISK FACTORS IN A POPULATION-BASED STUDY OF WOMEN: THE CARDIA WOMEN'S STUDY. M.F. Wellons[1]; E.P. Gunderson[2]; C. Lewis[1]; S. Person[1]; B. Sternfeld[2]; D.S. Siscovick[3]. [1]University of Alabama at Birmingham, Birmingham, AL; [2]Kaiser Permanente Division of Research, Oakland, CA; [3]University of Washington, Seattle, WA. *(Tracking ID # 151510)*

BACKGROUND: The 2002 National Survey of Family Growth revealed that 7% of partnered women were experiencing infertility: i.e., that during the previous 12 months, while continuously married or cohabiting and not using contraception, they had not become pregnant. Infertility is caused by many conditions including polycystic ovary syndrome (PCOS) and premature ovarian failure (POF) and is associated with smoking and obesity. In several studies, PCOS and POF have been associated with abnormal lipid levels. However, they occur in <5% of the female population. We hypothesize that infertility is associated with increased cardiovascular risk factors, specifically abnormal lipid levels, even after controlling for PCOS, menopause, smoking, and obesity.
METHODS: This is a cross-sectional study of a community-based sample of 1163 women who participated in the CARDIA Women's Study (CWS) at year 16 of CARDIA. CWS enrolled equal proportions of AA and Caucasian women ranging in age from 34–46. Women were asked multiple questions about their reproductive health including "Have you and your male partner ever had unprotected sexual intercourse for at least 12 months without becoming pregnant" (i.e., infertility). Women who reported current pregnancy, lactation, a diagnosis of PCOS; lacked menses for 12 months and had a follicular phase FSH of >40 (i.e., menopause); or lacked complete fasting laboratory data were excluded. Laboratory and risk factor data were assessed using year 15 data. HDL and LDL cholesterol, triglycerides, age, smoking status, body mass index (BMI), and parity were compared in women with infertility vs women without infertility. Multiple regression modeling was performed with lipids as dependent variables and with infertility, smoking, BMI, and parity introduced sequentially as independent variables and forced into the model.
RESULTS: After exclusion criteria were applied, 999 women remained. 365 (36%) reported infertility. Those with infertility were similar in age (42.0 vs 42.2, p=0.47) but more likely to currently smoke (28% vs 16%, $p<0.01$) than those without infertility. They had a higher BMI (30 vs. 29, p=0.04) and were more likely to be AA (58% vs. 48%, p=0.04). They had lower HDL (52 vs. 55 mg/dl, $p<0.01$) a trend toward higher triglycerides (90 vs. 84 mg/dl, p=0.08), but did no difference in LDL (108 vs. 109, p=0.70). In multiple regression modeling, infertility was associated with lower HDL ($p<0.01$) but not higher triglycerides, after adjusting for smoking. The association with HDL ($p<0.05$) persisted after adding BMI and parity (0 vs. >0) to the model.
CONCLUSIONS: CWS women had frequently experienced infertility - likely related to the older age of the women when the question was asked. As expected, women who had experienced infertility smoked more and had a higher BMI than those who had not. Independently, they had a lower HDL. In the primary care setting, infertility may warrant investigation of lipid risk factors as well as counseling on modifiable behaviors such as smoking and weight control.

SENSITIVITY AND SPECIFICITY OF A QUANTITATIVE D-DIMER LATEX IMMUNOASSAY FOR THE DIAGNOSIS OF ACUTE PULMONARY EMBOLISM AS DEFINED BY MULTIDETECTOR-ROW COMPUTED TOMOGRAPHIC ANGIOGRAPHY. D.A. Froehling[1]; P.R. Daniels[1]; S.J. Swensen[1]; J.A. Heit[1]; J.N. Mandrekar[1]; J.H. Ryu[1]; P.L. Elkin[1]. [1]Mayo Clinic, Rochester, MN. *(Tracking ID # 151262)*

BACKGROUND: Pulmonary embolism is a common life-threatening problem in clinical medicine. The diagnosis of this disorder is often problematic. The utility of the quantitative D-dimer latex immunoassay in the diagnosis of acute pulmonary embolism is unclear. In this retrospective study we measured the sensitivity and specificity of the plasma fibrin quantitative D-dimer latex immunoassay for the diagnosis of acute pulmonary embolism using multidetector-row computed tomographic (CT) angiography as the diagnostic reference standard.
METHODS: From August 3, 2001 to November 10, 2003 all inpatients and outpatients who had both quantitative D-dimer latex immunoassay testing and mutidetector-row CT angiography for suspected acute pulmonary embolism were selected for this study. The D-dimer assay results were compared with the CT angiographic diagnoses. The utility of all D-dimer potential discriminate values was analyzed.
RESULTS: Of 1355 CT studies 208 (15%) were positive for acute pulmonary embolism. For all D-dimer discriminate values from <100 ng/ml to >2000 ng/ml the area under the receiver operating curve was 0.71 with a standard error of 0.02. The discriminate value of <300 ng/ml had the highest negative predictive value for the diagnosis of acute pulmonary embolism. Using this value the D-dimer assay was positive for 1032 (76%) of the 1355 patients. For acute pulmonary embolism using this discriminate value the D-dimer assay had a sensitivity of 0.94 (95% confidence interval (CI), 0.89–0.97), a specificity of 0.27

(95% CI, 0.25–0.30), a negative likelihood ratio of 0.23 (95% CI, 0.14–0.39), and a negative predictive value of 0.96 (95% CI, 0.93–0.98).
CONCLUSIONS: Using a discriminate value of <300 ng/ml the quantitative D-dimer latex immunoassay had a high sensitivity and a high negative predictive value but a low specificity for the diagnosis of acute pulmonary embolism. By itself this test is not sufficient to rule out acute pulmonary embolism. Approximately three-quarters of our patients had positive D-dimer assays and required further evaluation to exclude acute pulmonary embolism.

SEPARATE BUT UNEQUAL: WHERE MINORITY AND NON-MINORITY PATIENTS RECEIVE PRIMARY CARE. A.B. Varkey[1]; L.B. Manwell[2]; S.A. Ibrahim[3]; J.A. Bobula[2]; M.P. Mundt[2]; E.S. Williams[4]; J. Wiltshire[2]; M. Linzer[2]. [1]Rush University Medical Center, Chicago, IL; [2]University of Wisconsin-Madison, Madison, WI; [3]Veterans Administration, Pittsburgh, PA; [4]The University of Alabama, Tuscaloosa, AL. *(Tracking ID # 153916)*

BACKGROUND: Few studies have examined the role of primary care provider work conditions and the clinic environment in health care disparities. Comparing primary care clinics that serve minority patients with those that serve non-minority patients, we sought to examine differences in clinic factors that might contribute to disparities.
METHODS: Study data were drawn from MEMO (Minimizing Error, Maximizing Outcome), a longitudinal study of 420 primary care physicians and 1,785 patients from 101 clinics in New York City and rural and urban clinics in the upper Midwest. Physicians were surveyed regarding access to clinical resources and referrals (scale 1 to 4, 4 =high), work control (scored 1 to 4, 4 =high), time pressure (percent additional time needed for a physical exam), office atmosphere (scored 1 to 5, 5 =chaotic), stress and burnout. Clinic managers were queried regarding staffing ratios, number of exam rooms, electronic medical records, and payer mix. Patients with hypertension, diabetes and congestive heart failure were surveyed to assess medication use and other health issues. Clinics with a patient population of 30% or more minority are defined as minority clinics.
RESULTS: Twenty-seven of the 101 clinics met our definition for minority clinics. Minority clinics had a higher percentage of minority physicians than non-minority clinics (39% vs. 12%). Comparing clinics, staff from minority clinics reported less access to resources such as supplies, equipment, referrals ($p<.001$) and exam rooms per physician (2.1 vs. 2.7, $p<.001$). Minority clinics also had lower staffing ratios (0.9 vs. 1.2, $p=.018$) than non-minority clinics. Comparing patients, patients from minority clinics used more medications (2.7 vs. 2.1 per patient, $p=0.003$) and were more often uninsured or covered by Medicaid (58% vs. 19%, $p<.001$). Comparing physicians, more physicians from minority clinics reported inadequate time to see patients (57% vs. 39%, $p<.001$) and burnout (32% vs. 23%, $p=.030$). Physicians from minority clinics also reported higher clinic chaos scores (3.8 vs. 3.2, $p<.001$) and lower work control (2.3 vs. 2.7, $p<.001$). No significant differences were found between minority and non-minority clinics for the presence of an electronic medical record or physician stress.
CONCLUSIONS: Clinics that serve minority patients have fewer resources, more medically complex and uninsured/Medicaid patients, more chaotic environments, and physicians who report less work control, more time pressure, and higher rates of burnout. These difficult working conditions pose a special challenge to our health care system. Real improvements may be achieved if remediable factors are addressed at the organization, system, and policy levels.

SHOULD I USE A PATIENT SURVEY OR PROVIDER SURVEY?: ASSESSING OUTCOME IN SMOKING CESSATION STUDIES. S.E. Sherman[1]; M. Estrada[2]. [1]VA New York Harbor Healthcare System, New York, NY; [2]VA Center for the Study of Healthcare Provider Behavior, Sepulveda, CA. *(Tracking ID # 154052)*

BACKGROUND: Researchers and administrators often need to decide how to assess the outcome of a smoking cessation intervention. Patient surveys are often the preferred approach, but they are costly and time-consuming to administer. Provider surveys are at times used as surrogates for the more expensive patient surveys. We used both methods to assess the effect of a clinic-level smoking cessation intervention.
METHODS: We randomly assigned one Veterans Administration primary care team to usual care and the other to intervention, which consisted of access for 1 year to an on-call counselor. In addition, we used several social marketing techniques on the intervention team – weekly provider-specific audit and feedback, educational outreach from an opinion leader, and financial incentives for providers. We surveyed a population-based sample of primary care patients at baseline (n =482), and we followed up with them near the end of the intervention (n =251) and after the intervention was over (n =251). The questionnaire covered smoking history and behaviors and smoking cessation services received. We surveyed primary care providers at baseline (n =62) and near the end of the intervention (n =43), covering smoking cessation skills, attitudes, and behaviors.
RESULTS: Patients on the intervention team were more likely at baseline to report having quit smoking for at least 1 day in the prior year (OR 1.5, 95% CI 1.05–2.2), but there were otherwise no significant differences on the baseline survey between the intervention team and control team in smoking history or prior cessation services received. On the follow-up survey near the end fo the intervention, patients on both teams were equally likely to report a quit attempt or to have been prescribed nicotine patches in the prior 6 months. Patients on the intervention team were more likely to report being counseled about cessation (OR 1.7, 95% CI 1.00–2.9), to have received a prescription for bupropion (OR 2.3, 95% CI 1.1–5.1), to have been referred to a cessation program (OR 2.1, 95% CI 1.2–3.6), and to have attended the cessation program (OR 3.6, 95% CI 1.2–10.5). All differences between the two teams had disappeared by the post-intervention survey. Among providers, there were no significant differences between teams in smoking cessation skills, attitudes, and behaviors at both baseline and follow-up.
CONCLUSIONS: Provider surveys suggest the intervention had no effect, while the population-based patient survey suggested smokers on the intervention team were more likely to have been counseled, treated, and referred. Reliance solely on provider surveys would have led to the incorrect conclusion that the intervention had no effect. Provider surveys may fit best as one part of a multimodal outcome assessment.

SHOULD POST-MI PATIENTS RECEIVE SECONDARY PREVENTION MEDICATIONS FOR FREE? AN EMPIRICAL POLICY ANALYSIS. N.K. Choudhry[1]; J. Avorn[2]; S. Schneeweiss[1]; W. Shrank[2]. [1]Harvard University, Boston, MA; [2]Brigham and Women's Hospital, Boston, MA. *(Tracking ID # 153915)*

BACKGROUND: When taken in combination, aspirin, beta-blockers, angiotensin converting enzyme inhibitors (ACEI) and statins (combination pharmacotherapy) are estimated to cause relative reductions in coronary heart disease (CHD) related events of more than 80%. Unfortunately, these therapies continue to be significantly underused, even among patients with prescription drug insurance. Out-of-pocket costs create one key barrier to appropriate adherence to secondary prevention after experiencing an MI. We sought to evaluate whether the cost-savings from averted clinical events would offset the cost of providing "first-dollar coverage" for combination pharmacotherapy to patients after their first myocardial infarction (MI).
METHODS: We created a model to estimate anticipated changes in event rates and expenditures from first-dollar coverage of combination pharmacotherapy provided to patients 65 years or older who are discharged alive from the hospital after experiencing their first MI. Combination pharmacotherapy consisted of aspirin, metoprolol, enalapril and lovastatin. We performed a "best-case" analysis using estimates from the published literature and Medicare claims data and a "base-case" analysis using much more conservative estimates to predict the lives saved by improved adherence to combination pharmacotherapy, the additional cost of therapy, and the potential cost-savings resulting from decreased fatal and non-fatal strokes and MIs. In both models we assumed that our patients at baseline had insurance for prescription medications that paid for an average of 68% of the cost of their medications and that 50% of patients are compliant with medications. In our best-base model, we assumed that an additional 26% of patients would take medications when all out-of-pocket costs are removed, and that combination therapy reduces the likelihood of death by 75% compared to placebo. For our conservative base-case model, we reduced these estimates by 50%. We used a 3-year time horizon and performed analyses from the perspective of a typical health insurer.
RESULTS: Under best-case assumptions, three years of first-dollar coverage for combination pharmacotherapy would reduce mortality rates by 1% and re-infarction rates by 13.1%and would result in an average cost-savings of $4023 per patient. In the conservative base-case analysis, first-dollar coverage would reduce mortality rates by 0.4% and re-infarction rates by 5.7% and would save an average of $237 per patient. Our results were most sensitive to the magnitude of treatment effect from combination pharmacotherapy and the proportion of previously non-compliant patients that become compliant when out-of-pocket costs are removed.
CONCLUSIONS: This preliminary analysis indicates that providing first-dollar coverage for combination secondary preventative therapy to currently insured post-MI patients saves both lives and dollars. The best-case estimates suggest that providing first-dollar coverage for 3 years to the more than 400,000 insured Americans who will have their first MI in 2006 could save more than 4464 lives and simultaneously save insurers $1.7 billion. These findings suggest that cost barriers to these highly cost-effective medications should be reconsidered.

SICKER, MORE COMPLEX PATIENTS GET BETTER, NOT WORSE, QUALITY OF CARE. T. Higashi[1]; J.L. Adams[2]; N.S. Wenger[3]; E. McGlynn[2]; L. Chiang[3]; S. Asch[4]; E.A. Kerr[5]; D.B. Reuben[3]; C. Fung[4]; P.G. Shekelle[4]. [1]Kyoto University Department of Epidemiology and Healthcare Research, Kyoto; [2]The RAND Corporation, Santa Monica, CA; [3]University of California, Los Angeles, Los Angeles, CA; [4]VA Greater Los Angeles Healthcare System, Los Angeles, CA; [5]University of Michigan, Ann Arbor, MI. *(Tracking ID # 151584)*

BACKGROUND: There has been concern that providing high-quality care to complex patients with multiple diseases is difficult and that providers caring for sicker patients will be disadvantaged in quality evaluation. However, the effect of having comorbidity on quality is unknown.
METHODS: We measured quality of care provided to two samples of adult patients: a national sample of 6712 adults drawn from 12 metropolitan areas and 372 community-dwelling vulnerable elders enrolled in two managed care organizations. Quality measurement and comorbidity were derived from medical records. Quality of care, defined as the percentage of quality indicator care received, was related to the count of comorbidities. Possible explanations for the quality-comorbidity relationship were explored by performing, in the vulnerable elder cohort, logistic regression at the quality indicator level adjusting for number of office visits, hospital admission, specialty care and duplication of care between comorbidities (e.g. ACEI recommended for both diabetes and heart failure).
RESULTS: Patients in the national sample were eligible for a mean of 16 quality indicators, received 55% of recommended care and had a mean of 0.6 of 11 comorbidities (range 0–7). Vulnerable elders were eligible for a mean of 21 quality indicators, received 54% of recommended care and had a mean of 2.5

of 13 comorbidities (range 0–7). Patients in both samples with a larger number of comorbidities had higher overall quality scores ($P<0.001$ for trend). The odds ratio for quality of care in the national sample was 1.03 (95% CI 1.01–1.05) for each additional comorbidity. In the vulnerable elder sample, the odds ratio for quality of care was 1.07 (95% CI 1.04–1.10) for each additional comorbidity. This relationship did not change after adjustment for expected quality score based on the population mean for the set of quality indicators for which the patient was eligible, duplication of care between comorbidities, or provision of specialty versus primary care. The comorbidity effect was partially explained by number of office visits and presence of hospital admission (odds ratio = 1.05, 95% CI 1.02–1.08).
CONCLUSIONS: Contrary to expectations, patients with more comorbidities receive higher quality of care. Additional analyses to understand this relationship may lead to interventions to improve quality of care. Delivering higher quality care to sicker and more complex patients may be challenging, but is feasible.

SLEEPINESS AFFECTS ACADEMIC AND PRIVATE PRACTICE PHYSICIANS BOTH PROFESSIONALLY AND PERSONALLY. I.A. Chen[1]; R. Chiu[1]; R.D. Vorona[1]; J.C. Ware[1]. [1]Eastern Virginia Medical School, Norfolk, VA. *(Tracking ID # 154101)*

BACKGROUND: Excessive work hours lead to more medical errors, motor vehicle crashes, and depression for physicians-in-training. However, little knowledge exists concerning the effects of sleep loss and fatigue on attending physicians. We determined the prevalence of sleepiness in attending physicians, the average number of hours worked, and the hours slept while "on call" or "not on call." We hypothesized that practicing physicians would note work errors, driving concerns and negative effects on their personal life secondary to rigorous work hours and reduced sleep.
METHODS: We administered an anonymous, validated survey to attending academic physicians and to private practice physicians in the local area. The survey was composed of demographic and opinion questions, the Epworth Sleep Scale (ESS), and an 18 item quantitative questionnaire measuring the effects of sleepiness of learning and cognition, job performance, and physician's personal life.
RESULTS: To date, 140 physicians out of 393 responded (47 academicians and 93 private practitioners). Respondents were primarily white (88%) and male (76%). Most were 46 to 55 in age (43%), and had practiced 11–20 years (37%). Mean score for the ESS was 7.9 (+/−3.8) with 32% admitting to excessive sleepiness (ESS > 10). Mean duration of hours worked per week was similar in academicians (59.6 hours) and private practitioners (59.5 hours). Fourteen percent reported >80-hour workweek. Mean sleep durations "not on call" (7.0 hours) and "on call" (5.4 hours) were similar between academicians and private practitioners. Most physicians (68%) believed work hour limitations would be "beneficial to the quality of life of practicing physicians" and 58% believed work hour limitations would be "beneficial to the quality of patient care provided by practicing physicians." However, few physicians (7%) would consider a stimulant agent e.g. Modafinil/Provigil or Methylphenidate/Ritalin to aid wakefulness during work. The 24% who admitted to making errors at work because of sleep loss/fatigue had a higher mean ESS (9.3 vs. 7.4, $p=0.01$). Thirty-two percent admitted writing an incorrect order secondary to sleepiness and 3.8% stated they might fall asleep while examining a patient. Seventy-five percent heard of their colleagues making mistakes due to sleep loss and fatigue, and 72% agreed that their thinking was affected by sleep loss. The 47% who worried about driving post-call had significantly higher ESS scores (9.4 vs. 6.5, $p<.0001$), and 63% could recognize being too tired to drive home. Fifty-six percent of respondents agreed that sleep loss/fatigue had a major effect on their life, and women were more apt to acknowledge such consequences. Only 66% believed their family understood their demanding job and sleep needs.
CONCLUSIONS: Excessive sleepiness (ESS score >10) was prevalent (32%) in these attending physicians and 14% exceeded recommended 80-hour workweek restrictions for resident physicians. Similar to resident physicians, long work hours and reduced sleep compromise attending and private practice physicians' performance. Academicians and private practitioners acknowledge potential deleterious effects of sleep loss and fatigue in both their practices and home lives. Whether work hour limitations or pharmacotherapy are practical and effective interventions that would improve physician and patient safety will require investigation.

SMOKING PREVALENCE IN ASIAN AMERICAN MEN AND WOMEN: WHAT DIFFERENCE DOES LIVING IN AN ASIAN ENCLAVE MAKE?. N. Kandula[1]; M. Wen[2]; E. Jacobs[3]; D. Lauderdale[4]. [1]Northwestern University, Chicago, IL; [2]University of Utah, Salt Lake CIty, UT; [3]Rush University Medical Center, Chicago, IL; [4]University of Chicago, chicago, IL. *(Tracking ID # 156896)*

BACKGROUND: Much research has focused on the health effects of segregation among African Americans. Although many Asian American immigrants live in urban ethnic enclaves, little is known about how neighborhood-level factors affect the health of Asians. The objective of this study was to determine the association between neighborhood ethnic composition, individual perceptions of neighborhood social cohesion, and smoking prevalence rates in a population-based sample of Asian Americans, independent of individual and other neighborhood-level factors. Because the majority of Asian Americans are immigrants, we hypothesized that living in a neighborhood with a higher percentage of Asians would be associated with higher rates of smoking in Asian American men and lower rates of smoking in Asian American women, mirroring the smoking norms and practices in most Asian countries.
METHODS: We analyzed data from the 2003 California Health Interview Survey (CHIS), a cross-sectional, population-based telephone survey of 42,000 civilian households. The sample included 1693 Asian men and 2174 Asian women, ages 18 and above. We performed gender-stratified multiple regression models with robust variance estimates to account for correlations in smoking among residents of the same neighborhood. Our dependent variable, smoking behavior, was dichotomized into current smoking or current non-smoking. Individual-level data were obtained from CHIS and included: smoking, age, marital status, SES, percent life in US, language spoken at home, and perceived neighborhood social cohesion (a scale tapping the extent of connectedness, trust, and solidarity among neighbors; coefficient of alpha = 0.73). A neighborhood was defined at the census tract level and participants' census tracts were linked to 2000 Census data. Neighborhood ethnic composition was defined as the percent of Asians living in the census tract (0 to 100%). Neighborhood-level SES was constructed using principal component factor analysis from four dimensions of: concentrated affluence, concentrated poverty, % of college-educated residents, and % of house ownership (reliability coefficient = 0.83).
RESULTS: 23% of Asian men and 7% of Asian women reported current smoking. For women, living in a neighborhood with an increasing percentage of Asians was significantly associated with lower adjusted odds of smoking (OR = 0.14, 95% CI = 0.03,0.80), independent of age, marital status, individual SES, percent life in US, language spoken at home, perceived neighborhood social cohesion, and neighborhood SES. For men, the percentage of Asians in the neighborhood was not significantly associated with smoking; however, higher levels of perceived neighborhood social cohesion were associated with lower odds of smoking (OR = 0.74, 95% CI = 0.61, 0.90), independent of individual factors and neighborhood SES. For both men and women, neighborhood SES was not significantly associated with smoking.
CONCLUSIONS: The neighborhood factors that may be related to smoking differ for Asian American men and women. For women, neighborhood ethnic composition, which may represent social values, norms, and behavior modeling, may mediate smoking. For men, a personal sense of being disconnected and distrustful of their surroundings (a possible marker of higher stress or low social support), may mediate smoking behaviors. Our findings confirm the importance of thinking about differences between sexes when designing and targeting anti-smoking interventions and campaigns for Asian Americans.

SOCIAL CAPITAL, RACE, AND GLUCOSE CONTROL. J.A. Long[1]; K. Armstrong[2]; V.W. Chang[1]; Z. Chen[3]; J.P. Metlay[1]. [1]Philadelphia VA CHERP, Philadelphia, PA; [2]University of Pennsylvania, Philadelphia, PA; [3]Center for Clinical Epidemiology and Biostatistics, University of Pennsylvania, Philadelphia, PA. *(Tracking ID # 153259)*

BACKGROUND: There is growing interest in how a person's health is influenced by his/her social environment, in particular, the social capital of their environment. Social capital refers to those features of social organization, such as trust, norms, and networks that can facilitate coordinated action. How social capital influences overall health is not clear. Moreover, while lower social capital has been associated with higher mortality and worse self-rated health, no studies have established a link between social capital and individual disease states. Establishing such a link would provide insight into mechanisms by which social capital influences health. To that end, we evaluated, in a low-income veteran population, whether social capital is associated with glucose control in diabetics.
METHODS: We performed a clinic population based, cross-sectional study of veterans who use the Philadelphia VAMC and had a recently evaluated glycosylated hemoglobin (HbA1c). Individual-level data derived from surveys and chart reviews were merged with six area-level social capital descriptors aggregated from the 2004 Southeastern Pennsylvania Household Health Survey (SPHHS). At the individual-level we included measures of demographics, clinical characteristics, self-care, access-to-care, and health care. Philadelphia was divided into 69 spatially-coherent neighborhoods. Neighborhood scores were created for each social capital measures based on the mean weighted response of the SPHHS participants living in these neighborhoods. Scores were scaled such that higher scores are worse. We employed multi-level mixed effects models and stratified by race after inspection revealed that neighborhood characteristics varied widely by race. These analyses focus on 410 black and white participants (95% of total sample) for who we had complete data.
RESULTS: For blacks, after adjusting for individual-level characteristics, a higher HbA1c was significantly associated with 5/6 social capital measures: less neighborhood participation in local organizations; a worse overall community rating; less working together to improve the neighborhood; a lower sense of neighborhood belonging; and a lower sense of neighborhood trustworthiness. None of the social capital measures were associated with HbA1c in whites.
CONCLUSIONS: We observed a strong association, independent of individual-level factors including income, between multiple measures of social capital and glucose control for black but not white veterans. These results suggest an independent and meaningful influence of social capital on disease control, pointing to potentially important modifiable neighborhood characteristics for intervention.

Association of Social Capital Measures with Hb A1c

	Black		White	
Social Capital Measures (higher = worse)	β	p value	β	p value
Active participation in local organizations	1.460	0.0440	−0.412	0.4638
Community rating	0.854	0.0354	−0.414	0.2288
Neighbors willingness to help	0.679	0.1425	−0.442	0.3385
Worked together	5.007	0.0008	0.413	0.7025
Sense of belonging	1.889	0.0496	−0.549	0.5638
Neighbors trustworthiness	1.182	0.0222	−0.415	0.3338

SOUTH BRONX OBESITY REDUCTION INITIATIVE (SOBORI): ADVOCATING FOR A WEIGHT LOSS INTERVENTION. G.M. Sacajiu[1]; M. Wright[2]; C. Query[1]; J. Arnoux[1]. [1]Albert Einstein College of Medicine, Bronx, NY; [2]Montefiore Medical Center, Bronx, NY. *(Tracking ID # 154692)*

BACKGROUND: The obesity epidemic is at the epicenter of health inequality in America with its burden falling disproportionately on minority and poor populations. Despite the serious complications associated with obesity, it is difficult to find effective and affordable weight loss programs. Coverage for obesity treatment is mainly surgical intervention and pharmacotherapy. Thus, healthcare providers have a critical role in advocating for appropriate weight loss intervention. The goal of the following was to introduce a weight reduction intervention to an underserved community. Its aim was to incorporate relevant cultural ideas surrounding food rituals and body image into a community-based program that could be housed within an existing primary care service.
METHODS: We developed collaboration among medical providers, a commercially available weight loss program and a Managed Care company to implement a program called SoBORI. Patients at our community health center were referred by their primary care providers and were eligible if: >18 years, BMI>30, >6 readiness to change scale. Exclusion criteria included: pregnancy, uncontrolled psychiatric disorders, chronic systemic steroids. Eligible patients were consented and referred to an on-site 10 week program with an option to continue after that trial period. The weight loss program was integrated into patients' ongoing health care. In addition to clinical outcomes measures, such as weight loss, blood pressure, and lipid profile, we also measured life style and psychosocial outcomes. These included adherence to intervention, quality of life, health related locus of control, and self perceived body image.
RESULTS: Since February 1st 2005, 436 patients were referred to the program. Of those 342 expressed interest and 152 consented to participate and came for the first intervention meeting. Of those 86 (57%) continued and adhere to the program. The participants were 90% women, 46% Blacks, 46% Latino, and 8% of other ethnic groups. 70% were US born, 57% were single, 33% were separated or divorced and 10% were married. An average of 9.7 lb was lost (range 0.8–34.6 lb). Other clinical outcomes are still being collected. A higher quality of life and a better health related inner locus of control were statistically significant among adherent participants compared to baseline. Self perceived body image showed a trend of change after ten weeks of participation.
CONCLUSIONS: We described the results of a culturally sensitive, integrated weight reduction intervention in an underserved primary care community health center. Our results suggest among other things that 1) obese patients who are committed to changing their eating habits will adhere to a financially affordable commercial weight loss program; 2) in this setting successful weight reduction is related to higher perceptions of locus of control; and 3) higher adherence rates to the integrated weight reduction program is associated with improved quality of life. The initial successful results should be further investigated in a randomized control study to prove efficacy. In an era when obesity is an epidemic that disproportionately affects poor minorities and primary care providers have few non-invasive therapeutic referral options, this is a first step towards advocating for other community based interventions. It also calls for advocacy towards legislations requiring commercial health insurance to fund new preventive and therapeutic weight reduction programs.

STANDARD GAMBLE, TIME TRADE-OFF, AND RATING SCALE SCORES ELICITED FROM HUMAN IMMUNODEFICIENCY VIRUS-POSITIVE INDIVIDUALS. A.M. Bayoumi[1]. [1]Centre for Research on Inner City Health, Toronto, Ontario. *(Tracking ID # 156444)*

BACKGROUND: We measured quality of life among Human Immunodeficiency Virus (HIV)-positive individuals using utilities, a summary preference-based measure based on economic principles. Most previous utility studies pre-dated current antiretroviral therapy approaches and their associated side effects.
METHODS: We asked participants to rate 8 standardized health state descriptions, which we constructed based on clinical judgment and symptom prevalence. We used a computer to assist interviewers in describing the health states (with text and audio), demonstrating trade-offs (with graphical aids), and collecting results in real time. Utilities were expressed on a scale fro 0 to 100. We used random initial values to minimize anchor point bias and presented tradeoffs as both gains and losses to minimize framing biases. We also randomized the order of both elicitation methods and health states. We elicited utilities using the Rating Scale (RS), Time Trade-Off (TTO), and Standard Gamble (SG) methods. We recruited a convenience sample of people living with HIV from 4 sites (3 outpatient and 1 inpatient) who were able to speak English and were emotionally and cognitively able to complete the utility interview. We used descriptive statistics to summarize utility values, intraclass correlation statistics to compare scores across methods, and generalized estimating equations to assess the effects of sex and gender on utility scores.
RESULTS: We enrolled 280 participants. We excluded 6 participants because of protocol violations. Of the remaining participants, 89% were men, 73% were White and 14% Black. The mean age was 43 years (standard deviation [SD] 9.6). The SG and TTO were associated with similar utilities and the same ranking of health states: Asymptomatic HIV (SG mean ± SD 86.6 ± 22.7, TTO 85.9 ± 23.6); HIV with mild medication side effects (SG 81.5 ± 23.3, TTO 81.0 ± 24.2); symptomatic HIV infection (SG 79.0 ± 25.9, TTO 79.1 ± 26.2); HIV with symptoms of the lipodystrophy syndrome (SG 69 ± 30.5, TTO 66.8 ± 31.5); severely symptomatic HIV non-responsive to antiretroviral therapy (SG 63.3 ± 30.1, TTO 59.6 ± 31.2); and having a clinical AIDS defining illness non-responsive to antiretroviral therapy (45.1 ± 32.2; TTO 41.2 ± 33.3). In contrast, RS scores were similar for all health states. The intraclass correlation coefficient between SG and TTO scores was 0.69, while that between the RS and the SG and TTO was −0.10 and −0.06, respectively. We observed no effect of sex on either SG or TTO scores. Whites reported SG scores that were 6.6 points (95% Confidence Interval [CI] 1.4 to 11.7) higher than non-whites; the corresponding value for TTO scores was 2.2 (95% CI −3.1 to 7.4).
CONCLUSIONS: We observed a high level of agreement between SG and TTO scores, suggesting that both methods are useful for measuring utilities in people living with HIV, but RS scores were problematic. Our results also suggest that new HIV-related syndromes such as lipodystrophy can have significant quality of life effects, and that non-White respondents may endorse significantly lower SG scores.

STATIN USE AND THE RISK OF DEATH AND HOSPITALIZATION IN ADULTS WITH HEART FAILURE. W.Y. Lee[1]; J. Yang[2]; J.H. Gurwitz[3]; A.S. Go[2]. [1]Tufts University School of Medicine, Boston, MA; [2]Kaiser Permanente Division of Research, Oakland, CA; [3]University of Massachusetts Medical School (Worcester), Worcester, MA. *(Tracking ID # 151442)*

BACKGROUND: Heart failure (HF) prevalence is increasing in the U.S. and outcomes remain poor despite therapeutic advances, so additional effective approaches are needed. Statins substantially decrease atherosclerotic events and may have beneficial effects in HF such as reducing inflammation and improving endothelial function. We examined whether statin therapy was independently associated with lower risks for death and HF hospitalization within a large, diverse HF population characterized longitudinally for clinical management, comorbidities, and adverse outcomes.
METHODS: We identified adults with HF (1996–2002) within Kaiser Permanente of Northern California using validated ICD-9 codes from health plan ambulatory and hospital discharge databases. Time-dependent exposure to statin therapy as well as other cardiovascular medications was ascertained from filled prescriptions found in automated pharmacy databases. Demographic and socioeconomic features as well as comorbid conditions were obtained from health plan databases. Estimated glomerular filtration rate and hemoglobin were identified from outpatient laboratory databases. Death and HF hospitalizations were identified from state death files and hospitalization databases. Because of treatment selection bias, primary analyses of statin therapy and risks for adverse outcomes were performed in patients without prior exposure to statin therapy at entry, and in the subset who met eligibility criteria for lipid-lowering therapy based on ATP-III guidelines. The association between use of statin therapy and outcomes was also determined for those with and without known coronary disease at entry. We used multivariable Cox proportional hazards regression that adjusted for propensity to receive statin therapy, demographic and socioeconomic characteristics, cardiac history, comorbid conditions, selected laboratory tests, and longitudinal cardiac medication use.
RESULTS: Among 59,772 identified HF patients, those who received statins were more likely to be younger, male and have known cardiovascular disease and vascular risk factors but slightly fewer other coexisting illnesses. Receipt of statin therapy during follow-up was associated with significantly lower age-sex-adjusted rates (per 100 person-years) of death in the entire cohort (7.9 vs 16.8, $P<0.001$), those without prior statin use (7.5 vs. 16.7, $P<0.001$), treatment-eligible patients without prior statin use (6.2 vs. 13.1, $P<0.001$), as well as those with and without known coronary disease at entry (with coronary disease: 8.1 vs. 18.6, $P<0.001$;without coronary disease: 7.6 vs. 15.8, $P<0.001$). Similar patterns for HF hospitalization were observed. Among HF patients with or without known coronary disease, incident statin use was associated with lower risks of death (adjusted hazard ratio [HR] 0.43 [95% CI: 0.41 to 0.46] and HR 0.46 [0.43 to 0.50], respectively) and HF-specific hospitalization (HR 0.73 [0.69–0.77] and HR 0.80 [0.74–0.85], respectively), after adjustment for the propensity to receive statins, other potential confounders, and time-dependent use of other cardiac medications.
CONCLUSIONS: In a large, diverse community-based HF population, statin therapy was independently associated with lower risks for death and HF hospitalization in the presence or absence of known coronary disease. Given the proven benefit of statins in patients with coronary disease, randomized trials are needed to confirm whether they decrease the risk of adverse events in patients with non-ischemic HF.

STIGMA AND THE ACCEPTABILITY OF DEPRESSION TREATMENTS. J.L. Givens[1]; I.R. Katz[2]; W.C. Holmes[2]. [1]University of Pennsylvania, Philadelphia, PA; [2]Veterans Administration Medical Center, Philadelphia, PA. *(Tracking ID # 153767)*

BACKGROUND: While stigma is known to be a barrier to depression treatment, it is not known whether there is equal stigma associated with the use of prescription medication and mental health counseling, or how stigma affects the acceptability of these treatments in analyses adjusted for sociodemographic attributes and depressive symptoms.
METHODS: We conducted a cross-sectional, anonymous mailed survey using a random sample of adult primary care patients seen in community or university clinics within the last year. The two main outcome variables are the acceptability of treatment: 1) using prescription medication; and 2) using mental health counseling to treat depression, assessed by use of a vignette. Stigma associated with the use of each treatment ("treatment stigma") was measured separately, using four questions for each treatment. Participants were asked whether, if they were using either treatment, they would: 1) feel ashamed; 2) feel comfortable telling their friends and family; 3) feel okay if people in their community knew; and 4) not want people at work to know. Two multivariable logistic regression models examine the association between treatment stigma and the acceptability of the treatment modalities. Covariates are sociodemographics, other beliefs about depression treatment, history of depression, depression treatment and current depressive symptoms (measured using the PHQ-9).

RESULTS: The response rate was 75%. Of 490 participants, 43% were African American and 57% white. Most were female (68%), had a high school education (90%) and a household income <$50,000 (54%). The mean age was 53 years and 32% had levels of depressive symptoms consistent with at least mild depression (PHQ9 > =5). The acceptability of prescription medication differed by race: African Americans had lower levels of acceptability than whites (67% vs. 83%, $p<0.001$), rates of acceptability of mental health counseling were similar (68% vs. 74%, $p=0.2$). Stigma associated with the use of prescription medication and mental health counseling was equal. Across the four stigma questions, the percentages of those with stigma for prescription medication and mental health counseling respectively were as follows: 1) feeling ashamed (18%, 19%); 2) telling friends and family (25%, 27%); 3) telling those in the community (65%, 66%); and 4) telling those at work (68%, 68%). Whites had higher stigma levels than African Americans for both treatments. Stigma did not differ by level of current depressive symptoms or history of depression. In adjusted analysis, stigma was not a significant barrier, but African American race was independently associated with decreased acceptability of prescription medication (adjusted odds ratio [AOR] 0.45, 95% CI 0.21–0.94). Stigma was an independent barrier to use of mental health counseling (AOR 0.38, 95% CI 0.19–0.77), as was age >50 years (AOR 0.51, 95% CI 0.27–0.98) and being married (AOR 0.39, 95% CI 0.19–0.81).
CONCLUSIONS: In this sample of primary care patients with varying levels of depressive symptoms, treatment stigma did not differ between prescription medication and counseling, but was higher for whites. In adjusted analyses, stigma was a strong independent barrier to acceptability of mental health counseling. These data support further research to understand the stigma associated with mental health counseling and to design interventions to help reduce it.

STRENGTHENING PHYSICIAN TRAINING IN GERIATRICTS. M.B. Stevens[1]; E.D. Brownfield[2]; J.M. Flacker[2]. [1]Emory University, Decatur, GA; [2]Emory University, Atlanta, GA. *(Tracking ID # 152017)*

BACKGROUND: The Emory Reynolds Program is an innovative program developed to strengthen physician training in geriatrics. Implemented in 2003, the program is designed, in part, to expose medical students to key concepts and principles of geriatric medicine. The 10 key principles that form the core of the program are the Basics in Geriatrics 10 ("Big 10"). During their 3rd year medical students receive and orientation to the BIG 10 and are asked to reflect on these principles during their Internal Medicine rotation. Objective: To qualitatively analyze experiences of 3rd year medical students with geriatric patients, using the "BIG 10" principles, and to determine the impact on student awareness of these issues.
METHODS: From August 2004 until July 2005, students were required to submit paragraphs about geriatric patients whose care they had participated in and to describe how these patients exemplified one of the "BIG 10" principles. All paragraphs were analyzed for content, frequency of "BIG 10" principles, and common themes. Questionnaires at the end of the clerkship were given to all students to assess their attitudes and behavior related to geriatrics.
RESULTS: 982 paragraphs were reviewed from 105 students. The most popular "Big 10" principles recorded were "medical conditions in geriatric patients are commonly chronic and multiple", "social history, living circumstances and social support are essential aspects of managing geriatric patients", and "ethical issues and end-of-life care are critical aspects of the practice of geriatrics". Recurring themes included the following: 1. Are physicians too aggressive in the diagnosis and treatment of geriatric patients leading to iatrogenic illness and decreased functional capacity? 2. Discussion of end-of-life issues should take place early while patients are competent to make their own decisions 3. Diagnosis and treatment of acute problems is complicated by chronic medical conditions 4. Placement decisions 5. Dementia can be subtle 6. Elderly patients are often the care givers for other elderly patients creating a new set of social and ethical issues 7. There is tremendous variability amongst the elderly 8. Information from primary care givers is vital and often difficult to obtain 9. Polypharmacy is the most common cause of iatrogenic illness 10. Quality is more important than quantity of life 11. Family members disagree among themselves and with medical staff regarding end-of- life issues 12. Family support significantly decreases length of stay 127 students completed questionnaires at the end of the clerkship. Of those students 25% reported they were more interested in the problems of older patients as compared to before the clerkship; 80.5% reported the "BIG 10" assignments made them think more about the problems of older patient; and 86.5% reported they learned more about the special issues in the care of older patients through the combined curriculum elements.
CONCLUSIONS: A core curriculum of geriatrics that revolves around key basic principles is an effective tool in increasing medical student awareness of geriatric medicine and helps to uncover important learning issues that can be incorporated into future curricular innovations.

STUDENT ETHNICITY AND SCORES ON THE COMMUNICATION PORTION OF A COMPREHENSIVE CLINICAL PERFORMANCE EXAMINATION. A. Fernandez[1]; F. Wang[1]; M. Braveman[1]; L. Finkas[1]; K. Hauer[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 156368)*

BACKGROUND: Standardized patient (SP) assessment is increasingly used in medical education to determine competence in clinical and communication skills and since 2004 SP exams are a component of the USMLE Step 2 examination. Little is known about how students from diverse backgrounds perform on these exams. Some have hypothesized that students from minority backgrounds may be more sensitive to communication issues and may perform better than their counterparts, particularly with non-white SPs. Others have expressed concern than SP exams may be biased toward a specific, culture bound, communication style. We surveyed students to determine the association between student ethnicity and performance on the communication portion of a third year SP exam.
METHODS: We conducted a cross sectional survey study of third year students at one medical school. Survey data were combined with results from the comprehensive clinical performance exam undertaken at the end of their third year, and with USMLE Step 1 and MCAT scores. The SP exam consisted of eight clinical cases, two with minority SPs. Each student received a score history taking, physical examination, and communication for each case and overall. We used ANOVA to examine the relationship between student ethnicity and communication score, and multivariate regression models to examine the association of ethnicity with scores after accounting for other demographic variables and prior performance on standardized exams. We used multivariate interaction models determine the existence of an interaction effect bewteen student ethnicity and SP ethnicity.
RESULTS: All 136 MS3s participated: 33% Asian, 11% Black/Latino 54% white. 43% spoke a language other than English in their childhood homes. While there was no difference by ethnicity on the history/physical examination portion of the SP exam, Asian American and Black/Latino students scored lower on the communication portion by approximately half a standard deviation (mean communication score Asian: 67.3%; Black/Latino: 66.9%; white: 69.4%, $p<0.5$). Ethnic differences in score persisted after multivariate analysis controlling for student age and gender. Controlling for MCAT verbal scores eliminated the differences between white and Black/Latino students but not Asian students. However, additionally controlling for primary language in childhood eliminated Asian-white differences. (Difference =– 1.21 (3.30,0.87) $p=0.62$). There was no evidence of interaction between the ethnicity of the student and the ethnicity of the SP.
CONCLUSIONS: Non-white students scored lower than their white counterparts on the communication portion of a comprehnsive clinical exam by aproximately half a standard deviation. This is a moderate size effect, whose magnitude compares to the effect of a two year intensive communication curriculum on communication. Childhood primary language mediates the lower score of Asian students, suggesting that SP exams may be unintentionally biased against students whose first language is not English, despite adequate knowledge of English as captured by MCAT scores. More research is needed to sort out the effects of language and culturally determined communication behavior on SP exam scores, as well any clinical significance of differences in exam scores. In the meantime, medical educators should be cautious in the use of SP exams to assess competence in communication.

SUBSPECIALTY ELECTIVE PARTICIPATION BY INTERNAL MEDICINE HOUSESTAFF AND ABIM CERTIFICATION EXAMINATION PERFORMANCE. C.J. Fischer[1]; J.A. Watts[2]; C.K. Peterson[1]. [1]Madigan Army Medical Center, Tacoma, WA; [2]Bayne-Jones Army Community Hospital, Fort Polk, LA. *(Tracking ID # 153457)*

BACKGROUND: For residents and program directors in internal medicine, it is valuable to know what factors are predictive of successful performance on the American Board of Internal Medicine Certifying Examination (ABIMCE). Subspecialty elective participation as a predictor of total ABIMCE score has not been previously assessed.We studied the degree to which ABIMCE overall and subspecialty sub-scores are influenced by (1) participation in a subspecialty clinical rotation, (2) participation in all 8 "core" subspecialty medicine electives, and (3) participation in 4 or more "non-medicine" electives.
METHODS: We conducted a retrospective analysis of ABIMCE scores and clinical experience of internal medicine housestaff at Madigan Army Medical Center in the graduating classes of 1994–2005 (N =97). 1) Participants were grouped within each subspecialty according to number of months they spent performing that elective during their PGY-2 and PGY-3 years (0, 1, or >1 months). ABIM subspecialty scores were compared using the ANOVA test. 2) Subjects were divided into 2 groups based on completion of the entire set of 8 internal medicine "core" electives versus non-completion. Total ABIMCE scores were compared for statistically significant differences between groups with a two-tailed Student's *t*-test. 3) The number of "non-medicine" electives (any elective in a discipline not tested on the ABIMCE) were tallied for each subject. Subjects were then split into groups based on number of "non-medicine" elective months during residency. Total ABIMCE scores were compared between groups with a two-tailed Student's *t*-test and by linear regression.
RESULTS: Mean In-Training Examination scores during the PGY-2 year was 64th percentile. The average ABIMCE overall decile for the group was 7.2. The group had a 97% first time pass rate on the ABIMCE. Overall, performing one or more months on a medicine subspecialty elective did not correlate with a higher sub-score for that specialty. In addition, completing the "core" 8 medicine subspecialty elective rotations during residency did not predict a significantly better overall score on the ABIMCE. However, performing more non-medicine related electives was correlated with a significantly worse overall score on the ABIMCE. The cut-off for this significance is 4 or more non-medicine months.
CONCLUSIONS: Obtaining ABIM certification is an expected goal of Internal Medicine graduates and residency programs. However, the ABIMCE is only validated to assess the medical knowledge competency. Furthermore, for any individual, subspecialty sub-scores on the ABIMCE are only important when one does not achieve certification on the first attempt. Hence, the factors that drive subspecialty elective choice by residents (or requirement by programs) must include other issues including demonstrating all the core competencies in that subspecialty discipline.What our data does support is that even in this population skewed toward above average success on the ABIMCE, increased

numbers of non-medicine electives correlated with poorer overall performance. At a micro level, this finding may influence program limitation on non-medicine electives in residents at risk for not passing the ABIMCE on the first attempt. At a macro level, this data is important to the academic Internal Medicine community as restructuring residency training is being considered nationally.

SUBSTANCE USE DISORDERS IN WOMEN OF CHILDBEARING AGE: BARRIERS TO TREATMENT AND FACILITATORS TO SOBRIETY. A.I. Wilk[1]; L.B. Manwell[2]; S.K. Mindock[3]. [1]University of Wisconsin-Madison, Madison, WI; [2]University of Wisconsin School of Medicine & Public Health, Madison, WI; [3]University of Wisconsin Hospital & Clinics, Madison, WI. *(Tracking ID # 150434)*

BACKGROUND: Women with substance use disorders have unique issues regarding treatment and recovery when compared to men. Through discussions with recovering women, we elucidated barriers to treatment, treatment effects, and facilitators to recovery.
METHODS: Five focus groups comprised of 51 women between the ages of 25 and 50 discussed barriers and facilitators to a successful recovery process. Participants were in active treatment for substance use disorders at one of four outpatient treatment centers. Three coders with differing addiction training (epidemiologist, counselor, internist) independently read the focus group transcripts, identified major themes, and assigned statements to themes and subthemes. The coders met weekly to reconcile differences until consensus was reached.
RESULTS: The coders identified 605 distinct comments; all were grouped under 5 major themes: Treatment Barriers (19%), Positive Aspects of Treatment (27%), Negative Aspects of Treatment (31%), Relapse Triggers (8%), and Relapse Prevention (15%). All coders identified the major themes; inter-rater agreement on sub-themes was 60%. Consensus was reached on 100% of the comments. Most women reported better functioning and healthier living since sobriety, but found life more challenging. Prior to treatment, common barriers included the enjoyment of substance use, feelings of grandeur, fitting in, maintaining a successful lifestyle and livelihood and a perceived control of their substance use. Recurrent sub-themes common to all 5 major categories included self-esteem, partner use, fatigue, and coping. Most gender-related themes emerged during discussions of negative treatment aspects. These included lack of housing for recovering women and their children, child custody issues, poorer body image, sleep problems, lack of treatment and aftercare programs dealing with women's issues, and widespread discrimination against substance abusing women. PTSD was a huge issue, spanning all five themes. To remain sober, many women left partners, retired from prostitution or drug dealing and subsequently suffered significant financial woes. Responsibility toward their children played a significant role in decisions to stay sober. Support from other women was the most important factor in maintaining sobriety and working though difficult emotional issues.
CONCLUSIONS: These discussions elicited issues unique to women undergoing the recovery process from substance use disorders. Treatment programs and primary care providers need to be aware that childcare, safe housing, alternative methods of generating income, sleep deprivation, and PTSD as well as specific barriers to treatment must be addressed with this population.

SURGICAL AND SUBSPECIALTY HOUSE OFFICERS' KNOWLEDGE AND ATTITUDES TOWARD OLDER PATIENTS: BASELINE ASSESSMENT AND EFFECTS OF AN INTERVENTION. B.C. Williams[1]; J.T. Fitzgerald[1]; L. Krain[1]; J.B. Halter[1]. [1]University of Michigan, Ann Arbor, MI. *(Tracking ID # 152938)*

BACKGROUND: Recent initiatives from philanthropic organizations and government have focused on measuring and improving clinical care of older patients by non-primary care physicians (surgical and related specialties, and medical subspecialties). The purposes of our study were to determine: a) baseline geriatrics attitudes and knowledge, and b) effects of a faculty development program to enhance geriatrics teaching, among house officers (HOs) in surgical specialties and medical subspecialties (SSMS) at an academic medical center. Previous studies of faculty development programs have measured faculty satisfaction, knowledge, and teaching skills; few have measured learner outcomes.
METHODS: We implemented a series of nine-month long weekly faculty development seminars for faculty from 12 surgical and related specialties and medical subspecialties. Faculty met in small groups for two hours each week, and were charged with developing and implementing a geriatrics curriculum for their residency or fellowship program. At baseline, HOs were administered four previously validated scales, including three attitudes scales - the UCLA Geriatrics Attitudes Scale (GAS; 14 items), and two scales of the Maxwell Sullivan test (Therapeutic Potential and Time/Energy; 6 items each; lower scores denote more favorable attitudes) scored on 1–5 Likert scales - and the Geriatrics Clinical Knowledge Assessment (20 multiple choice items; range 0–100%). Repeat surveys were administered in 7 disciplines after geriatrics curriculum implementation, a median (range) of 13 (9–20) months after the baseline survey.
RESULTS: All faculty successfully implemented new seminars and clinical teaching in geriatrics. At baseline ($n=175$), mean HO scores for geriatrics attitudes were favorable (e.g., 3.7 for GAS; 2.1 for Time/Energy), with more favorable attitudes among medical subspecialty than surgical HOs (e.g., mean GAS 3.8 and 3.6, respectively; $p=.0001$), and with advanced training (e.g., mean HO1 GAS=3.5 vs. HO5 GAS=3.8; ANOVA $p=.001$). Mean knowledge scores were 65.1% among all HOs, with higher scores among medical subspecialty than surgical HOs (69.9% and 62.8%, respectively; $p<.001$), and with advanced training (ANOVA $p<.001$). No differences in attitudes or knowledge were observed between the first ($n=100$) and second ($n=90$) test administrations in the 7 disciplines that administered subsequent tests, or among the 57 individual HOs with more than one assessment.
CONCLUSIONS: The moderately positive attitudes towards older patients and defecits in knowledge among surgical and medical subspecialty house officers suggests a need for further training in the care of older patients. Effects on learner outcomes of disseminated faculty development programs are difficult to measure using brief, general assessment instruments. Instruments more sensitive to the teaching content and that include behavioral measures need to be developed to better assess learner needs and to improve faculty development programs for clinician educators.

TAILORING CLINICAL GUIDELINES TO COMORBIDITY PROFILES. R.S. Braithwaite[1]; A.C. Justice[1]. [1]Yale University, West Haven, CT. *(Tracking ID # 156640)*

BACKGROUND: There is an increasing awareness that clinical guidelines may need to be tailored to the rising number of individuals with multiple comorbidities. However, there is no consensus on how to accomplish this. Our objective was to explore the feasibility of a method for tailoring clinical guidelines to comorbidity profiles, using the case of cancer screening for 50 year-old men with HIV.
METHODS: For each guideline, we determined a ***payback time***, defined as the minimum elapsed time following its application that would enable its benefits to exceed its harms for a hypothetical individual. We estimated payback times based upon United States Preventive Services Task Force (USPSTF) recommendations regarding the maximum life expectancy for which the guideline should apply and/or the data on which USPSTF guidelines were based. If the payback time was greater than the individual's estimated survival (considering comorbidity-related competing risks), the guideline was assumed to confer no benefit. We estimated survival based upon a validated computer simulation of HIV in the current treatment era that considers variable levels of adherence to antiretroviral treatment.
RESULTS: For 50 year-old men, the USPSTF guidelines endorsed colorectal cancer screening (grade A recommendation, strongly recommended) and were equivocal about prostate cancer screening (grade I recommendation, data insufficient). We estimated that the payback time for colorectal cancer screening was 8.8 years (range 6.5 years to 11.5 years). Virtually all men with high adherence to antiretroviral therapy would be expected to benefit from colorectal cancer screening, with the exception of individuals with the least favorable prognostic indicators (CD4 <200 and viral load $>1{,}000{,}000$). Individuals with poor adherence to antiretrovirals would not benefit from colorectal cancer screening, with the exception of those with the most favorable prognostic indicators (CD4 >500 and viral load $<10{,}000$). The lower bound of the payback time for prostate cancer screening was 10 years (upper bound uncertain because of its equivocal benefit). While it was unclear whether prostate cancer screening offered any benefit for men with high adherence to antiretroviral therapy, men with poor adherence definitely would not benefit.
CONCLUSIONS: Comorbidities matter. Tailoring clinical guidelines to individuals with comorbidities has great potential to reduce morbidity and mortality, and should become a health policy imperative.

TEACHING GERIATRIC FUNCTIONAL ASSESSMENT TO INTERNAL MEDICINE RESIDENTS: A RANDOMIZED TRIAL OF A PERSONAL DIGITAL ASSISTANT – BASED TOOL. T.G. McLeod[1]; D.A. McNaughton[2]; G.J. Hanson[1]; A. Borrud[1]. [1]Mayo Clinic, Rochester, MN; [2]Mayo Clinic, Scottsdale, AZ. *(Tracking ID # 150345)*

BACKGROUND: Personal digital assistant (PDA) use among physicians is common, particularly for doctors-in-training. Applications include point-of-care access to medical references and evidence-based guidelines. Although interest in these devices has increased, emerging literature is largely qualitative. Little in the way of outcomes-based data is available to define the impact of this technology on medical education or practice parameters. The objective of our study was to design, implement, and evaluate the educational effectiveness of a PDA-based geriatric assessment tool (GAT) among internal medicine residents.
METHODS: Our study was conducted at a large Midwestern academic medical center from July 2004 to July 2005. First-year residents rotating on a general medicine hospital service were enrolled as subjects. All residents attended a lecture at the beginning of the rotation addressing common, bedside geriatric functional assessment measures. Eight topics were presented: Activities of Daily Living (ADLs), Instrumental Activities of Daily Living (IADLs), Cognition, Mobility, Depression, Delirium, Malnutrition, and Risk for Adverse Drug Reactions. All residents were provided access to a web-based GAT that incorporated these eight modules. PDA users among the residents were randomized to receive (or not) an internally developed GAT software application for use on their PDA. Outcome measures included GAT use frequency, performance on a 10-item pre- and post-test, and tabulation of geriatric functional issues identified on hospital dismissal summaries. Data was compiled by group (PDA non-users, PDA with GAT, PDA without GAT) and comparative analysis was performed utilizing Kruskal Wallis and Duncan Multiple Comparison tests.
RESULTS: 72 residents were enrolled in the study. 38 (53%) residents reported PDA use. Of these, 20 were randomized to receive the PDA-GAT. Use frequencies for web and PDA-based GATs were low for all study groups, and decreased as the academic year progressed. Average change in test score (pre-to-post) was highest for the PDA with GAT group at 2.8 ($p=0.03$). Average post test score was highest for the PDA with GAT group (NS). Dismissal summaries for 1369 geriatric admissions were reviewed. The average number of geriatric functional issues identified was highest for residents in the PDA with GAT group (11.05

issues per resident), but did not achieve statistical significance. These results are summarized in Table 1.
CONCLUSIONS: Residents who were provided with a PDA-based geriatric assessment tool demonstrated significant improvement in geriatric knowledge when compared to peers who did not have access to this resource. These results suggest that curricula adapted to a PDA platform may be an effective educational modality. Whether or not improvements in test score translate into meaningful clinical endpoints (such as greater proficiency in identifying geriatric functional issues in practice) remains to be determined.

Table 1

Study Group	# Subjects	Average Pre Test Score	Average Post Test Score	Average Score Change (%)	# Geri Issues Identified (Av)
PDA non-users	34	4.41	6.32	1.91 (57)	356 (10.47)
PDA with GAT	20	3.75	6.55	2.80 (101)	221 (11.05)
PDA without GAT	18	4.89	6.50	1.61 (49)	182 (10.11)

TEACHING INTERNAL MEDICINE RESIDENT PHYSICIANS ABOUT ALCOHOLICS ANONYMOUS: EFFECTS OF A CURRICULAR INNOVATION. A.J. Rose[1]; M.R. Stein[2]; J.H. Arnsten[2]; R. Saitz[3]. [1]Boston VA Health System, Boston, MA; [2]Montefiore Medical Center, Bronx, NY; [3]Boston University, Boston, MA. *(Tracking ID # 150233)*

BACKGROUND: Clinicians in the United States often fail to provide efficacious interventions to patients with alcoholism. Greater physician confidence in treating alcoholism is associated with a higher frequency of referring alcoholic patients for treatment. Many physicians have limited experience with treatment options such as Alcoholics Anonymous (AA), though twelve-step programs such as AA are the most common source of treatment for patients with substance abuse disorders. Many patients feel that the spiritual dimension of twelve-step programs is an important aspect of their therapy, but physicians may not feel comfortable with spiritually-based treatment options.
METHODS: We implemented a resident physician curriculum about AA and evaluated its effect on knowledge and attitudes, using a before-after repeated measures study design. The intervention consisted of a 45-minute lecture about AA, a visit to an AA meeting that evening, and a 30-minute debriefing session and discussion the next day. All didactic sessions were led by a chief resident (AJR) rather than a specialist in addiction medicine. Residents' knowledge and attitudes were assessed by a brief written anonymous survey immediately before and after the curricular intervention, and a paired t test was used to compare the pre and post scores.
RESULTS: We had 100% participation from thirty-six first-year residents in Internal Medicine. The majority of the subjects were female (61%) and their average age was 27.7 years old. Most (78%) had never been to an AA meeting before the educational intervention, but a majority (56%) knew someone with a substance abuse disorder. The results of the questionnaire are summarized in Table 1. After the intervention, residents reported increases in perceived knowledge about AA and had more favorable attitudes towards AA.
CONCLUSIONS: A brief, easily implemented curriculum can improve physician knowledge and attitudes about AA, and holds promise for increasing referrals by physicians to this effective intervention.

Table 1

Category	Question	Mean Score Before Intervention (SD)	Mean Score After Intervention (SD)	p-value
Perceived Knowledge	I know what occurs at an AA meeting.	5.2 (2.3)	8.1 (0.9)	<0.001
Perceived Knowledge	I understand the role of a sponsor in the AA program.	6.3 (2.2)	8.0 (1.0)	<0.001
Perceived Effectiveness of AA	I believe that AA is an effective treatment option to help alcoholics to remain abstinent.	7.6 (1.2)	8.1 (0.9)	0.008
Comfort With AA	I would be comfortable referring a patient to AA.	7.4 (2.2)	8.4 (0.9)	0.003
Comfort With AA	I would be comfortable asking my alcoholic patient how well AA is working for him.	8.3 (1.2)	8.5 (0.9)	0.4
Comfort With AA	I would be comfortable asking my alcoholic patient about his rapport with his sponsor.	7.6 (1.5)	8.4.(1.0)	0.002
Comfort With AA	I am comfortable with the importance of spirituality in AA.	6.3 (2.4)	7.4 (1.7)	0.008

TEACHING RESIDENT PHYSICIANS ABOUT NUTRITION AND OBESITY: A NEEDS ASSESSMENT. S.J. Herring[1]; M. Vetter[1]; M. Sood[1]; C. Tseng[1]; A.L. Kalet[1]. [1]New York University, New York, NY. *(Tracking ID # 154150)*

BACKGROUND: Despite that obesity has become a national epidemic, comprehensive nutrition education is lacking in many internal medicine residency training programs. To guide the design of an effective nutrition curriculum for residents, we performed a targeted needs assessment to determine the attitudes, self-perceived proficiency and knowledge related to clinical nutrition and obesity among a cohort of internal medicine interns.
METHODS: In 2005, internal medicine interns were anonymously surveyed during orientation. Using a 70-item previously validated questionnaire, data on nutrition attitudes and self-perceived proficiency were collected and grouped into 10 subscales derived from factor analysis, which included: 1) nutrition in routine patient care, 2) clinical behavior, 3) physician-patient relationship, 4) patient behavior/motivation, 5) physician efficacy, 6) nutrition and preventive/wellness, 7) macronutrients and health, 8) women, infants and children, 9) micronutrients in health, 10) nutrition and disease management. Nutrition knowledge was assessed by calculating the percentage of correct responses to 40 multiple choice questions addressing topics of endocrine disease, cardiovascular disease, vitamin/mineral therapy, nutrition assessment and gastrointestinal disease. The questionnaire also asked for information regarding prior medical school nutrition training.
RESULTS: Of the 114 incoming and current interns at orientation, 61 (54%) completed the survey. Approximately two thirds (63%) reported prior nutrition training in medical school. In all, 78% agreed or strongly agreed that nutrition assessment should be included in routine primary care visits, 93% agreed or strongly agreed that it was their obligation to discuss nutrition with patients to improve health, and 92% agreed or strongly agreed that specific advice about how to make dietary changes could help some patients improve their eating habits. Despite this, only 15% of respondents felt physicians were adequately trained to discuss nutrition issues with patients, particularly in the areas of HIV nutrition, vitamin and mineral supplementation, and counseling on food labels and serving size. The average knowledge score was 65%. There was no correlation among knowledge, self-perceived proficiency and attitude measures. When the groups were separated based on prior training in nutrition, there continued to be no differences in self-perceived proficiency or knowledge. However, the interns previously exposed to nutrition education reported more negative attitudes toward physician self-efficacy ($p = 0.002$).
CONCLUSIONS: Internal medicine interns' perceive nutrition counseling as a priority, but they lack the confidence and knowledge to effectively provide adequate nutrition education to their patients. Independent of prior training in nutrition, knowledge is still sub-standard. Prior nutrition exposure may negatively impact attitudes toward physician efficacy which poses interesting implications for curriculum development. More work is needed to explore the reasons driving these negative attitudes towards self-efficacy through focus groups or individual interviews to create a successful nutrition education program.

TESTING AND IMPROVING ELECTROCARDIOGRAM COMPETENCY IN INTERNAL MEDICINE RESIDENTS. A. Koka[1]; A. Gupta[1]; J. Gaughan[1]; B. Sanchez[1]; A.A. Bove[1]; D.V. Moyer[1]. [1]Temple University, Philadelphia, PA. *(Tracking ID # 154022)*

BACKGROUND: Precise interpretation of electrocardiograms (ECGs) is vital, yet no evidence for learning, testing and maintaining competency in training programs exists. We sought to prospectively evaluate competency in ECG interpretation among internal medicine residents as they progress through a residency program, as well as the effect of a self directed web-based didactic teaching module on improving competency.
METHODS: 55 Internal Medicine residents at one hospital based residency program in their first and second years of training were tested at the beginning of the academic year. 26 were randomly assigned to a self directed web based teaching module to be completed through the course of the year. All residents were then given a post-test at the start of the next academic year. The test consisted of 20 ECGs selected from the Electrocardiography Self Assessment Program III (ECGSAP III) designed by the American College of Cardiology. Tests were scored using a weighted point system defined by the ECGSAP III. The web module, designed at our institution in conjunction with the Section of Cardiology, consists of tutorials covering fundamental areas of ECG interpretations.
RESULTS: Significant deficiencies in ECG interpretation were identified at baseline. All residents scored an average of 21.8 points out of a total of 138 points. Critical diagnoses such as acute myocardial infarction, ventricular tachycardia, and pericardial effusion were not identified by 14%, 30%, and 100% of residents, respectively. By the end of the first academic year, first year residents improved 26 points (19.9 to 46, $p < .0001$), second year residents improved 24 points (24.6 to 48.7, $p < .0001$). The proportion of residents identifying critical diagnoses improved from 86% to 94% for acute myocardial infarction, 70% to 81% for ventricular tachycardia, and 0% to 79% for pericardial effusion. The web randomized group did no better than those randomized to the standard teaching curricula. Second year residents tested after being enrolled in the study for one year did significantly better than second year residents tested at the start of enrollment (46 vs. 24.6, $p < .0001$).
CONCLUSIONS: Overall competency in ECG interpretation achieved by internal medicine residents was low, and a significant proportion of residents were unable to identify critical diagnoses. The large improvement in competency seen regardless of randomization to web module cannot be ascribed solely to the standard medicine curriculum at our institution, as residents in their second year of training at the start of the study performed more poorly than second year residents enrolled in the study for a year. This large improvement in ECG

interpretation likely is due to fundamental changes to the training program as a result of participation in the study. Testing residents increases awareness of deficiencies and provides a significant incentive for self-directed learning. Also, education at training programs is driven by resident-peer interactions. Residents randomized to the web module may easily have disseminated information to those not randomized to the web module. Despite the large improvements seen, significant deficiencies in ECG competency remain. Continued research is needed on methods to improve ECG interpretation among residents.

THE ASSOCIATION BETWEEN NEIGHBORHOOD/ENVIRONMENTAL FACTORS AND PHYSICAL ACTIVITY AMONG OLDER AFRICAN AMERICANS IN LOS ANGELES: A QUALITATIVE ANALYSIS. O. Duru[1]; R. Brusuelas-James[1]; C. Sarkisian[1]; C.M. Mangione[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 154139)*

BACKGROUND: To inform the development of a community-based physical activity intervention, we conducted focus groups in African American communities to evaluate the association between neighborhood perception and physical activity participation. We hypothesized that people in low-income neighborhoods would 1) report greater barriers to outdoor physical activity, 2) identify fewer resources for outdoor physical activity and 3) engage in less physical activity, particularly outdoors, than participants in moderate-income neighborhoods.
METHODS: During 2004 and 2005, we conducted 6 focus groups of African-Americans aged 60 years and older (n=59) at a total of 4 senior centers in Los Angeles. We identified 2 centers each in low-income and moderate-income areas with significant African American populations, and within each center recruited a convenience sample of interested seniors with the assistance of senior center directors. All focus groups were audiotaped, transcribed, and reviewed for accuracy. We used Atlas/tiTM software to code the content of each focus group discussion, and then analyzed for key themes and patterns. Two investigators (OKD & RBJ) independently coded 2 of the transcripts, and then met to discuss and refine the coding terms, the remaining 4 transcripts were then coded.
RESULTS: Participants averaged 66 years, and 75% were female. Participants within each focus group could identify at least one nearby location that was clean, well-lit, and considered conducive to outdoor physical activity. Those in moderate-income areas were able to identify multiple locations. While most participants deemed outdoor activity such as group walking as acceptable, a common theme expressed across all groups was a preference for indoor activity such as low-impact aerobics, with concern for physical safety consistently raised as an important factor driving this preference. Participants in low-income neighborhoods expressed strong concerns emanating from specific, observed examples of gang activity, assaults on older persons, and dogs without leashes. This theme emerged from participants in moderate-income neighborhoods as well, but often from a more distant perspective, such as "criminals are everywhere no community is exempt" and "I haven't run into any loose [dogs], but you see them on the news." Within two of the groups in low-income neighborhoods, some participants expressed the importance of "being known" as conferring a degree of safety. Participants in several groups reported engaging in more outdoor activities along with coworkers and friends in late middle age, and shifting to primarily indoor activities over time. Overall, most participants reported engaging in physical activity at least three times per week.
CONCLUSIONS: While generalizability of this study is limited given the sampling strategy, fear of personal safety may be an important barrier to exercise among older African Americans within both low-income and moderate-income areas in Los Angeles, whether motivated by specific, observed safety concerns or by a global fear for personal safety. While acceptable resources for outdoor activity are identifiable in both low-income and moderate-income communities, their presence alone is probably not sufficient to increase physical activity behavior. We plan to use the results of this study to modify our intervention by providing more physical activity choices, including indoor options, while limiting outdoor activities to familiar, comfortable locations.

THE ASSOCIATION BETWEEN STATINS AND CANCER PREVENTION IN THE PHYSICIANS' HEALTH STUDY. W.R. Farwell[1]; H.D. Sesso[2]; R.A. Lew[1]; R.E. Scranton[1]; J.M. Gaziano[1]. [1]VA Boston Healthcare System, Boston, MA; [2]Brigham and Women's Hospital, Boston, MA. *(Tracking ID # 156004)*

BACKGROUND: Basic science and observational studies have provided preliminary evidence that statins may have a role in the primary prevention of cancer. A recent meta-analysis of trials of statins for cardiovascular disease prevention concluded that statins were not associated with cancer prevention. However, most trials of statins for cardiovascular disease prevention have been performed in younger populations and have not had long-term follow-up. Therefore, we examined whether current statin use was associated with cancer incidence and whether this potential association differed by age in the Physicians' Health Study (PHS).
METHODS: The PHS is a long-standing cohort that began in 1982 with 22,071 healthy middle-aged and older male physicians. Self-reported information on cardiovascular and cancer risk factors as well as medication use was ascertained via a yearly questionnaire. Each new cancer diagnosis was also self-reported and confirmed by chart review by an Endpoints Committee. We identified 9,804 men who reported being cancer-free on a comprehensive questionnaire completed around 1999. Among this cohort, we compared men who reported currently taking a statin to men who reported no current statin use with respect to subsequent cancer incidence using Cox proportional hazards models. In addition, because rates of prostate cancer are known to be elevated in highly screened populations, we determined the risk of prostate and non-prostate cancer seperately. Because age is a known risk factor for cancer incidence, we stratified by baseline age (<65 versus 65 years). Multivariate models controlled for age; body mass index; history of hypercholesterolemia; use of non-statin cholesterol lowering medications; exercise; alcohol use; smoking history; and diabetes mellitus.
RESULTS: Among 9,804 men (mean age of 67.6 years) over a mean follow-up of 6.6 years, a total of 1016 incident cases of cancer, excluding non-melanoma skin cancer, were identified, of which 562 were prostate cancer. No significant attenuation was observed between hazard ratios (HR) of age- and multivariate-adjusted models, therefore, only results from multivariate-adjusted models are presented. Compared with no current statin use, the HR (95% confidence intervals (CI)) for current statin use and the incidence of total, prostate and non-prostate cancer were 0.91 (0.75–1.10); 1.01 (0.79–1.29); and 0.80 (0.60–1.07), respectively. We observed a significant interaction ($p<0.01$) between current statin use and age for the risk of total cancer. Among men aged 65 years, the multivariate-adjusted HRs (95% CI) for current statin use and the incidence of total, prostate, and non-prostate cancer were 0.70 (0.55–0.89); 0.77 (0.57–1.05); and 0.62 (0.43–0.89) compared with no current statin use. Among men aged <65 years, the multivariate-adjusted HRs (95% CI) for current statin use and the incidence of total, prostate and non-prostate cancer were 1.50 (1.08–2.10); 1.53 (1.01–2.32); and 1.48 (0.86–2.54) compared with no current statin use.
CONCLUSIONS: Current statin use did not appear to be associated with decreased cancer incidence when analyzed among all ages of this large cohort of middle-aged and older male physicians. However, among men aged 65 years, current statin use appeared to be associated with a lower incidence of total and non-prostate cancer. More studies are needed to clarify the potential role of statin use and cancer prevention.

THE ASSOCIATION OF ACCULTURATION WITH PREVALENCE OF UNDIAGNOSED HYPERTENSION AMONG OLDER HISPANIC ADULTS. P.P. Eamranond[1]; E. Marcantonio[1]; K.Patel[2]; A. Legedza[1]; S.G. Leveille[1]. [1]Beth Israel Deaconess Medical Center, Boston, MA; [2]National Institutes of Health (NIH), Bethesda, MD. *(Tracking ID # 152286)*

BACKGROUND: Lower levels of acculturation among Hispanics is associated with health care disparities with regard to medical care for hypertension. No study to date has examined the association of acculturation with the prevalence of undiagnosed hypertension in an older Hispanic population. METHODS: We analyzed data from the Hispanic Established Populations for Epidemiologic Studies of the Elderly, which included 3050 Hispanic subjects age ≥65. We excluded subjects with previous diagnosis of hypertension defined by self-report and/or use of anti-hypertensive therapy. Measures of acculturation included language read/spoken, language used in social situations, language of mass media information, and duration of U.S. residence. Undiagnosed hypertension on physical exam was defined as systolic blood pressure ≥140 mmHg and/or diastolic blood pressure ≥90 mmHg, as measured by the average of two readings. We used weighted logistic regression to assess the impact of each acculturation measure on undiagnosed hypertension prevalence. We assessed the following potential confounders: education, health insurance, household income, and health care utilization. Our final model included the acculturation variable of interest, age, gender, and all significant confounders. We utilized SUDAAN to account for complex sample weighting.
RESULTS: Among 1407 subjects without previous diagnosis of hypertension, the mean age was 73 y, 58% were female, 43% were born outside of the U.S. Undiagnosed hypertension prevalence by measurements of acculturation is shown in Table. After adjusting for age and gender, language used in social situations and language of mass media information were significantly associated with undiagnosed hypertension prevalence (see Table). With further adjustment for education, only language of mass media information remained significantly associated with undiagnosed hypertension (see Table).

Table: Undiagnosed hypertension prevalence and odds ratios by acculturation among older Hispanics (N=1407)

Acculturation measure	Prevalent undiagnosed hypertension (%)	Model 1^ OR (95% CI)	Model 2# OR (95% CI)
Language read/spoken			
English>Spanish	28	1.0	1.0
Spanish=English	37	1.2 (0.7-2.0)	1.1 (0.6-2.0)
Spanish>English	43*	1.5 (0.9-2.3)	1.2 (0.7-2.1)
Language social situations			
English>Spanish	29	1.0	1.00
Spanish=English	36	1.5 (0.8-2.8)	1.5 (0.8-2.8)
Spanish>English	41*	1.7 (1.0-2.9)	1.4 (0.8-2.5)
Language mass media			
English>Spanish	24	1.0	1.0
Spanish=English	38	2.4 (1.4-4.2)	2.3 (1.3-4.0)
Spanish>English	43*	2.5 (1.5-4.2)	2.3 (1.4-3.8)
Duration of U.S. residence			
U.S.-born	40	1.0	1.0
≥20 years	38	1.0 (0.7-1.5)	0.9 (0.6-1.3)
<20 years	39	1.2 (0.7-2.2)	1.0 (0.5-1.8)

* Chi-square test for trend: p<.01
^ Adjusted for age and gender
# Adjusted for age, gender, and education

CONCLUSIONS: Hispanic elders who reported using Spanish language mass media were more likely to have undiagnosed hypertension compared to those who reported using English language mass media. Further studies should be

performed to elucidate the role of acculturation factors, particularly mass media, in undiagnosed hypertension and other cardiovascular risk factors among immigrant populations.

THE ASSOCIATION OF LANGUAGE WITH CARDIOVASCULAR RISK FACTOR CONTROL AMONG HISPANICS IN THE UNITED STATES. P.P. Eamranond[1]; C. Wee[1]; A. Legedza[1]; S.G. Leveille[1]. [1]Beth Israel Deaconess Medical Center, Boston, MA. *(Tracking ID # 150202)*

BACKGROUND: Language barriers negatively affect health care experiences of Spanish-speaking patients. It is unclear whether limited English proficiency (LEP) leads to disparities in health care outcomes with regard to cardiovascular risk factor control. In this context we assess the prevalence and control of hyperlipidemia, hypertension, and diabetes among LEP Hispanics compared to English-proficient Hispanics.
METHODS: We analyzed data from the National Health and Nutritional Exam Survey (NHANES) 1999–2000 and 2001–2002, a cross-sectional study evaluating 3449 Hispanic adult subjects. Prevalence of cardiovascular risk factors was defined by self-reported diagnosis, current use of disease-specific medication, and/or new laboratory/physical examination diagnosis during the NHANES survey. Inadequate hyperlipidemia control was defined by prevalent ATPII guidelines as LDL-C $\geq$ 190 mg/dL for 0–1 risk factors, $\geq$ 160 mg/dL for 2+ risk factors, and $\geq$ 130 mg/dL for history of coronary heart disease. Inadequate hypertension control was defined as systolic blood pressure $\geq$ 140 mmHg and/or diastolic blood pressure $\geq$ 90 mmHg. Inadequate diabetes control was defined as a hemoglobin A1c $\geq$ 7.0 mg/dL. We used weighted logistic regression to examine the relationship between language proficiency and the control of hyperlipidemia, hypertension, and diabetes while adjusting for age and gender. We then examined the impact of education, income, and health insurance on these relationships. We used SUDAAN to account for the complex sampling design.
RESULTS: We found that risk factor prevalence among Hispanics was 29.5% for hypertension, 12.0% for diabetes, and 21.0% for hyperlipidemia. After adjusting for age and gender, the prevalence of these cardiovascular risk factors did not vary by English proficiency status. Among patients with hyperlipidemia, LEP Hispanics were significantly more likely to have poorly-controlled LDL-C than non-LEP Hispanics, 40% vs. 22%, OR 2.21 [95% CI, 1.02–4.79]. Among patients with hypertension, LEP and non-LEP Hispanics had similar control of blood pressure, 67% vs. 63%, OR 1.03 [95% CI, 0.71–1.51]. Among patients with diabetes, LEP Hispanics were somewhat more likely to have adequate hemoglobin A1c control than non-LEP Hispanics, 54% vs. 61%, OR 0.55 [95% CI, 0.26–1.17], although this did not reach statistical significance. These associations were not confounded by education, income, or insurance status.
CONCLUSIONS: Poor English language ability may be associated with increased risk of inadequate LDL-C control among Hispanics with hyperlipidemia. This relationship was not influenced by the socioeconomic factors that we evaluated. We did not find that English language proficiency significantly influenced control of hypertension or diabetes. Further studies should examine the mechanisms by which limited English proficiency has an adverse impact on lipid control among U.S. Hispanics.

THE ASSOCIATION OF NON-DIALYSIS CHRONIC KIDNEY DISEASE AND SELF-REPORTED HEALTH CARE UTILIZATION. M. Alexander[1]; B. Bradbury[2]; M. Anthony[2]; R. Kewalramani[2]; D. Globe[2]. [1]Harvard University, Cambridge, MA; [2]Amgen, Thousand Oaks, CA. *(Tracking ID # 154073)*

BACKGROUND: Previous research has estimated that as many as 18.9 million people in the US have chronic kidney disease (CKD) stages I-IV, many of whom are undiagnosed and unaware of potential complications. Despite its prevalence and clinical sequelae, little is known about the utilization of health care services by this population.
METHODS: Data from the Third National Health and Nutrition Survey (NHANES III, 1988–1994), a stratified, random sample of non-institutionalized US residents, were used to examine utilization of primary healthcare by individuals at different stages of CKD. The number of self-reported physician visits and hospitalizations during the year preceding the NHANES III interview and examination were used to measure utilization. Serum and urine lab samples were used to classify respondents into different stages of CKD according to their estimated glomerular filtration rate (GFR), albumin:creatinine ratio (ACR), and rates of persistent microalbuminuria. Respondents were classified into CKD Stage I (GFR $\geq$ 90 mL/min/1.73 m^2 with persistent albuminuria), CKD Stage II (60 $\leq$ GFR $<$90 with persistent albuminuria), CKD Stage III (30 $\leq$ GFR $<$60), and CKD Stage IV (15 $\leq$ GFR $<$30). Hemoglobin levels (g/dL) were obtained from the serum lab records and the presence of comorbid diseases from the participant survey. Self-reported utilization during the previous year was analyzed by CKD stage and by demographics, socio-economic indicators, insurance coverage, hemoglobin, and comorbidities. Multivariate regression was used to estimate the cross-sectional association of CKD stage and health care service utilization (separate model for physician visits and hospitalizations) to control for these covariates.
RESULTS: In this sample of 14,462 participants, 10.8% had CKD stages I–IV (3.3% Stage I, 3.0% Stage II, 4.3% Stage III, and 0.2% Stage IV). Comparing participants with and without CKD, there were no differences in sex and race distributions, but increasing age, decreasing hemoglobin levels, and an increasing prevalence of comorbidities were associated with increasing stage of CKD. Compared to the general population, those with CKD were more likely to report a diagnosis of diabetes (no CKD: 4.4%, Stage 1:17.5%, Stage IV: 36.5%), hypertension (no CKD: 21.9, I: 34.9, IV: 75.0%), and congestive heart failure (no CKD: 2.3, I: 4.1, IV: 23.1%). With increasing CKD stage there were increases in both self-reported annual hospitalizations (no CKD: 0.17, Stage I: 0.25, Stage II: 0.27, Stage III: 0.43, Stage IV: 0.50) and annual physician visits (no CKD: 3.3, Stage I: 4.4, Stage II: 4.6, Stage III: 6.2, Stage IV: 6.2), which were consistent across ethnic groups, and highest among Hispanic participants. The multivariate regression analysis indicated that an increase in CKD severity was associated with both hospitalizations and physician visits, after controlling for ethnicity, sex, and age.
CONCLUSIONS: In this nationally representative sample, individuals with CKD (defined by estimated GFR from laboratory results) reported higher rates of hospitalizations and physician visits. After controlling for patient demographics and comorbidities, increasing CKD stage was associated with increased health care utilization, which was most pronounced among Hispanics. Recognition and treatment of CKD at early stages could impact the progression of CKD and comorbidities, thereby reducing health care utilization.

THE ATTITUDES TOWARD HOMELESSNESS INVENTORY (ATHI) IS SUPERIOR TO THE ATTITUDES TOWARDS THE HOMELESS QUESTIONNAIRE (ATHQ) FOR DOCUMENTING RESIDENT ATTITUDE CHANGES. D. Buchanan[1]; L. Rohr[1]; T. Sai[1]; L. Stevak[2]. [1]Rush University Medical Center, Chicago, IL; [2]John Stroger Hospital of Cook County, Chicago, IL. *(Tracking ID # 154366)*

BACKGROUND: Positive attitudes towards patients are important for the development of effective doctor patient relationships. As part of a strategy to address health disparities, medical education should mediate harmful stereotypes and negative attitudes toward stigmatized groups. To meet this goal, curricula concerning homeless patients have been developed at many institutions. To assess the impact of these curricula, instruments have been developed to document attitudes toward homeless patients. The Attitudes Toward Homelessness Inventory (ATHI) is an 11-item instrument with four sub-scales and was validated using undergraduates. The second instrument published was the Attitudes Towards the Homeless Questionnaire (ATHQ), a 20-item survey designed to determine the views of medical students and health professionals. Despite the similarity of these instruments, no published studies have compared their utility in documenting attitude changes among physicians in training.
METHODS: A primary care internal medicine residency program at an urban public hospital used both the ATHI and the ATHQ to evaluate attitude changes among seven cohorts (N=25) of second and third-year residents participating in a required 2-week homeless medicine rotation. The curriculum includes clinical care in homeless shelters, lectures (by homeless individuals and physicians), discussions, journaling, and visits to service providers. The two instruments were administered on the first and last days of the course without the presence of the course directors. The pre and post tests were matched using the last four digits of the resident's social security number to maintain confidentiality. All 25 residents completed the pre and post assessments. We calculated the difference between the pre and post tests in three categories: the difference in total scores, the difference in scores per survey item (the ATHI has 11 items and the ATHQ has 20), and the difference in scores per survey item standardized for the number of response choices for each item (the ATHI has 6 response choices for each item and the ATHQ has 5). A paired sample *t*-test was used for statistical comparison.
RESULTS: Both the ATHI ($P<0.001$) and the ATHQ ($P=0.050$) documented changes in residents' attitudes. The magnitude of the pre-post change was 0.63 per item for the ATHI and 0.13 per item for the ATHQ. When the ATHI per item change was standardized to reflect the change expected if there were 5 response choices instead of 6, the per-item change was 0.53. Overall, the standardized per-item change for the ATHI was 4.1 fold greater than for the ATHQ. These numbers indicate that residents improved their responses on one out of every eight survey questions on the ATHQ and one out of every two survey questions on the ATHI after the course.
CONCLUSIONS: Both the Attitudes Towards Homelessness Inventory (ATHI) and the Attitudes Towards the Homeless Questionnaire (ATHQ) documented improvement in residents' attitudes after a two week homeless medicine curriculum. However the magnitude of the change with the ATHI was 4 times greater than with the ATHQ. These findings suggest that the ATHI is a superior instrument for detecting changes in attitudes.

Attitude Changes after a Homeless Medicine Curriculum: Comparing the ATHI and ATHQ

	Mean Pre-test	Mean Post-test	Total Change	Per item Change	Per Item Change Standardized	P Value
ATHI	46.0	53.0	6.9	0.63	0.53	<0.001
ATHQ	77.3	79.8	2.5	0.13	0.13	0.050

THE BURDEN OF OBESITY AMONG A NATIONAL PROBABILITY SAMPLE OF VETERANS. K. Nelson[1]. [1]University of Washington, VA Puget Sound, Seattle, WA. *(Tracking ID # 151413)*

BACKGROUND: Few national data exist about the prevalence of obesity and the resulting health burden among veterans.

METHODS: We analyzed data from the 2003 Behavioral Risk Factor Surveillance System (n=242,362) to compare rates of obesity among veterans who do and do not utilize the Department of Veterans Affairs (VA), compared to non-veterans. We used bivariate analyses to describe the association of obesity with physical activity, diet and co-morbid diseases among these populations and multivariate analysis to assess the independent association of obesity with VA care.
RESULTS: Veterans who use the VA for health care have the highest rates of obesity compared to veterans who do not use the VA and non-veterans (27.7% vs. 23.9% vs. 22.8%, $p<0.001$). Only 27.8% of veterans who receive health care at the VA are of normal weight (vs. 42.6% of the general population, $p<0.001$), 44.5% are overweight, 19.9% have class I obesity, 6% have class II obesity and 1.8% are morbidly obese (an estimated 82,950 individuals). Obese veterans who utilize the VA for services have higher rates of hypertension (65.8%) and diabetes (31.3%), are less likely to follow diet and exercise guidelines and more likely to report poor health than their normal weight counterparts.
CONCLUSIONS: Veterans who receive care at the VA have higher rates of overweight and obesity than the general population. At present, less than half of VA medical centers have weight management programs. As the largest integrated US health system, the VA has a unique opportunity to respond to the epidemic of obesity.

THE CLINICAL HEALTH ECONOMICS SYSTEM SIMULATION (CHESS): PRACTICAL LEARNING FROM PLAY. J.D. Voss[1]; M.L. Mintz[2]; J.M. Jackson[1]; J.M. Schectman[1]. [1]University of Virginia, Charlottesville, VA; [2]George Washington University, Washington, DC. *(Tracking ID # 154004)*

BACKGROUND: A paucity of methods exist to teach medical trainees about the structure and financing of the US health care system despite requirements from graduate and undergraduate accrediting organizations. CHESS is an interactive cognitive simulation for learners working in teams paid fee-for-service (FFS) or capitation (CAP) to examine toss-up medical decisions and select treatments of variable resource intensity. CHESS provides feedback about costs and physician income so that learners may see how differences in payment incentives and cost may influence treatment selections and the perceived value of health care services delivered.
METHODS: We conducted workshops with 523 medical students and internal medicine residents participating in small group exercises at institution 1 with a single large group activity at institution 2. Learners completed an anonymous 32 item pre-post questionnaire including 6 items adapted from a previously published survey. Changes in response to these 6 items, measuring attitudes and beliefs about health economics, were prospectively identified as a proxy for measuring learning from participation in the simulation. For each question (see table) learners selected 1) capitation, 2) fee for service, 3) no difference or 4) "I don't know" as a response pre- and post- CHESS. Pre-post changes in belief were examined using McNemar's test for paired data. Post simulation, learners also rated how much they learned from the seminar and their preference to learn this information in simulation vs. lecture format.
RESULTS: 79% of participants completed the test instrument. The final sample consisted of 88% medical students and 12% internal medicine resident reponses. Participants recorded high mean (4.4) and median (5) scores of learning (1-learned little, 5-learned a great deal), with slightly higher mean scores for residents than medical students (4.6 vs. 4.3, Mann-Whitney U p value=0.004). Trainees participating in small groups rated learning more highly (mean 4.4, median 5) than in the large group (mean 3.6, median 4, Mann Whitney U $p<0.001$). The percent of participants changing their response (our learning proxy) after the seminar for the 6 questions are listed in the table. Post CHESS, 81% of learners indicated that they believed that capitation was more likely to deliver the greatest value for money spent but twice as many learners (43%) expressed a personal preference to practice under FFS vs capitation. Ninety percent of trainees preferred learning this information in simulation format.
CONCLUSIONS: CHESS is a useful and engaging method for learning and applying health economics concepts that leads to significant changes in beliefs and knowledge. Graduate and undergraduate medical learners indicated strong preferences for simulation format.

Percent of Learners changing response after playing the CHESS simulation

Which payment method promotes...	Percent of learners who change response	McNemar p Value
Better MD-pt relationship	60%	<0.0001
Better access	55%	<0.0001
Better value for $ spent	45%	<0.0001
More ethical conflict	50%	<0.0001
Better chronic illness care	65%	<0.0001
Better continuity	63%	<0.0001
Is your preference?	64%	<0.0001

THE CLOSURE OF A MEDICAL PRACTICE FORCES ELDERLY PATIENTS TO MAKE DIFFICULT DECISIONS: A NATURAL EXPERIMENT. M.J. Nidiry[1]; A. Gozu[1]; S. Wright[1]. [1]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 151580)*

BACKGROUND: With the preordained closure of a longstanding primary care practice and the relocation of the physicians and staff to new office 11 miles away, patients were forced to decide whether to follow their physician or to transfer their care elsewhere. This qualitative study explores the perspectives and experiences of the elderly patients who had to endure this difficult and unwanted change.
METHODS: We conducted a cross-sectional survey of patients older than sixty years that had previously received their primary care at the original practice. Months prior to the closure, all patients were informed about the closure and they were invited to follow their primary care physicians (PCPs) to the new practice 11 miles away. Eight months after the closure, electronic databases were used to generate two lists of patients older than 60 years from the original office: (i) those that had followed their PCP to the new practice, and (ii) those that had chosen new PCPs at an affiliated clinic located near the primary site (2 miles away in the same community). From each of the two lists, 140 patients were randomly selected for inclusion in the study. These patients were mailed a questionnaire that ended with an open ended question asking them to describe what the move from the original practice has been like for them. Using grounded theory content analysis, two investigators independently coded all of the written responses. Coding categories were discussed and agreed upon by consensus.
RESULTS: The response rate was 64%. Females accounted for 63% of the sample. Patients who switched to the near clinic were older (mean age: 75 versus 70 years, $p<0.01$), and were more likely to be living alone (38% versus 18%, $p=0.03$) than those who followed their PCPs to the further clinic. Patients who moved to the near clinic and were now seeing a new physician commented on being satisfied with the proximity of the site, and described being pleasantly surprised and accepting of the change. One respondent wrote: "when you're as old as I am, you learn to adjust the best you can." On the other hand, these patients also expressed longing for the prior building, the staff, and especially their previous physician. Some acknowledged being dissatisfied with their new physician and explained that it is "hard and scary to start over at this stage". Patients who transferred their care to the further clinic conveyed a loyalty and satisfaction with their PCP, and an appreciation of the added features including specialists, radiology, and more evening hours at this "new, state-of-the-art" facility. One patient said: "It could not have worked out better I can even do some testing right there. The biggest plus is I don't have to change my doctor whom I love." Some patients recorded being upset by the inconvenience and expense of getting to the further clinic. In reflecting back on the closure of the original clinic, patients described "heartache", "anger", and a sense of "abandonment of the elderly in the community".
CONCLUSIONS: The natural experiment of the closing of a primary care practice has demonstrated that patient loyalty to physicians and convenience both appear to be important factors in deciding where elderly patients elect to go to receive their healthcare. Older patients have strong opinions and react emotionally to changes in their healthcare delivery system.

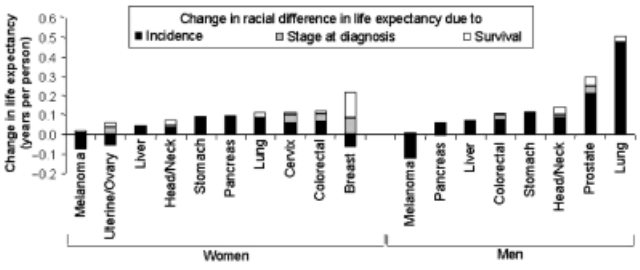
THE CONSTRUCT AND PREDICTIVE VALIDITY OF A COMPREHENSIVE CLINICAL SKILLS EXAM. L.R. Tewksbury[1]; R. Richter[1]; C. Gillespie[2]; A.L. Kalet[1]. [1]New York University School of Medicine, New York, NY; [2]New York University Robert F. Wagner School of Public Service, New York, NY. *(Tracking ID # 153079)*

BACKGROUND: Medical schools are facing mounting pressures to ensure clinical competency of graduating students. Despite increasing reliance on performance-based assessments, there have been some conflicting data on the validity of such exams. In this study, we aim to analyze construct and predictive validity of a comprehensive clinical skills exam (CCSE).
METHODS: Working collaboratively with core clerkship directors, we developed the 6-station CCSE for fourth-year medical students. Standardized patients used checklists to rate students' communication (CS), history gathering (HG) and physical examination (PE) skills. Faculty assessed student clinical reasoning (CR) by evaluating student patient notes completed post-encounter. Students scoring in the bottom decile in 2 or more competencies met failure criteria. We assessed: 1) construct validity using Pearson's Correlation Coefficient to measure divergent and convergent relationships among exam competencies (CS,HG,PE) and other measures of student competence (shelf exams, clerkship grades, USMLE exams); 2) concurrent validity by comparing CCSE performance of students who completed core clerkship to those who did not; and 3) predictive validity by examining CCSE pass/fail status of students who failed the USMLE StepIICS.
RESULTS: 125/148(85%) of students who completed the exam consented to have their data analyzed anonymously. Internal consistency of checklists, as measured by Cronbach's Alpha, was: CS (.91), HG (.80), PE (.60), and CR (<.5). Across all cases, CS was highly correlated with HG ($r=.47$, $p<.001$), but not with PE, demonstrating expected convergent and divergent validity. In measuring construct validity, CCSE competencies (CS,HG,PE) were not consistently associated with students' shelf exam scores, expect for CS, which was weakly correlated (range $r=.19$ to .23, $p<.05$). Overall, clerkship grades weakly correlated with HG ($r=.26$, $p<.01$) and PE ($r=.19$, $p>.05$) and more substantially correlated with CS ($r=.35$, $p<.001$). CS and PE were not significantly correlated with USMLE StepI&II knowledge exams, though HG did correlate weakly ($r=.22$, $p<.05$). Together, these three sets of variables (shelf exam, clerkship grades, USMLE exams) accounted for very little of the variance in CCSE scores (CS $R2=.10$, HG $R2=.10$, PE $R2=.03$, p=ns). In terms of CCSE concurrent validity, students who had completed the relevant core clerkship (78%Pediatrics, 68% Neurology, 71% Psychiatry, 74% Ob-Gyn) generally performed better in the respective clerkship-focused station. As for predictive validity, 3/9 students meeting failure criteria for the CCSE failed the USMLE StepIICS. Only one student who passed the CCSE failed the USMLE StepIICS but, of note, received the second lowest CCSE score in CS.
CONCLUSIONS: CCSE validity was supported by a number of measures, most impressively predicting failure of the USMLE StepIICS. Weak correlation

between the CCSE and other measures of student competence may indicate that the CCSE is capturing elements of student clinical competency not otherwise well-measured.

THE CONTRIBUTION OF CANCER INCIDENCE, STAGE AT DIAGNOSIS AND SURVIVAL TO RACIAL DIFFERENCES IN LIFE EXPECTANCY. M.D. Wong[1]; W. Boscardin[1]; S. Ettner[1]; M. Li[2]; C. Harless[1]; H. Cao[1]; M. Shapiro[1]. [1]University of California, Los Angeles, Los Angeles, CA; [2]San Francisco State University, San Francisco, CA. *(Tracking ID # 151382)*

BACKGROUND: African Americans are more likely than whites to get cancer, present at a later stage and have worse survival. The relative contribution of cancer incidence, stage at diagnosis and survival to the racial gap in life expectancy is unknown, but has important implications for directing future interventions targeting cancer prevention, screening and treatment.
METHODS: We estimated cancer- and stage-specific risks for incidence and survival using data from the SEER cancer registry. Using stochastic models, we estimated life expectancy if African Americans had the same cancer incidence, stage at diagnosis and survival as whites.
RESULTS: Compared to whites, African American men and women had 1.5 and 0.7 years shorter life expectancy due to all cancers combined. Cancer incidence accounted for most of this difference, accounting for 1.1 years among men, while stage at diagnosis and survival accounted for 0.2 years each. Among women, incidence, stage and survival accounted for 0.4, 0.2 and 0.1 years, respectively. These estimates reflect the impact on average life expectancy across the entire population including those without cancer. For most specific cancers, incidence, rather than stage or survival, was primarily responsible for racial differences in life expectancy (see figure). Exceptions to this pattern were found for breast, gynecologic, and colorectal cancers among women. For breast cancer, incidence accounted for –0.06 years difference (i.e. white women had higher breast cancer incidence than African American women), while stage accounted for 0.08 years and survival accounted for 0.13 years of the racial difference in life expectancy. For cervical and colorectal cancer, incidence accounted for most of the racial difference in life expectancy. However, stage at diagnosis had a larger relative impact as compared to the pattern seen with other cancers.



CONCLUSIONS: Previous studies indicate African Americans are less likely than whites to receive appropriate cancer screening and treatment. However, our study suggests that, except for breast, cervical, and colorectal cancer among women, eliminating disparities in screening and treatment would have a relatively small impact. Future efforts to eliminate racial differences in cancer mortality should focus on reducing the racial differences in cancer incidence, particularly for prostate and lung cancer among men, and reducing racial differences in breast cancer survival.

THE COST OF CHOICE IN THE MEDICARE PRESCRIPTION PLAN. J. Hayes[1]; A.V. Prochazka[1]; B. Pistone[2]. [1]Department of Veterans Affairs Medical Center, Denver, CO; [2]University of Colorado Health Sciences Center, Denver, CO. *(Tracking ID # 153389)*

BACKGROUND: With the advent of the Medicare Modernization Act (MMA) prescription drug benefit, Medicare patients now face the task of choosing their prescription coverage based on their own personal regimen. Our goal was to estimate costs for typical generic and brand name cardiovascular regimens using the MMA plans, a Canadian internet pharmacy, and a U.S. internet pharmacy.
METHODS: We chose two equipotent evidence-based regimens, one brand-name and one generic, typical of a cardiovascular patient. The brand name regimen was atorvastatin 10 mg qd, metoprolol SA 100 mg qd, ramipril 10 mg qd, and the generic regimen was lovastatin 40 mg qd, metoprolol 50 mg bid, lisinopril 20 mg qd. We then accessed the Medicare website plans for the zip code 80220 for a non-married patient determined to be above 150% of the poverty level income threshold for 2005. We used pharmacychecker.com to obtain the least expensive Canadian costs. Lastly, we obtained annual costs from a U.S. online pharmacy, drugstore.com.
RESULTS: For the brand name regimen, there were 40 Medicare plans at a median annual cost of $1731 with a range of $767 to $2379 and a SD of 339. The least expensive Canadian based pharmacy sold the same regimen for an annual cost of $933. The U.S. internet pharmacy annual cost was $1780. For the generic regimen, there were 40 Medicare plans at a median annual cost of $824 with a range of $317 to $1986 and a SD of 366. The least expensive Canadian based pharmacy sold the same regimen for an annual cost of $965. The U.S. internet pharmacy annual cost was $935.
CONCLUSIONS: The least expensive Canadian-based pharmacy offered substantial savings over all but one of the forty available Medicare plans for the brand name regimen. The generic regimen was less expensive under Medicare than the Canadian pharmacy. Compared to the U.S. internet pharmacy, the Medicare plans offered a varying degree of savings. Internists should strive to find equipotent generic equivalents if their patients are to realize maximal benefits under the Medicare plans, however when brand name drugs must be prescribed, Canadian pharmacies may offer substantial savings.

THE COST-EFFECTIVENESS OF IMPROVING DIABETES CARE IN U.S. FEDERALLY-QUALIFIED COMMUNITY HEALTH CENTERS. E.S. Huang[1]; Q. Zhang[2]; S.E. Brown[1]; M.L. Drum[1]; D.O. Meltzer[1]; M.H. Chin[3]. [1]University of Chicago, Chicago, IL; [2]Old Dominion University, Norfolk, VA; [3]The University of Chicago, Chicago, IL. *(Tracking ID # 153671)*

BACKGROUND: The provision of diabetes care is oftentimes suboptimal and multiple national programs have been implemented to improve care. The societal value of improving diabetes care comprehensively has never been evaluated. We assess the cost-effectiveness of a national program designed to improve diabetes care in federally-qualified community health centers (HCs).
METHODS: The Health Disparities Collaborative (HDC) is an ongoing quality improvement (QI) program in HCs that first began in diabetes in 1998. The HDC trains staff in methods of rapid QI and chronic disease management. We based our analysis on an evaluation of the diabetes HDC program carried out in 17 participating Midwestern HCs. Data on patient characteristics, care processes, and laboratory values were collected by chart abstraction from randomly identified diabetes patients, 18–75 years of age, in 1998, 2000, and 2002. Baseline patient characteristics (1998) and presumed intervention effects (1998 vs. 2002) were incorporated into an updated simulation model of diabetes complications. Program costs came from a case study of selected HCs. Costs (in 2004 US dollars) and quality-adjusted life years (QALYs) were discounted at a 3% annual rate. The main outcome of interest was the incremental cost-effectiveness ratio (ICER). We compare the value of improving individual care components and consider the impact of secular trends in sensitivity analyses.
RESULTS: In 1998, the mean age of patients was 54 years of age (standard deviation 14), 67% were female, 29% were Black, and 32% were Latino (N = 1190). Baseline complication rates were as follows: retinopathy (7%), neuropathy (11%), proteinuria (7%), and renal failure (2%). Based on these complications, the duration of diabetes was assumed to be the national average of 10.8 years. Multiple components of care improved from 1998 to 2002 during the implementation of the diabetes HDC. Among processes of care, annual glycosylated hemoglobin testing (HbA1C) (69% → 92%), lipid testing (53% → 69%), microalbumin assessment (16% → 36%), eye exams (24% → 43%), ACE inhibitor prescribing (34% → 50%), and aspirin prescribing (22% → 43%), all improved significantly. Mean HbA1C (8.53% → 7.94%) and cholesterol (total cholesterol 212 → 198 mg/dl) improved significantly but blood pressure (133/79 in 1998) did not. In the base case, the HDC was found to reduce the lifetime incidence of multiple complications including blindness (14% → 12%), end-stage renal disease (19% → 15%), and coronary artery disease (29% → 27%). The average improvement in QALYs was 0.30. The ICER of the base case was $67,531/QALY. The cost-effectiveness of individual improvements in care varied widely from highly cost-effective (ACE inhibitor prescribing (ICER $40,134/QALY)) to not cost-effective (glucose control improvement (ICER $150,833/QALY). In sensitivity analyses, we found that if secular trends accounted for over 50% of observed improvements, the ICER would exceed the 100,000/QALY threshold. The ICER remained below $100,000/QALY even when assuming high and constant program costs ($1000/patient).
CONCLUSIONS: Improving diabetes care comprehensively in HCs is cost-effective for society but is sensitive to the presence of secular trends. This analysis also illustrates that the combined effect of multiple small improvements in care can be cost-effective. The extent to which current QI programs enhance the care of multiple conditions is likely to enhance their overall cost-effectiveness.

THE DECISION TO WORK PART-TIME: A QUALITATIVE ANALYSIS OF WOMEN INTERNISTS IN ACADEMIC MEDICINE. R.A. Harrison[1]; J. Gregg[1]. [1]Oregon Health & Science University, Portland, OR. *(Tracking ID # 151877)*

BACKGROUND: As the number of women entering academic medicine continues to increase, women faculty physicians are increasingly engaged in part-time work, largely to balance work and family responsibilities. Despite the increasing interest in part-time career options in academic medicine, it remains unclear how clinicians cope with the unique demands of academic medicine when they are part-time workers, and what impact the decision to work part-time has on their lives. Our project begins to clarify these issues by exploring the process by which women in academic internal medicine make the decision to work part-time and by investigating the impact this decision has on their personal lives and careers.
METHODS: We invited all nine applicants to the Society of General Internal Medicine Horn Scholars Program from 2001 and 2004 award cycles to participate in a 1–2 hour recorded interview. All were junior faculty clinician educators in academic internal medicine from seven different major academic institutions. We performed a qualitative analysis of in-depth, audiotaped face-to-face or telephone interviews lasting 1–2 hours. Transcriptions were independently analyzed by the authors and themes generated.
RESULTS: Seven out of 9 eligible participants (77%) participated. Women framed their decision to begin part-time work in one of two ways: 1) as a decision they made in order to work less or 2) as a decision made in order to protect important values or activities. Furthermore, how participants framed their

choices had an impact on the consequences of those choices. All the women interviewed felt their decision to choose part-time work caused them to make significant financial and career sacrifices. However, when women were able to understand and frame their decision to begin part-time work as a choice made to protect important values or activities, they appeared more satisfied with their part-time position and were more able to defend their choice to self and others. Those who understood or framed their choice chiefly as less time at work had a more difficult time defending their decision to self and others. We found that self-reflection and the process of value clarification leading up to the decision to become part-time was critical, largely determined the consequences of the decision, and determined how women dealt with the multiple obstacles that stood in their way as a part-time worker. Finally, we also found that part-time work not only produced the expected deceleration in career advancement but also gave women a chance to explore and develop new career opportunities.
CONCLUSIONS: Part-time academic physician may be more satisfied with their work, when they understand their choice as an opportunity to foster an aspect of life outside of work. For those considering part-time work, opportunities for self-reflection and value articulation may create a more successful decision.

THE DIGITAL LIFESTYLE: A SYSTEMATIC REVIEW OF DIGITAL COMPARED WITH FILM MAMMOGRAPHY. J.A. Tice[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 157126)*

BACKGROUND: Current guidelines on mammography screening are based on eight large randomized trials of film mammography. Breast cancer screening is less effective in younger women in part because of the lower sensitivity of mammography in dense breasts. The high contrast resolution of digital imaging has the potential to improve detection of cancer in dense breasts, but adoption has been slow because of the high resolution required for mammography.
METHODS: The Medline database, Cochrane clinical trials database, Cochrane reviews database and the Database of Abstracts of Reviews of Effects were searched using the key words mammography and digit*. These were cross-referenced with the keyword human. The search was performed for the period from 1966 through December 2005. The bibliographies of systematic reviews and key articles were manually searched for additional references. The abstracts of citations were reviewed for relevance and all potentially relevant articles were reviewed in full. Studies were required to report test characteristics based on histologically confirmed cancer diagnoses ideally with at least one year follow-up from the mammogram to ensure that negative results represent true negatives. Differences in methods for interpretation and the definition of a true negative precluded pooling studies or use other meta-analytic techniques.
RESULTS: The initial search found 786 articles. Multiple publications described 5 studies comparing digital imaging to film for screening mammography and 4 studies focusing primarily on diagnostic mammography. Eight additional studies were reviewed but not included because they lacked controls, did not include sufficient data to evaluate test characteristics, compared image quality rather than clinical outcomes, or compared different image processing algorithms. For diagnostic mammography, digital mammogrpahy was less accurate than film (area under receiver operating characteristic (ROC) curve .72 vs. .77, sensitivity 66% vs. 74% in the largest study). For screening mammography, the early results were mixed with some studies reporting higher specificity for digital mammography, but lower sensitivity and others reporting higher sensitivity, but lower specificity. Two Norwegeian studies suggested that there was an important learning curve with digital mammography, with improved diagnostic accuracy after more experience. The pivotal Digital Mammographic Imaging Screening Trial (DMIST) included more women than all of the other trials combined. Digital mammography performed as well as film (area under the ROC curve .78 vs. .74). Subgroup analyses supported the a priori hypothesis that digital mammography should perform better than film when evaluating younger women with denser breast tissue (sensitivity 70% vs. 55%, $p=.02$).
CONCLUSIONS: Current evidence suggests that digital and film mammography have similar sensitivity and specificity when screening for breast cancer and that digital imaging has higher sensitivity in women with mammographically dense breasts. It is not clear why digital mammography was less accurate than film mammography in studies of diagnostic mammography and in screening studies prior to the DMIST study.

THE EFFECT OF GUIDELINES ON PHYSICIAN USE OF SCREENING PROSTATE-SPECIFIC ANTIGEN. C.E. Guerra[1]; P.A. Gimotty[1]; J.A. Shea[2]; S.S. Sonnad[1]; S.K. Grisby[3]; J.A. Pagan[4]; K. Armstrong[1]. [1]University of Pennsylvania, Philadelphia, PA; [2]Society of Directors of Research in Medical Education, Philadelphia, PA; [3]Howard University, Washington, DC; [4]University of Texas-Pan American, Edinburg, TX. *(Tracking ID # 156856)*

BACKGROUND: Prostate-specific Antigen (PSA) screening guidelines are inconsistent and conflicted. Yet, research suggests that guidelines influence physician PSA screening practices. This study compared PSA screening in primary care physicians who report no effect of guidelines on their practice with those who report an effect of guidelines on their practice.
METHODS: A cross-sectional study using the 1998–1999 Community Tracking Study Physician Survey of 3,914 nationally representative sample of primary care physicians who responded to a vignette about PSA screening. The case vignette asked physicians what proportion of asymptomatic 60 year-old white men they would screen with a PSA. Logistic regression was used to evaluate the association between physician-reported effect of guidelines on their practice of medicine (based on a 6-point response scale ranging from "no effect" to "very large effect") and consistent use of screening PSA (defined as screening at least 80% of the men depicted in the case vignette and coded as a dichotomous variable). The model adjusted for physician demographic and practice characteristics.
RESULTS: Of the 3,914 primary care physicians included in the analysis, 75% were white, 5% were Latino and 24% were female. The median age was 48 years (s.d. 10.8). The majority (59%) of physicians practiced Internal Medicine and 36% practiced Family Practice. The mean number of years in practice was 15.7 years (s.d. 11.0). Responses to the PSA screening vignette followed a bimodal distribution: 13% of physicians reported they would not screen any asymptomatic 60-year old white men, 60% of physicians reported they would screen all such patients and the remaining 27% of physicians reported that they would screen 1–99% of such patients. Two-thirds (65%) of physicians reported they would screen at least 80% of the men depicted in the vignette. As shown in the Table, a minority (8%) of physicians reported that guidelines have no effect on their practice of medicine and the remainder of physicians reported that guidelines had an effect on their practice. As also shown in the Table, the effect of guidelines on clinical practice was inversely associated with the probability of being a consistent PSA screener. In multivariate analyses, compared to physicians reporting no effect of guidelines on their practice, the odds of being a consistent screener was significantly lower for physicians reporting an effect of guidelines on their practice (OR 0.63; 95% CI 0.48–0.81; p-value=0.001).
CONCLUSIONS: The perception of an effect of guidelines on clinical practice is an important factor in physician ordering of a PSA screening test. Physicians who report an effect of guidelines on clinical practice are less likely to consistently screen men with a PSA test while those who report no effect of guidelines on their practice continue to screen the great majority of their patients.

The association between physician reported effect of guidelines on practice and being a consistent PSA screener

Physician reported effect of guidelines on practice	N (%)	OR	95% CI	p-value
No effect (reference)	319 (8)	–	–	–
Very small effect	490 (13)	0.70	0.50–0.99	0.04
Small effect	1042 (27)	0.61	0.46–0.80	0.001
Moderate effect	1363 (35)	0.52	0.39–0.69	<0.001
Large effect	541 (14)	0.57	0.40–0.82	0.003
Very large effect	155 (4)	0.59	0.37–0.94	0.03

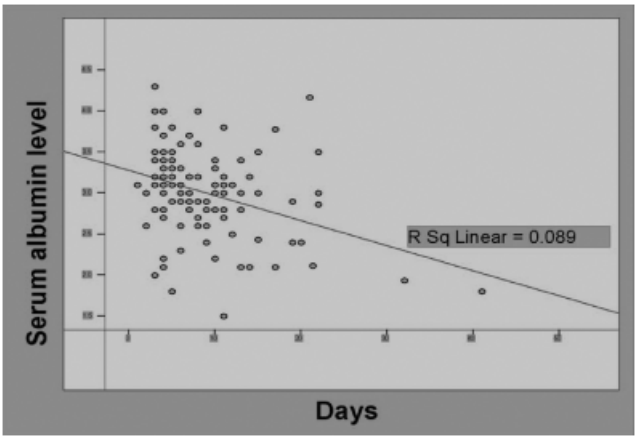
THE EFFECT OF NON-ENGLISH PREFERENCE ON ACUTE MYOCARDIAL INFARCTION LENGTH OF STAY AND IN-HOSPITAL MORTALITY. V. Grubbs[1]; K. Bibbins-Domingo[1]; A. Chattopadhyay[1]; A. Fernandez[1]; A.B. Bindman[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 154844)*

BACKGROUND: Despite an increasing population of individuals who prefer to speak a language other than English and federal statute mandating language access in the health care setting, language barriers persist. Language barriers may influence the process and quality of care, even for conditions such as acute myocardial infarction (AMI) for which standard protocols for diagnosis and treatment exist.
METHODS: This is a retrospective cohort study of administrative data for all Medicaid beneficiaries aged 35 years and older discharged from California acute care hospitals from 1994–1998 with a diagnosis of AMI. Language preference was available for 63% of observations. We examined the association between language preference and (1) LOS and (2) in-hospital mortality. We used multivariate regression to explore whether observed differences between the hospital experiences between NEP and English preference (EP) individuals could be explained by race/ethnicity (non-Hispanic white or non-white), health status, or within hospital effects. We adjusted for health status using the covariates from a previously validated multivariate prediction model of 30-day mortality following hospitalization for AMI.
RESULTS: Of 38,920 Medicaid eligible adults discharged from 415 California acute care hospitals with a diagnosis of AMI, 6,976 (18%) were NEP. In univariate analysis, NEP was associated with a LOS 5.6% longer than EP (95% CI 3.6, 7.7; $p<0.0005$), but not with differences in in-hospital mortality. After controlling for race and health status, NEP LOS increased to 6.0% longer than EP LOS (95% CI 3.2, 8.6; $p<0.0005$) and the odds of in-hospital mortality was higher for NEP than EP individuals (adjusted OR 1.18; 95% CI 1.01, 1.38; $p=0.04$). After additional adjustment with an indicator variable for each hospital, there was no difference in LOS, but in-hospital mortality remained higher for NEP than EP individuals (adjusted OR 1.20; 95% CI 1.02, 1.42; $p=0.03$).
CONCLUSIONS: Differences in how individual hospitals manage AMI explain differences between NEP and EP individuals' LOS, but do not explain higher in-hospital mortality for NEP individuals. Disparate mortality may be attributable to lapses in communication and quality resulting from language barriers.

THE EFFECT OF SERUM ALBUMIN LEVELS ON LENGTH OF HOSPITALIZATION IN PATIENTS WITH CONGESTIVE HEART FAILURE. A.R. Shah[1]; A.A. Mirza[1]; R. Malay[1]; L. Sanzaari[1]; R. Soucier[1]. [1]University of Connecticut, Farmington, CT. *(Tracking ID # 156651)*

BACKGROUND: The prevalence of Congestive heart failure (CHF) in United States is 2.2%. Total cost for care of CHF patients in United States is approximately 28.5 billion dollars annually, out of which 70% is for in- patient population. It is important to understand the markers of hospitalization stay

in patients admitted with CHF exacerbation. Hypoalbuminemia has been known to be an independent risk factor for mortality in heart failure patients. There are no published data suggesting role of nutrition on length of hospitalization in CHF patients. We hypothesize that patients with low albumin levels have significantly higher length of hospitalization in CHF patients.
METHODS: We retrospectively analyzed 109 consecutive patients admitted to St Francis hospital from 07/01/2004 to 04/01/2005 with diagnoses of CHF who had at least one determination of serum albumin level. Patients above 18 years of age with discharge diagnoses of CHF based on their International Diagnosis Related Group (DRG) or International classification of disease (ICD) codes were included. Patients with cardiac surgery within 60 days, angina at rest, history of ventricular fibrillation or sustained ventricular tachycardia, myocardial infarction, stroke within last 6 months and significant history of hepatic, renal or haematological dysfunction were excluded. Patients with albumin level lower than 3.0 mg/dl were considered to have low albumin level and more than 5 days of hospitalisation was considered as 'prolonged' stay. Student's t-test was used to compare continuous variable and chi-squre analysis was used to compared categorical variables. Scattered plot analysis and coefficient 'r' were generated with help of SPSS 13.0 software.



RESULTS: Total 48.6% patients had low and 51.4% patients had normal albumin levels. The mean length of hospitalisation was significantly more in patients with low albumin level. (3.6 days vs. 6.2 days; $p<0.05$).

Effect of Serum Albumin Levels on Length of Hospitalization in Patients with Congestive Heart Failure

CONCLUSIONS: Congestive heart failure patients with low albumin levels have longer hospitalization stay than those with normal albumin level. Further trials are needed to establish role of nutrition in patients admitted with congestive heart failure.

Length of hospitalization in patients with low and normal albumin levels

	Hospitalisation <=5 days; % (n)	Hospitalisation >5 days; % (n)	P value
Low albumin	28.4% (12/56)	78.6% (44/56)	< 0.001
Normal albumin	58.2% (28/53)	47.2% (25/53)	NS
Total	36.7% (40/109)	63.3% (69/109)	

THE EFFECT OF STATE POLICY ON ACCESS TO EMERGENCY CONTRACEPTION. H.E. Shacter[1]; J.A. Long[2]. [1]University of Pennsylvania, Philadelphia, PA; [2]Philadelphia VA CHERP, Philadelphia, PA. *(Tracking ID # 153741)*

BACKGROUND: A pharmacist's right to refuse to fill emergency contraception (EC) prescriptions based on moral or religious values is becoming an increasingly controversial public health issue. Legislation on the state level runs the gamut from allowing pharmacist to refuse filling EC prescriptions based on religious beliefs, to forcing pharmacists to fill any valid prescription presented them. However, little is known about the effects of such legislation. This study examines the availability of EC in three different states with widely differing policies.
METHODS: We attempted to survey every pharmacy in three cities: Boston, MA, Philadelphia, PA and Atlanta, GA. In Boston pharmacists are required to fill all valid prescriptions, while in Atlanta, pharmacists are legally allowed to refuse to fill prescriptions based on moral or religious beliefs. Philadelphia has no policy regarding pharmacist refusals. To simulate the resources of a woman seeking emergency contraception, we used Dex Online, a service of the Yellow Pages, to enumerate every pharmacy in each city (n=1701). We excluded 256 listings because they were not public pharmacies, leaving 1445 eligible pharmacies for inclusion. Pharmacists were asked whether they would be able to fill a prescription for EC within 24 hours. If they were not able to fill the prescription within 24 hours, we differentiated between those pharmacies that did not have it in stock but would order it, and those where pharmacists refused to dispense the medication altogether. All pharmacists were asked if other pharmacists in the store would fill the prescription and if they have a store policy regarding EC.
RESULTS: We talked to pharmacists at 1085 pharmacies for a response rate of 75% (Atlanta 74%, Philadelphia 74%, Boston 77%). The overall rate of pharmacies unable to fill a prescription for EC within 24 hours was 23%; 35% in Atlanta, 23% in Philadelphia, and 4% in Boston. All pairwise comparisons indicate that these rates were all statistically different from each other ($p<0.01$). Not being able to fill within 24 hours was primarily driven by not carrying EC. The rate of pharmacist refusals was 4% overall: 8% in Atlanta, 3% in Philadelphia, and 0% in Boston (all pairwise comparisons $p<0.01$). Among pharmacies unable to fill within 24 hours, refusal rates were 19% overall: 25% in Atlanta, 12% in Philadelphia, and 0% in Boston.
CONCLUSIONS: Pharmacist refusals in cities that allow them were not rare. However, it was more common for pharmacies to not carry EC, an act that serves as a de facto refusal to fill the prescription. The rate of pharmacists unable to fill the prescription within 24 hours was significantly higher in both Philadelphia and Atlanta than in Boston. The higher rate in Philadelphia, a northern city with no regulation regarding pharmacist refusals, shows that laws protecting a pharmacist's right to refuse may only uphold a status quo. Laws requiring pharmacists to stock the medication and fill prescriptions may therefore be the only way to ensure timely access to the medication.

THE EFFECT OF STATINS ON ALBUMINURIA: A META-ANALYSIS OF RANDOMIZED, PLACEBO-CONTROLLED TRIALS. K. Douglas[1]; P.G. O'Malley[2]; J.L. Jackson[3]. [1]Uniformed Services University of the Health Sciences, Rockville, MD; [2]Walter Reed Army Medical Center, Chevy Chase, MD; [3]Uniformed Services University of the Health Sciences, Bethesda, MD. *(Tracking ID # 152930)*

BACKGROUND: Albuminuria is an independent risk factor for cardiovascular and renal disease with limited therapeutic options. Data are conflicting on the effects of statins on albuminuria.
METHODS: Purpose: To systematically review the literature to determine whether and to what degree statins affect albuminuria. Data Sources: PubMed, MEDLINE, EMBASE, BIOSIS, SciSearch, PASCAL, International Pharmaceutical Abstracts (IPA) databases, and the Cochrane Controlled Trials Register between January 1974 and November 2005. Study Selection: Randomized, placebo-controlled trials of statins published in any language and reporting baseline and follow-up measurements of albuminuria or proteinuria, measured by 24-hour urine collection or the urinary albumin-to-creatinine ratio. Data Extraction: Two investigators independently abstracted study quality, characteristics, and outcomes.
RESULTS: Data Synthesis: Statins reduced albuminuria (11 studies) and proteinuria (4 studies) with a weighted mean difference in change from baseline of −37% (95% CI: −60% to −15%) compared with placebos. There was no statistical evidence of publication bias and sensitivity analyses did not identify a dominating study or study characteristic.
CONCLUSIONS: Limitations: Potential publication bias; mediocre study quality; low statistical power for subgroup analyses; statistical and clinical heterogeneity. Conclusion: Statins may have a beneficial effect on albuminuria or proteinuria within six months of initiating treatment. Whether this effect translates into reduction in cardiovascular or end-stage renal disease requires larger studies with longer follow-up, specifically looking at the association between change in pathologic albuminuria and hard outcomes.

THE EFFECT OF TEACHING HOSPITALISTS ON LENGTH OF STAY, OUTCOMES, AND TEACHING ON AN ACADEMIC MEDICAL SERVICE. W. Southern[1]; M. Berger[1]; J. Arnsten[1]. [1]Albert Einstein College of Medicine, Bronx, NY. *(Tracking ID # 153922)*

BACKGROUND: Academic medical services are under pressure to reduce length of stay (LOS) and other costs associated with inpatient admissions, but have difficulty staffing wards with voluntary physicians. To address this, Montefiore Medical Center's Weiler Hospital initiated a teaching-hospitalist program in 2002. The objective of this study was to assess the impact of this program on LOS, readmission and mortality rates, and resident and student teaching evaluations. We also determined the impact on LOS among patients with specific discharge diagnoses and dispositions.
METHODS: From 7/1/02 through 6/30/04 we assigned 6025 patients (without preference) to resident teams headed by either teaching-hospitalists or traditional attendings. For each patient, data were extracted from the hospital database on LOS for the index admission, 30-day readmission, and in-hospital and 30-day mortality. We used independent t- and chi-square tests to evaluate associations between type of team and these outcomes, including associations within discharge diagnoses and dispositions. We used multiple logistic regression to evaluate independent associations, adjusting for differences in patient populations. Finally, we determined whether evaluations by residents and medical students were different in the two teams, using 5-point scales to evaluate 14 teaching qualities for residents and 6 teaching qualities for students.
RESULTS: Mean LOS was reduced in teaching-hospitalist compared to traditional attending teams (5.01 vs. 6.00 days, $p<0.0001$). LOS was lower on teaching-hospitalist teams for patients with CHF (4.61 vs. 6.19 days, $p<0.0002$), pneumonia (5.99 vs. 8.68 days, $p<0.05$), asthma (3.08 vs. 4.00

days, $p<0.05$), and CVA (8.59 vs. 12.31 days, $p<0.05$), but not chest pain (1.77 vs. 1.91 days, $p=0.3$) or acute MI (7.11 vs. 7.61 days, $p=0.4$). LOS was reduced in teaching-hospitalist teams for patients discharged home without services (3.41 vs. 3.94 days, $p<0.0001$), home with nursing services (5.24 vs. 6.44 days, $p<0.0001$), and to a skilled nursing facility (8.21 vs. 10.78 days, $p<0.001$). Despite reduced LOS, 30-day re-admission rates were not increased (17.3% vs. 17.5%, $p=0.8$) and teaching-hospitalist teams did not have greater in-hospital or 30-day mortality rates (adjusted OR for in-hospital mortality among hospitalist teams = 1.01, 95% CI 0.75–1.37, AOR for 30-day mortality = 1.08, 95% CI 0.87–1.34). Evaluations by residents were higher in teaching-hospitalist teams in 4/14 categories: knowledge of literature (4.8 vs. 4.3, $p<0.05$), differential diagnosis (4.9 vs. 4.4, $p<0.05$), didactics (4.9 vs. 4.4, $p<0.05$), and availability (5.0 vs. 4.6, $p<0.05$); all other ratings were non-significantly higher. Evaluations by students were higher for teaching-hospitalist teams in 5/6 categories: overall (5.0 vs. 3.9, $p<0.05$), enthusiasm (5.0 vs. 4.2, $p<0.05$), problem solving (4.9 vs. 3.6, $p<0.05$), feedback (4.7 vs. 3.1, $p<0.05$), and respect for patients (5.0 vs. 4.5, $p<0.05$).
CONCLUSIONS: Compared to traditional attendings, teaching-hospitalists reduced LOS on an academic medical service without adversely effecting readmission or mortality rates or teaching quality. LOS was most reduced in patients admitted with CHF, pneumonia, and asthma, or requiring complicated discharge planning.

THE EFFECT OF THE INPATIENT GENERAL MEDICINE ROTATION ON STUDENT PURSUIT OF A GENERALIST CAREER. V. Arora[1]; T.B. Wetterneck[2]; J.L. Schnipper[3]; A.D. Auerbach[4]; P. Kaboli[5]; R.M. Wachter[4]; W. Levinson[6]; H.J. Humphrey[1]; D. Meltzer[1]. [1]University of Chicago, Chicago, IL; [2]University of Wisconsin-Madison, Madison, WI; [3]Brigham and Women's Hospital, Boston, MA; [4]University of California, San Francisco, San Francisco, CA; [5]University of Iowa, Iowa City, IA; [6]University of Toronto, Toronto, Ontario. *(Tracking ID # 151920)*

BACKGROUND: Although student interest in general internal medicine (GIM) has declined, it is challenging to determine the effect of student clinical experiences on student pursuit of a career in GIM. Prior studies often use entry into an internal medicine residency as an outcome, which does not account for the increasing trend for internal medicine residents to subspecialize or become hospitalists. While the effect of ambulatory rotations on student interest in GIM has been explored, the effect of the inpatient general medicine rotation is uncertain. This multicenter study aims to use a novel outcome measure to assess the effect of satisfaction with the inpatient general medicine rotation on student pursuit of a generalist career.
METHODS: From July 2001 to June 2003, 3rd year medical students at six academic medical centers were asked to use a 5 point Likert scale to rate their satisfaction with the general medicine rotation and certain elements (e.g. quality of attending rounds, relationship with resident or attending, teaching about clinical topics, etc.) and their career interests on an end-of-rotation questionnaire. Institutional match data was obtained to determine entry into an internal medicine residency in the two years after the rotation. Our outcome, student pursuit of a career in GIM, was defined by the following: (1) matching into an internal medicine residency; (2) a high stated likelihood of entering GIM defined as a response of "very likely" or "certain"; and (3) not pursuing a hospitalist career defined as a envisioning a "somewhat more inpatient" or "mostly inpatient" practice. Multivariate logistic regression models, controlling for site, were used to assess the effect of satisfaction with the rotation and with certain elements on student pursuit of a GIM career. Because survey items were highly correlated, factor analysis was used to isolate principal components of overall satisfaction. These factors were also used in multivariate logistic regression models to predict student pursuit of a GIM career.
RESULTS: 402 of 751 (53%) students responded. Of the student respondents, 307 (75%) matched in the two years after their rotations. 87 (28%) of those that matched chose an internal medicine residency. Of these, 39 (44%) stated a high likelihood of pursuing a career in GIM. After excluding the 10 students that envisioned an inpatient practice setting and 4 that were uncertain, 25 students met the outcome of interest, student pursuit of a career in GIM. 8% (25/307) of students that matched overall, and 30% (25/87) of students that matched into an internal medicine residency, were defined as pursuing a career in GIM. In site-adjusted multivariate logistic regression, overall satisfaction with the rotation predicted pursuit of a career in GIM (OR 3.91, $p<0.001$). Although satisfaction with individual items did not predict pursuit of a generalist career, factor analysis revealed three components of satisfaction: attending, resident, and teaching. In multivariate site-adjusted logistic regression, two factors (attending and teaching) were associated with student pursuit of a career in GIM ($p<0.01$).
CONCLUSIONS: Increased satisfaction with the inpatient general medicine rotation, particularly with the attending and teaching, promotes student pursuit of a career in GIM. Future interventions designed to promote student entry into GIM can use measure their impact using this approach.

THE EFFECTS OF DISCLOSING FINANCIAL CONFLICTS OF INTEREST IN CLINICAL RESEARCH: EVIDENCE FROM A LARGE NATIONAL SURVEY. K.P. Weinfurt[1]; M.A. Hall[2]; M.A. Dinan[1]; V. Depuy[1]; J.Y. Friedman[1]; J.S. Allsbrook[1]; J. Sugarman[3]. [1]Duke University, Durham, NC; [2]Wake Forest University, Winston-Salem, NC; [3]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 153013)*

BACKGROUND: Concerns over financial conflicts of interest in clinical research have led to calls for disclosing financial interests to potential research participants. However, the effects of such disclosures are unclear.
METHODS: An online survey was administered to 3,623 persons with either diabetes or asthma. Respondents read a brief description of a hypothetical clinical trial relevant to their medical condition, which included a financial disclosure statement. Respondents received one of 5 disclosure statements describing different types of financial interests in research. These included descriptions of the following interests: a generic (nonspecific) financial interest, a per capita payment, money received outside the study (e.g., consulting), equity (stock) ownership by the researcher, and equity ownership by the institution. Data were analyzed using general linear models. Effects are presented as standardized effect sizes (d), calculated as the difference in outcome between two groups divided by the standard deviation (SD) of the outcome.
RESULTS: Disclosure of various financial interests did not substantially affect willingness to participate in the hypothetical trial (overall, 50% were probably or definitely willing to participate, 26% were uncertain as to whether or not they would participate, and 24% were probably or definitely not willing to participate). While the sample varied in the importance attributed to the financial disclosure, the overwhelming majority of respondents felt it was much less important than other information about the trial, such as potential health benefits, risks, convenience, potential to help others, and the purpose of the research (median = −1.38, 25th percentile = −1.71, 75th percentile = −0.60). Disclosures were associated with some respondents (36%) trusting the researchers less, although trust among other respondents (5%) increased. Most respondents (67%) were not surprised to learn of the financial interests. Across all outcomes (willingness to participate, relative importance of financial disclosure, change in trust, surprise over financial benefit, and perceived effect on scientific quality), an investigator holding equity was viewed as more troubling to respondents than investigators being compensated for the costs of research on a per patient basis. (range of d's = .28–.52)
CONCLUSIONS: Aside from an investigator holding an equity interest, the disclosure to potential research participants of financial interests in research, as recommended in recent policies, is unlikely to affect willingness to participate in research. Future efforts should determine how to disclose financial interests that are acceptable so as to maximize understanding of these interests without unduly burdening the research enterprise. Additionally, given that disclosures can both increase and decrease participants' trust, it will be important to monitor the potential effects on trust over time.

THE EFFECTS OF QUALITY IMPROVEMENT STRATEGIES TO REDUCE UNNECESSARY PRESCRIBING OF ANTIBIOTICS: A SYSTEMATIC REVIEW AND QUANTITATIVE ANALYSIS. S. Ranji[1]; M. Steinman[1]; K.G. Shojania[2]; R. Gonzales[1]. [1]University of California, San Francisco, San Francisco, CA; [2]University of Ottawa, Ottawa, Ontario. *(Tracking ID # 156302)*

BACKGROUND: Unnecessary prescribing of antibiotics is a major problem in the US and worldwide, contributing to the problem of antimicrobial resistance (AMR). We conducted a systematic review of quality improvement (QI) strategies to reduce the inappropriate prescribing of antibiotics for non-bacterial acute illnesses in the outpatient setting.
METHODS: We searched the Cochrane Collaboration's Effective Practice and Organisation of Care registry and MEDLINE for randomized controlled trials (RCT) and controlled before-after studies (CBA) that reported the effect of a QI strategy on antibiotic use. Two reviewers independently abstracted data on the components of the QI intervention, study population, targets, and outcomes. Study quality was evaluated using a standardized checklist. QI strategies were classified as clinician education, patient education, audit and feedback, provision of delayed prescriptions, clinician reminders, and financial or regulatory incentives. Educational strategies were subdivided into active education (interactive sessions for patients or clinicians) and passive (traditional didactic) education. Our primary outcome was the percentage of patients prescribed an antibiotic at an office visit for a non-bacterial illness. Secondary outcomes included effects on antimicrobial resistance, disease outcomes, adverse events, prescribing costs, and patient satisfaction. We compared the effects of QI strategies in terms of the median effect achieved across all studies for the primary outcomes, using nonparametric tests, and qualitatively summarized studies not eligible for median effects analysis.
RESULTS: Thirty-four studies (reporting on 41 separate comparisons) met the inclusion criteria; these included 24 RCTs and 17 CBAs. Twenty-six studies addressed prescribing for acute respiratory infections, and 32 took place in outpatient primary care clinics. Clinician education was most commonly used (27 comparisons), along with patient education (18 comparisons); 12 comparisons provided education to both clinicians and patients. Audit and feedback of prescribing practices to clinicians was used in 12 comparisons (combined with clinician education in 10 of these). Interventions were overall effective at reducing the percentage of patients prescribed antibiotics, with a median absolute effect of −8.9% [interquartile range (IQR) −12.4% to −6.7%] over a median follow-up of 6 months. No individual QI strategy (or combination of strategies) was significantly more effective, although there was a trend toward active clinician education strategies being more effective than passive strategies. Patient satisfaction was not adversely affected (in 4 comparisons reporting this outcome), and there was no increase in use of health services (in 6 comparisons), but effects on AMR or costs could not be assessed. Study methodologic quality was generally fair, with methodological flaws such as lack of blinding and unit-of-analysis errors appearing frequently.
CONCLUSIONS: Quality improvement efforts appear generally effective at reducing inappropriate antibiotic treatment. While no single QI strategy was more effective than others, active clinician education may be more effective than passive education in certain settings. The available evidence is of only fair quality, and further research on the cost-effectiveness and potential harms of these interventions is needed.

THE EFFICACY AND SAFETY OF INHALED CORTICOSTEROIDS IN PATIENTS WITH COPD: A SYSTEMATIC REVIEW AND META-ANALYSIS OF HEALTH OUTCOMES. G. Gartlehner[1]; R.A. Hansen[1]; S.S. Carson[1]; K.N. Lohr[1]; T.S. Carey[1]. [1]University of North Carolina at Chapel Hill, Chapel Hill, NC. *(Tracking ID # 152338)*

BACKGROUND: Chronic obstructive pulmonary disease (COPD) is one of the leading causes of morbidity and mortality worldwide. In 2000, COPD accounted for approximately 20.7 million outpatient visits, 3.4 million emergency department visits, 6.3 million hospitalizations, and 116,513 deaths in the United States. The beneficial effect of inhaled corticosteroid (ICS) treatment for COPD remains controversial, in part because only smoking cessation is reliably shown to slow the rate of decline in lung function. Six ICSs are available in the United States: beclomethasone, budesonide, flunisolide, fluticasone, mometasone, and triamcinolone; none is FDA-approved for the treatment of COPD. The objective of this review is to determine the risk-benefit ratio of ICS treatment for COPD by systematically reviewing the evidence on the efficacy, effectiveness, and safety of ICS treatment in patients with COPD with respect to health outcomes. Contrary to previous systematic reviews, because our review incorporates observational evidence for adverse events, we provide the first comprehensive assessment of the risk-benefit ratio of ICS treatment for COPD.
METHODS: We searched MEDLINE®, Embase, The Cochrane Library, and the International Pharmaceutical Abstracts to identify relevant articles. We limited evidence to double-blinded randomized controlled trials (RCTs) for efficacy, but we also reviewed observational evidence for safety. Outcomes of interest were overall mortality, exacerbations, quality of life, functional capacity, and respiratory symptoms. Two persons independently reviewed abstracts and full text articles using pre-established exclusion criteria concerning study design or duration, patient population, interventions, and outcomes. We assessed the internal validity (quality) of trials based on predefined criteria from the US Preventive Services Task Force (ratings: good-fair-poor) and the National Health Service Centre for Reviews and Dissemination. When possible, we pooled data to estimate summary effects for each outcome.
RESULTS: Thirteen double-blinded RCTs determined the efficacy of an ICS compared to placebo; 11 additional studies assessed the safety of ICS treatment in patients with asthma or COPD. Overall, COPD patients treated with ICSs experienced significantly fewer exacerbations than patients on placebo (relative risk [RR]: 0.67; 95% CI: 0.59–0.77). No statistically significant difference could be detected for overall mortality (RR: 0.81; 95% CI 0.60–1.08). Evidence on quality of life, functional capacity, and respiratory symptoms is mixed. Adverse events were generally tolerable; pooled discontinuation rates did not differ significantly between ICSs and placebo (RR 0.92; 95% CI: 0.74–1.14). However, observational evidence indicates a dose-related risk of cataract and open-angle glaucoma. Severe adverse events such as osteoporotic fractures are rare; the clinical significance of the additional risk is questionable.
CONCLUSIONS: Overall, the risk-benefit ratio appears to favor ICS treatment in patients with moderate to severe COPD. Existing evidence does not present a treatment benefit for patients with mild COPD.

THE FORMATION OF AUTHENTIC COMMUNITY AS AN EDUCATIONAL STRATEGY FOR PROFESSIONAL DEVELOPMENT AND IDENTITY. M.W. Rabow[1]; J. Wrubel[1]; R.N. Remen[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 154136)*

BACKGROUND: Efforts to promote professionalism in students often focus on cognitive and technical competencies, rather than professional identity, commitment, and values. Instilling and strengthening these foundational elements of professionalism requires techniques different from those used to develop intellectual or technical competencies. The Healer's Art elective, currently offered at 39 medical schools nationally, includes experiential and contemplative modules on wholeness, loss, presence, grief, awe, and professional commitment. The curriculum is designed to create a genuine community of inquiry, using both large and small group formats.
METHODS: In 2003–04, Healer's Art students completed a standardized anonymous course evaluation. Researchers undertook a team-based qualitative analysis of narrative responses to questions about course utility and insights about professionalism. Three researchers developed a coding protocol on 50 randomly selected evaluations, adding and refining codes until achieving thematic saturation, then coded the remaining evaluations with a high level of agreement. The analysis of 3 prevalent codes is reported here. The study received IRB exemption.
RESULTS: In the study year, 25 schools offered the course. Complete evaluations were obtained from 467 of 582 students (80.2%) from 22 schools able to participate in the evaluation. The mean age of respondents was 25.1 years; 55.3% were female; 57.9% were first years. Most (93.6%) rated the course as useful and agreed strongly that the issues presented were not discussed elsewhere in their curriculum. LEGITIMIZE: Students aspired to a genuine emotional connection, even identification, with patients. As one student wrote, "I learned that we are people just like our patients. My medical education makes me no different from the people I care for." In legitimizing the human dimension of medicine, the course validated empathy, compassion and kindness as appropriate and integral elements of physicianhood. COMMUNITY: Students perceived the authentic community created in the Healer's Art as unique, characterized by a greater interactional honesty, respect, kindness and safety than found in other small groups and classes. This authentic community created a valuable opportunity for in-depth exploration of thoughts and values, and personal change. Students felt reassured that their feelings, fears, and doubts were normal and reported a deepened affiliation with peers, faculty, the medical community, and the human community in general. One wrote "We are all patients." GAP: Students from all 22 schools observed that Healer's Art topics and experiences were not part of the regular curriculum and unavailable elsewhere in medical school. Students reported the course filled a curricular gap and enabled them to experience and to practice what was only advocated elsewhere in the curriculum. "Humanism is paid a lot of lip service. It's nice to actually discuss it in concrete, personal examples and experience its power and importance, rather than simply to be told to employ it by an instructor."
CONCLUSIONS: In legitimizing humanistic elements of professionalism and creating a safe community, the Healer's Art enabled students to uncover the underlying values and meaning of their work – an opportunity not typically present in their required curricula. Attempts to support or instill professionalism must attend to issues of emotional safety and authentic community as prerequisites to learning and professional affiliation.

THE FREQUENCY AND TYPES OF AMBULATORY ADVERSE EVENTS. E.J. Thomas[1]; D. Woods[2]; J. Holl[2]; T.A. Brennan[3]. [1]University of Texas Health Science Center at Houston, Houston, TX; [2]Northwestern University, Chicago, IL; [3]Partners HealthCare System, Boston, MA. *(Tracking ID # 154612)*

BACKGROUND: Most health care in the United States is delivered in the ambulatory setting, but the epidemiology of errors and adverse events in ambulatory care is understudied.
METHODS: We selected a representative sample of hospitals from Utah and Colorado, and then randomly sampled 15,000 non-psychiatric discharges from 1992. Each record was screened by trained nurse reviewers for one of 18 criteria associated with adverse events. If one or more criteria were present, the record was reviewed by a trained physician to determine if an adverse event occurred. Adverse events were defined as an injury caused by medical management rather than disease processes that resulted in hospitalization or disability at discharge. Ambulatory adverse events (AAEs) were adverse events for which medical management occurred in an ambulatory care setting (physician's office, day surgery center, emergency department, hospital clinics, home) and caused patient harm that led to hospitalization. Two investigators judged preventability to identify ambulatory preventable adverse events (APAEs). We report percentages and 95% confidence intervals.
RESULTS: We reviewed 14,700 hospital discharge records and found 587 adverse events of which 70 were AAEs and 31 were APAEs. When weighted to the general population, there were 2,608 AAEs and 1,296 (44.3 %) APAEs in Colorado and Utah in 1992. APAEs occurred most commonly in physicians' offices (43.1%, 46.8–27.8), the emergency department (32.3%, 46.1–18.5), and at home (13.1%, 23.1–3.1). APAEs in day surgery were less common (7.1%, 13.6–0.6), but caused the greatest harm to patients. The types of APAEs were broadly distributed among missed or delayed diagnoses (36%, 50.2–21.8), surgery (24.1%, 36.7–11.5), non-surgical procedures (14.6%, 25.0–4.2), medications (13.1%, 23.1–3.1), and therapeutic events (12.3%, 22.0–2.6). Provider types involved in the APAEs included primary care (31.4%, 33.5–29.3), surgical specialties (22.6%, 24.5–20.7), medical specialties (21.8%, 23.7–19.9), and emergency medicine (18.5%, 20.3–16.7). Most APAEs occurred in adults (45.5% in 21–64 year olds; 38.1% in patients 65 or older. Overall, 10% of ambulatory preventable adverse events resulted in permanent injury or death. The proportion of APAEs that resulted in death was 31.8% for general internal medicine, 22.5% for family practice, and 16.7% for emergency medicine.
CONCLUSIONS: Although dated, these are the only population-based epidemiological data that describe APAEs. Nationally, over 75,000 hospitalizations per year are due to preventable errors in the outpatient setting. Broad-based research and prevention efforts will be required due to the diverse locations and providers involved and due to the varying types of APAEs.

THE IMPACT OF ALCOHOL CONSUMPTION AND DEPENDENCE ON DEPRESSIVE SYMPTOMS IN HIV-INFECTED PATIENTS. L.E. Sullivan[1]; R. Saitz[2]; D.M. Cheng[2]; H. Libman[3]; D. Nunes[2]; J. Alperen[2]; J.H. Samet[2]. [1]Yale University, New Haven, CT; [2]Boston University, Boston, MA; [3]Harvard University, Boston, MA. *(Tracking ID # 153269)*

BACKGROUND: Alcohol problems and depression are common comorbidities in HIV-infected patients. Research to date has not examined the impact of varying levels of current alcohol consumption and alcohol dependence on depressive symptoms in HIV-infected patients.
METHODS: We conducted an analysis of the association between alcohol consumption and dependence on depressive symptoms in a prospectively studied cohort of HIV-infected adults with current or past alcohol problems (defined as >2 out of a possible 4 positive responses to the CAGE alcohol screening questionnaire). The two independent variables of interest were past month consumption (at-risk [>4 drinks on one day or >14 drinks per week on average for men, >3 or >7, respectively, for women] versus not at-risk [none or moderate] amounts) as assessed using a validated calendar-based method and current alcohol dependence assessed using the reference standard Composite International Diagnostic Interview. The dependent variable was current depressive symptoms as measured by the Center for Epidemiologic Studies Depression Scale (CES-D). Data were collected at 6-month intervals between 2001 and 2005 and analyzed using longitudinal regression models controlling for age, gender, race, homelessness, medical comorbidities, HIV medication status, current illicit drug use, CD4 count, HIV viral load, and time since study enrollment. The effects of alcohol consumption and alcohol dependence were assessed in separate models.
RESULTS: At enrollment, subjects (n=401) had the following characteristics: mean age 43 years (range18–56); 75% male; 41% black; 33% white; 19% Hispanic; 7% other races; 25% homeless; 50% with detectable hepatitis C RNA; 64% currently using illicit drugs; 31% with at-risk drinking amounts; and 10% with current alcohol dependence. The mean baseline CES-D score was

22. Drinking at-risk amounts and dependence were significantly associated with higher CES-D scores in unadjusted models. In adjusted analyses, the association of current alcohol dependence persisted (adjusted mean difference in CES-D was 3.4 for dependence vs. non-dependence, $p<.001$), however the effect of drinking at-risk amounts was no longer statistically significant (adjusted mean difference in CES-D was 0.97 for at risk vs. not at-risk, $p=.14$).
CONCLUSIONS: Current alcohol dependence, but not at-risk levels of alcohol consumption, was significantly associated with more depressive symptoms in a cohort of HIV-infected patients with current or past alcohol problems.

THE IMPACT OF AN ELECTRONIC HEALTH RECORD ON THE AMBULATORY PRACTICE: A PILOT STUDY OF STUDENTS' PERSPECTIVES. E. Rouf[1]; H. Chumley[1]; S.F. Babbott[1]; M. Pollock[1]; A. Dobbie[2]. [1]University of Kansas, Kansas City, KS; [2]University of Texas Southwestern Medical Center at Dallas, Dallas, TX. *(Tracking ID # 153016)*

BACKGROUND: Primary care physicians will increasingly use electronic health records (EHRs) in ambulatory settings. An EHR has the potential to change aspects of care, the doctor-patient and patient-student-teacher interactions. This study is designed to identify students' perceptions of an EHR's impact on ambulatory practice.
METHODS: With IRB approval, we invited all third-year medical students at KUSOM for the academic year 2005–06 to complete a survey after their Family Medicine and Ambulatory Internal Medicine/Geriatrics clerkships. The survey uses a 5-point Likert scale (1-Strongly Agree to 5-Strongly Disagree) and has 21 items; 3–6 items for each of six constructs (Information packaging, access to resources, prompts/reminders, structure, follow-up, and patient-student-physician communication) identified through semi-structured student interviews. To date, 55 students are eligible.
RESULTS: 38 of 55 students consented to the study. 24 of 38 (63%) students responded (Table 1). Students preferred the way an EHR packages information. Students asked more history questions, but did not access online resources more often when using an EHR from an internet-capable computer. While students stated some satisfaction with the EHR overall, a significant percentage felt the EHR negatively affected specific aspects of doctor-patient interaction.
CONCLUSIONS: Students had variable perceptions regarding EHR use in ambulatory practice. Future studies should further explore measures of student-EHR interaction and outpatient learning in the presence of an EHR. We plan to refine our survey to assess the impact of EHR on outpatient learning and validate the survey with a multi-institutional sample.

Table 1 Percentage of students who answered strongly agree/agree (SA/A)

Items	% SA/A
easier to find essential information	71
prefer looking for patient information	62
prefer the layout/organization	54
accessed online clinical guidelines more often	34
accessed online information for patients more often	37
accessed online information about medications more often	12
was prompted to ask more history questions	67
was prompted to order more clinical preventive services	37
learned more about medication interactions	25
documentation was more complete	71
presentations were better organized	29
normal exam defaults helped with documentation	62
received more feedback on my notes	41
sent reminders to myself through the EHR to follow-up on patients	20
accessed patients' tests results more often	50
satisfied with the doctor-patient communication with the EHR	62
spent less time talking to the patient	20
EHR adversely affected communication with my preceptor	12
spent less time looking at patient	45
EHR improved my rapport with patients	20
patients liked that I was using an EHR	21 (79% neutral)

THE IMPACT OF DECREASED DUTY HOURS ON RESIDENT SELF REPORTS OF ERRORS. A.R. Vidyarthi[1]; A.D. Auerbach[1]; R.M. Wachter[1]; P. Katz[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 151390)*

BACKGROUND: Recent limitations on resident duty hours aim, in part, to reduce medical errors. Residents' perceptions of the impact of decreased hours on errors are unknown.
METHODS: We surveyed internal medicine residents at the University of California, San Francisco after duty hours were reduced. Residents were asked to report the frequency and causes of sub-optimal care practices and medical errors, and how decreased duty hours impacted these practices and aspects of resident work-life.
RESULTS: One hundred twenty-five residents (76%) responded. The most common sub-optimal care practices were working while impaired by fatigue and forgetting to transmit information during signout. In multivariable models, residents who felt overwhelmed with work ($p=0.02$) and who reported spending $>50\%$ of their time in non-MD tasks ($p=0.002$) were more likely to report engaging in sub-optimal care practices. Residents reported work-stress (defined as a composite of fatigue, excessive workload, distractions, stress, and inadequate time) as the most frequent cause of medical errors. In multivariable models, only reports of engaging in sub-optimal practices were associated with self-reports of medical errors ($p<0.001$); working more than 80 hours per week was not associated with sub-optimal care or errors.
CONCLUSIONS: In this academic internal medicine training program, administrative load and work stressors were more closely associated with reports of medical errors than the number of hours worked. Efforts to reduce resident duty hours may also need to address the nature of residents' work in order to reduce medical errors.

THE IMPACT OF LANGUAGE BARRIERS ON HOSPITAL COSTS AND LENGTH OF STAY. E. Jacobs[1]; L. Sadowski[1]; P.J. Rathouz[2]. [1]John H. Stroger, Jr Hospital of Cook County & Rush University Medical Center, Chicago, IL; [2]University of Chicago, Chicago, IL. *(Tracking ID # 153800)*

BACKGROUND: Many health care providers do not provide adequate language access services for their patients who are limited English-speaking because they view the costs of these services as prohibitive. However, they do not take into account the costs they might bear due to unaddressed language barriers. This is due in part to the paucity of data documenting the costs and benefits of providing interpreter services. The goal of this study was to investigate how language barriers impact the costs of a hospital stay.
METHODS: Patients admitted to a public hospital medicine service were recruited from 1/19/05 to 6/30/05. Spanish-speaking patients cared for by Firm C physicians received the interpreter service intervention (SS-I). Spanish-speaking patients cared for by Firm B physicians received usual care (SS-U). English-speaking patients (ES) matched to Spanish-speakers on age and gender were recruited from both firms. The assignment of patients to Firms is quasi-random. SS-I patients received the services of two highly trained Spanish language medical interpreters 8 hours a day, 7 days a week. SS-U patients occasionally received services from hospital-employed interpreters and otherwise relied on family, friends and staff to interpret. Demographic data were collected via patient interview. Patient diagnoses, length of stay, adherence to scheduled follow-up visits and emergency department (ED) visits and hospital admissions in the 3 months following hospital discharge were abstracted from the electronic medical record. We conducted analyses to explore differences between the SS-I and SS-U groups. The ES group served as a firm control group to ensure differences in the SS groups were not due to firm effects. Chi-squared tests and logistic regression were used to analyze binary variables, rank sum tests and ordinal logistic regression for ordinal variables and *t*-tests and cox-proportional hazards for continous variables.
RESULTS: 324 patients were recruited: 124 in the SS-I group, 99 in the SS-U group, and 100 in the ES group. There were no significant differences in sociodemographic characterics between the SS groups or across the firms in the ES group. Mean length of stay was significantly shorter in the SS-I group compared to the SS-U group (5.00 ± 4.06 vs. 5.97 ± 5.38, difference $=0.97$ days; $p=0.03$) and mean ED visits per patient were slightly higher in the SS-I group ($.15; \pm .47$ vs $.08 \pm .37$, difference $=0.07$ visits; $p=0.05$). There were no significant differences across the two groups in the number adhering to follow up or hospitalizations after discharge or on any variable between the ES patients across the firms. Adjustment for age, gender, insurance status, education, income, utilization of physican services in the past year and Charlson score, did not alter the findings. Using the cost of an average hospital day ($2,168), ED visit ($824) and cost per person for the interpreter service over the study period ($240) we calculated that the interpreter service saved $1805 ($=\$2{,}168 \times 0.97 - \$824 \times 0.07 - \$240$) per person in the SS-I group over the SS-U group.
CONCLUSIONS: An interpreter service intervention can substantially reduce length of stay and costs even after accounting for increased ED visits after discharge and the cost of the intervention. Health care providers need to examine all the cost implications of providing language access services before they deem them too costly. Not providing these services is much more costly than paying for them.

THE IMPACT OF NET WORTH ON THE USE OF SCREENING MAMMOGRAPHY AMONG OLDER WOMEN. B.A. Williams[1]; K. Lindquist[1]; R.L. Sudore[1]; L.C. Walter[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 153328)*

BACKGROUND: Compelling evidence suggests that healthy older women are likely to benefit from screening mammography, yet disparities exist in the receipt of screening. Our objective was to determine the effect of net worth on receipt of screening mammography and to evaluate the interaction between net worth and race-ethnicity in Medicare-eligible women aged 65 years and older.
METHODS: We studied 2,395 women aged 65 years and older who participated in the health and retirement survey (HRS) in 2002, a nationally representative longitudinal cohort study of older adults. Our main outcome was receipt of screening mammography in the subsequent 2 years. Our primary predictor was net worth, based on a comprehensive evaluation of assets and debts and defined as having a net worth of $<\$10{,}000$, $\$10{,}000$–$\$99{,}999$ or $>\$100{,}000$. We also assessed race-ethnicity, based on self-identification. We performed bivariate and multivariate logistic analyses to determine if net worth was associated with receipt of screening mammography and to evaluate the interaction between net worth and race-ethnicity. Because screening mammography may not be

appropriate for unhealthy elderly women, analyses were restricted to women with very favorable prognoses. This was defined as having a less than 10% predicted risk of mortality in 4 years using a previously validated prognostic model, in order to focus on those most likely to benefit from screening.
RESULTS: The mean age was 71 years (range 65–84), 80% were white, 13% African-American, 7% Latina. Overall, 76% of women with favorable prognoses received screening mammography. Low net worth was strongly associated with low screening mammography rates (66%, 68% and 81% for women with low, middle and high net worth, respectively, $p<0.001$). Within each racial-ethnic group those with low net worth were less likely to receive screening mammography than those with high net worth. However, an interaction existed between net worth and race-ethnicity such that net worth had a greater impact on screening rates in whites than in African Americans or Latinas ($p=0.05$ for interaction). For example, among white women, 57% of those with low net worth received screening mammography compared to 81% of those with high net worth, while among African-Americans, 72% with low net worth received screening compared to 77% of those with high net worth and among Latinas, 75% of both net worth groups received screening mammography.
CONCLUSIONS: One quarter of older women with favorable prognoses did not receive screening mammography. We found a strong association between net worth and receipt of screening mammography in Medicare-eligible healthy older women. The impact of net worth differed between racial-ethnic groups and was stronger in white women than in African-American or Latina women. This study highlights the importance of considering net worth when evaluating healthcare disparities and emphasizes the strong impact of economic status on healthcare utilization even among those who are Medicare-eligible.

THE IMPACT OF TEACHING MEDICAL STUDENTS HOW TO OVERCOME LANGUAGE BARRIERS. E. Jacobs[1]; L. Stevak[2]; S. Kim[3]; S. Lapidos[4]. [1]John H. Stroger, Jr. Hospital of Cook County & Rush University Medical Center, Chicago, IL; [2]John H. Stroger Jr. Hospital of Cook County, Chicago, IL; [3]Asian Health Coalition of Illinois, Chicago, IL; [4]Rush University Medical Center, Chicago, IL. *(Tracking ID # 154400)*

BACKGROUND: Medical students have very little exposure to the challenges of providing clinical care to patients with limited English proficiency (LEP) or training about how to best address these challenges. The goal of this study was to assess the impact of a course designed to address these deficiencies in medical education on the knowledge, attitudes and likelihood of future behavior of 2nd year medical students.
METHODS: The 1.5 hour course was given the week before students started their 3rd year ward rotations and included 4 components: (1) use of a teaching video to spark discussion about issues that arise when physicians use non-professional interpreters to communicate with their patients, (2) a didactic portion outlining principles for working with interpreters, (3) modelling of working effectively with interpreters, and (4) a role playing exercise in which medical students worked with an interpreter. Students completed a 28 item questionnaire measuring their knowledge, attitudes and likelihood of future behaviour when working with LEP patients shortly before and after participating in the course. Students circled one of five response categories from strongly disagree to strongly agree. Pre- and post-test difference scores were calculated for each student and t-tests were used to assess whether or not there was significant change in responses to each of the 28 items before and after the course.
RESULTS: Seventy-two of the seventy-nine 2nd year medical students who participated in the course completed both pre- and post-tests. There was significant improvement in their knowledge, attitudes, and likelihood of future behaviour when addressing language barriers after the course. Specifically students were more likely to know the correct placement of an interpreter in an encounter ($p<0.01$) and skills for enhancing communication in an interpreted encounter ($p<0.01$); that in most cases it is inapprorpriate to use family members as interpreters ($p<0.01$) and their use may lead to more misinterpretation than when using a professional interpreter ($p<0.01$). After training, students were more confident that they could provide good care to LEP paients ($p<0.01$), more likely to agree that it will be rewarding to work with LEP patients ($p<0.01$), and less likely to agree that they will feel frustrated when working with this population ($p<0.01$). After the course, students were more likely to say that they will seek out the help of a professional interpreter ($p=0.04$), ask patients to repeat back medication instructions ($p=0.05$) and take a patients' culture into account when formulating a care plan ($p<0.01$). For most of the items where there was no significant change pre- and post-test the students already demonstrated a high level of knowledge or desired attitude or behavior.
CONCLUSIONS: A brief educational intervention for medical students can significantly improve their knowledge of, attitudes towards and skills needed for overcoming language barriers in encounters with LEP patients. More research is needed to investigate how educational interventions like this one impact medical student behavior.

THE IMPACT OF URINARY INCONTINENCE ON ETHNICALLY-DIVERSE OLDER WOMEN. A.J. Huang[1]; J.S. Brown[2]; J. Creasman[2]; A. Ragins[3]; S.K. Van Den Eeden[3]; D.H. Thom[2]. [1]Veterans Affairs Medical Center, San Francisco, CA; [2]University of California, San Francisco, San Francisco, CA; [3]Kaiser Permanente Division of Research, Oakland, CA. *(Tracking ID # 153060)*

BACKGROUND: Urinary incontinence is a common problem among older women, with up to 50% of women over the age of 60 having incontinence at least once a week. Although greater clinical severity of incontinence is associated with greater quality-of-life impact, other determinants of the quality-of-life impact of incontinence are not well understood. Within the United States, there has been almost no research on the impact of incontinence in non-white populations, even though there are many cultural variations in micturition habits and taboos that might cause women of different ethnic backgrounds to experience urinary leakage differently.
METHODS: We examined characteristics associated with greater quality-of-life impact among ethnically-diverse older women with at least weekly incontinence. The Reproductive Risks for Incontinence Study at Kaiser is a population-based cohort of 2,109 women aged 40 to 69 years at study inception, randomly selected from age and race/ethnicity strata. Data on demographic and medical characteristics, as well as incontinence symptoms, were collected by self-report questionnaires and interviews. The validated Incontinence Impact Questionnaire (IIQ), which assigns a composite score based on the impact of symptoms on physical activity, emotional health, social/personal relationships, and travel, was administered to subjects reporting at least weekly symptoms. Multivariable logistic regression analysis was used to identify demographic and clinical characteristics associated with a high IIQ score (defined as >75th percentile) while controlling for race/ethnicity and incontinence severity.
RESULTS: Over a quarter ($n=601$) of participants reported weekly urinary incontinence, including 95 Black (16%), 123 Latina (20%), 65 Asian (11%), and 308 White (51%) women. After adjusting for clinical incontinence severity as well as race/ethnicity in multivariate analysis, we found that women were more likely to have high impact scores if they had nighttime incontinence (OR=2.5, 95% CI 1.3–4.9), incontinence during sexual activity (OR=1.9, 95% CI=1.1–1.3), or co-morbid fecal incontinence (OR=2.2, 95% CI 1.2–4.2). Higher IIQ score was also associated with lower educational level (OR=1.9, 95% CI=1.2–3.3, for non-college graduates) and poorer overall health status (OR=4.6, 95% CI=2.6–8.4).
CONCLUSIONS: Clinicians seeking to evaluate the impact of urinary incontinence on women's lives should assess not only the frequency and clinical type of their symptoms, but also the specific context in which their incontinence occurs. Demographic factors may play as important a role as clinical severity in determining the impact of incontinence, with women of lower educational level experiencing higher quality-of-life impact.

THE INCREASING COMPLEXITY OF PRIMARY CARE. E.D. Abbo[1]; Q. Zhang[2]; M. Zelder[1]; E. Huang[1]. [1]The University of Chicago, Chicago, IL; [2]Old Dominion University, Norfolk, VA. *(Tracking ID # 154020)*

BACKGROUND: Primary care providers are growing more frustrated with the challenges of daily practice, and medical student entry into the field is declining. Although these trends have been attributed to increasing work in the face of stable or declining reimbursement, studies have recently shown that practitioners are actually seeing fewer patients for longer visits with increased payment per visit. Changes in complexity of care may help to explain these paradoxical findings and have important implications for reimbursement policies. We set out to determine whether complexity in primary care is increasing, and if so, whether this accounts for longer visits.
METHODS: We utilized the National Ambulatory Medical Care Survey, a nationally representative sample of non-hospital based ambulatory clinics, to identify adult patient visits to physicians in general internal medicine, family practice, general practice, and geriatrics from 1997 to 2003. The main outcomes of interest were visit complexity (number of issues addressed), duration (direct time spent with physician), and efficiency (duration/complexity). For each visit, a measure of complexity was constructed to capture a range of acute, chronic, and preventive activities by assigning an equal weight of one "clinical point" for each diagnosis code (up to 3), each medication (up to 6), each diagnostic test (blood pressure, urinalysis, EKG, X-ray, mammography, other imaging, pregnancy test, pap smear, hematocrit or CBC, cholesterol, PSA, and other blood), physical therapy, or each act of counseling (diet, exercise, mental health or stress, and tobacco cessation) documented for the visit. We log transformed complexity, duration, and efficiency because data were highly skewed. In trend analysis, year was treated as a continuous variable. We identified independent predictors of both visit complexity and duration using generalized linear models adjusting for various patient and physician characteristics.
RESULTS: From 1997 to 2003, complexity of visits significantly increased 16% from 5.5 to 6.4 clinical points ($p<0.01$). Visit duration increased 10% from 18.0 to 19.8 minutes/visit ($p=0.08$), but efficiency remained unchanged at 2.7 minutes/clinical point. In adjusted analyses, complexity increased 1.8% per year (95% CI, 0.9%–2.6%). Increased complexity was associated with greater age (0.69% per additional year of life; 95% CI, 0.63%–0.75%), Medicare status (RR 1.03; 95% CI, 1.00–1.05), Medicaid status (RR 1.09; 95% CI, 1.05–1.14), female sex (RR 1.02; 95% CI, 1.01–1.03) and solo practitioners (RR 1.05; 95% CI, 1.00–1.09). In adjusted analyses, visit duration increased by 3.8% (95% CI, 3.3%–4.2%) for each additional clinical point of complexity.
CONCLUSIONS: The complexity of primary care visits has increased over the past decade, and increasing complexity is significantly associated with longer visit lengths. Primary care physicians appear to be responding to increasing demands for care by simply spending more time per patient, rather than attempting to address more issues per time period. The number of issues that a physician and patient can reasonably address during a set period of time may be inherently limited. If the delivery of higher quality primary care requires longer visits, both public and private insurers should consider whether changes in primary care reimbursement are warranted in order for providers to respond to the increasing complexity of care.

THE INFLUENCE OF PATIENT RACE AND SOCIAL VULNERABILITY ON UROLOGIST TREATMENT RECOMMENDATIONS IN LOCALIZED PROSTATE CARCINOMA. T. Denberg[1]; T.V. Melhado[1]; F. Kim[1]; R. Flanigan[2]; B. Beaty[3]; D. Fairclough[4]; J.F. Steiner[4]; R. Hoffman[5]. [1]University of Colorado Health Sciences Center, Denver, CO; [2]Loyola University, Chicago, IL; [3]University of Colorado Health, Denver, CO; [4]University of Colorado Health Sciences Center, Aurora, CO; [5]New Mexico VA Health Care System, Albuquerque, NM. *(Tracking ID # 151417)*

BACKGROUND: In localized prostate carcinoma (PCa), many studies have found that blacks receive radical prostatectomy (RP) less often than whites. Such disparities involve barriers to health care, comorbid illnesses, tumor characteristics, and patient preferences. It is unclear whether differences in urologist treatment recommendations also play a role.
METHODS: Using a randomized, 2 × 2 factorial design we presented 2,000 urologists with a clinical vignette and asked them to recommend treatment for a healthy 70-year-old patient with low-risk, clinically localized PCa. Options included either RP, external beam radiotherapy, brachytherapy, cryotherapy, observation, or hormonal therapy. There were two dichotomous variables within four otherwise identical versions of the vignette: (1) patient race (black vs. white) and (2) socioeconomic vulnerability (middle-income and married versus low-income and unmarried). We used multivariable logistic regression to model the effects of patient race, socioeconomic vulnerability, and their interaction on recommendations for RP vs. radiotherapy.
RESULTS: The response rate was 66.1% (n=1,313). Race and social vulnerability interacted (p=0.05) such that the highly vulnerable black patient received an RP recommendation 14.4% less often than his less vulnerable counterpart; the difference between the two white patients was 4.2%.
CONCLUSIONS: Race interacts with social vulnerability to influence urologist recommendations for RP. Because PCa tends to be more lethal in blacks, urologists may view such patients as good candidates for RP. However, black race may amplify perceptions of social vulnerability, heightening urologists' concerns about poor surgical outcomes and follow-up. Physicians should avoid assumptions and base treatment recommendations on patients' actual financial resources and social networks.

Urologist Treatment Recommendations: RP vs. XRT (*n*=1,205)

Patient variables	RP % (n)	XRT % (n)	Risk difference	Relative risk	p (Wald chi-square)
Black	31.6 (194)	68.4 (419)			
White	31.6 (187)	68.4 (405)	0.0 (−0.1–0.1)	1.00 (0.85–1.18)	0.74
High vulnerable	26.8 (155)	73.2 (424)			
Low vulnerable	36.1 (226)	63.9 (400)	9.3 (4.1–14.5)	0.74 (0.63–0.88)	0.0005
Black, high vulnerable	23.9 (68)	76.1 (216)			
Black, low vulnerable	38.3 (126)	61.7 (203)	14.4 (7.1–21.6)	0.63 (0.49–0.80)	
White, high vulnerable	29.5 (87)	70.5 (208)			
White, low vulnerable	33.7 (100)	66.3 (197)	4.2 (−3.3–11.7)	0.88 (0.69–1.11)	0.05

THE INFLUENCE OF RACE AND RELIGIOSITY ON CAREGIVER SATISFACTION WITH THE HOSPICE EXPERIENCE. T.R. Humbert[1]; M.M. Schapira[1]; D.E. Weissman[1]. [1]Medical College of Wisconsin, Milwaukee, WI. *(Tracking ID # 154037)*

BACKGROUND: Studies have indicated that African-Americans under-utilize hospice services in the United States. Several possible reasons for the low use in this community have been posited including lack of knowledge, mistrust and conflict in cultural and spiritual values with the hospice philosophy. Given the proposed barriers to use of hospice care and differences in values regarding end-of-life care, the objective of this study is to determine whether African-American patients have a lower level of satisfaction than White patients similarly enrolled in hospice. The study also examines the relationship between religiosity and satisfaction with the hospice experience between the two groups.
METHODS: We conducted a retrospective survey of caregivers of African-American and White patients seen by an inpatient Palliative Care consult team at an academic medical center and discharged to community hospice care from January 2003 to July 2004. Caregivers were identified through chart review of the decedent's medical record for information on next-of-kin. Telephone interviews were conducted with one informed respondent per decedent using a structured survey format from May 2005 to January 2006. Survey questions were based on the five domains of end-of-life care outlined in the conceptual model of patient-focused, family-centered medical care. The survey also contained socio-demographic and religiosity measurements. Overall satisfaction with hospice care was measured on a five point Likert scale from poor to excellent. A univariate Chi-square was used to compare the proportion of African-American versus White patients who rated hospice care as excellent. This univariate analysis was also done to explore the relationship between overall satisfaction with hospice care and religiosity of the caregivers.
RESULTS: There were 28 participants in the study, 50% (14) were caregivers for African-American patients and 50% (14) for White patients. The African-American group of patients had a lower median age at death (54–59 years) than the White group of patients (70–74 years). Approximately half of the patients in each group had high school degree or GED as their highest level of education. The median length of time using hospice services was less than 30 days in both groups. The following trends were found. Caregivers of African-American decedents were less likely than those of White decedents to rate the care received as excellent (35.7% vs. 57.1%, p=0.25). Caregivers of African-American decedents were more likely to have high religiosity scores than those of White decedents (28.6% vs. 7%, p=0.14). Caregivers with high religiosity were more likely to rate care as excellent than those with low religiosity (60% vs. 43.5%, p=0.50).
CONCLUSIONS: The trend of lower overall satisfaction with hospice care by caregivers of African-American decedents suggests that racial disparities persist into end-of-life care. As in previous studies, our study finds that African-American patients were younger than White patients in hospice, perhaps contributing to the lower overall satisfaction with hospice care among African-Americans. The greater proportion of rated excellent care in the high religiosity group is an unexpected finding. Additional studies with larger sample sizes are needed to investigate the complex interaction of age, race and religiosity on hospice use in the African-American community.

THE MANAGEMENT OF GOUT IN CHINA: A PHYSICIANS SURVEY. W. Fang[1]; X. Zeng[1]; M. Li[1]; L.X. Chen[2]; H. Schumacher[2]; F. Zhang[1]. [1]Peking Union Medical College Hospital, Beijing; [2]University of Pennsylvania, Philadelphia, PA. *(Tracking ID # 152920)*

BACKGROUND: Gout is a less commonly diagnosed rheumatic disease in China compared with Western countries, but its prevalence appears to be climbing. It is not known how Chinese physicians diagnose and treat their gout patients, so in this study we evaluate primary care and sub-specialty physicians' reported management of gout in China, and describe factors associated with their clinical decision-making.
METHODS: A thirteen-question anonymous survey was distributed and collected in medical grand rounds at a major teaching hospital in Beijing (Stage 1) and at a national continuous medical education workshop for Rheumatology (Stage 2). Physician's demographic data including educational backgrounds, work experiences, job titles, specialty or subspecialties, gout patient volume seen in a year, and continuous medical education (CME) in gout were also collected in the survey. Data of two stages were pooled and analyzed by multivariable regression models.
RESULTS: In Stage 1, 33% of residents/internists (n=27), 70% of rheumatologists/fellows (n=26) and 20% of other medical subspecialists/fellows (n=28) from the Department of Medicine including visiting faculty/fellows/residents completed the survey. In Stage 2, 50% of the workshop attendees (n=38) from across China returned surveys. The two groups differ markedly in gender, undergraduate medical education, highest medical degree, work experience, job title, specialty, and gout patient volume (chi-square, P<0.05), but the heterogeneity does not substantially alter the distribution of physicians' responses as a whole compared with that in Stage 1 as we previously reported. Pooled together, 78.3% of respondents think aspiration of affected joint fluid is critical for a definitive diagnosis of gout, but few actually do it. When treating acute gout in otherwise healthy patients, 69.2% of physicians prefer oral colchicine, and in patients with renal impairment, 41.7% of them choose corticosteroids or corticotropin as their first treatment. For long-term uric acid-lowering therapy, 82.5% of physicians describe a variety of incorrect indications. 89.2% of them tend to initiate it early (2 weeks) after acute flares, and 76.7% of physicians sustain it less than 5 years. Furthermore, only 14.2% of physicians use prophylaxis during the initiation of uric acid-lowering treatment, and 5.8% continue it for an appropriate period of time. Logistic regression analysis of physician's demographic data, educational background and work experience does not find any consistent independent factors associated with better decision-making. It is notable that continuous medical education is associated with establishing the definite diagnosis correctly (OR 6.0, 95% CI [1.8, 20.0]), but also with incorrect indications for long-term uric acid-lowering therapy (OR 5.7, 95% CI [1.4, 23.4]).
CONCLUSIONS: The Chinese physicians' reported management of gout is often not consistent with current standards of care. High quality CME is required to improve the practice of gout in China.

THE PAIN SCALE: IS THE JCAHO-MANDATED TOOL VALID AND VALUABLE IN THE OUTPATIENT SETTING?. J.L. Gonzales[1]; A. Bhatla[1]; J.F. Hanley[1]. [1]University of Texas Health Science Center-San Antonio, Regional Academic Health Center, Harlingen, TX. *(Tracking ID # 154121)*

BACKGROUND: Pain in hospitalized patients has been shown to be poorly assessed and under-treated by physicians. This led to the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) to establish pain assessment as the "Fifth Vital Sign." Research showed that by utilizing a pain scale, inpatients were more likely to be screened for and have their pain addressed. Following their success in hospitalized patients, JCAHO mandated the use of this tool in the outpatient clinics that they accredit. We were unaware of any studies evaluating outpatient pain assessment and sought to establish the validity and value of utilizing the pain scale in this setting.
METHODS: This study was a retrospective chart review of patients presenting over a one-year period to a federal health clinic. Subjects represented a cross-section of adult patients aged 18 and older from the Internal Medicine clinic. Charts were reviewed with respect to chief complaint, pain documentation by nursing staff and physician, and intervention.

RESULTS: 500 randomly chosen charts were reviewed. 119 patients (111 female, 8 male) fulfilled the inclusion criteria and presented with complaint of pain on at least one office visit during that year. 381 charts were excluded. The 119 patients generated 312 visits. Of those, 193 visits were for pain. Nursing staff logged the pain score 93% (110) of the time, 2% incorrectly. A pain form was filed 63% (75) of the time. Physician documentation of the pain scale occurred only 60% (71) of the time, but pain was addressed and treated in 92% (110) of the visits. Pain was the chief complaint for 99% (191) of the visits.
CONCLUSIONS: We found that although pain was frequently identified in the outpatient setting, it was usually the principal complaint and was well documented by the nursing staff and well addressed by the physician. We could not demonstrate that the use of the pain scale conferred any benefit for the patient. These findings differ from previous studies conducted on inpatients, in which physicians performed poorly in both addressing and treating pain. We speculate that in the inpatient arena, physicians focus on the underlying disease process, while in the outpatient setting, the patient complaint is central to guiding the physician assessment. While we appreciate that the pain scale has been proven useful for inpatients, we would recommend that further studies be done to document the validity and value in the outpatient setting in order to justify the time and effort needed to satisfy this JCAHO mandate.

THE QUALITY OF DIABETES CARE FOR VULNERABLE PATIENTS WITH IMPAIRED PHYSICAL FUNCTIONING: THE TRIAD STUDY. O.K. Duru[1]; W.N. Steers[1]; A.F. Brown[1]; C.M. Mangione[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 153458)*

BACKGROUND: Diabetes increases the probabilities of both developing physical impairment and progressing to disability. Aggressive treatment of intermediate outcomes such as hemoglobin A1c (hereafter, A1c) and systolic blood pressure (hereafter, SBP), in persons with both diabetes and impaired physical functioning, may play a role in slowing this progression. However, few studies to date have examined the quality of intermediate outcome treatment in a physically impaired population with diabetes, or how quality of care for this group differs by income, living situation, or likelihood of major depression.
METHODS: Data were collected from 2,792 patients during 2001and 2002 from 10 managed care plans and 68 provider groups included in the Translating Research into Action for Diabetes (TRIAD) study, a multicenter longitudinal cohort study of diabetes care in managed care. Using items drawn from the SF-12 health survey, we defined impaired physical functioning as 1 standard deviation below the age-normed population mean for the Physical Component Score (PCS-12). We examined multiple dependent variables, including: 1) continuous values of intermediate outcomes (A1c and SBP), and 2) a dichotomous measure of intensity of clinical management for these two outcomes. Specifically, we examined whether patients were either in good control (A1c $<8\%$ or SBP <140 mmHg), or if not, then receiving either insulin or at least 2 classes of hypoglycemic medications in the setting of elevated A1c values, or receiving at least 2 classes of antihypertensive medications in the setting of elevated SBP. Using adjusted multivariate models, we generated predicted probabilities for each of these outcomes for patients with impaired physical functioning ($n=890$) and those with normal physical functioning ($n=1902$, defined as PCS-12 score at or above the age-normed population mean). Among patients with impaired functioning, we then examined these outcomes among patients with low vs. high income, living alone vs. living with others, and PHQ-8 scores of 1–9 (low risk of major depression) vs. 10–27 (moderate to severe risk of major depression).
RESULTS: After adjustment, patients with impaired physical functioning were more likely than those with normal physical functioning to receive intense clinical management of SBP (86% vs. 79%, $p<0.001$). No differences in continuous intermediate outcome values or in A1c management were seen between these two groups. Within the group with impaired physical functioning, patients with annual incomes $<\$15{,}000$ had lower A1c values than those with annual incomes $>\$15{,}000$ (8.0 vs. 8.3, $p=.04$). However, higher-income patients were more likely to receive intense clinical management of A1c, compared to lower-income patients (92% vs. 85%, $p=0.02$). No other significant differences were seen by income, living situation, or PHQ-8 score.
CONCLUSIONS: Among this insured managed care cohort, quality of diabetes care for intermediate outcomes is similar regardless of physical functioning. Among the group with impaired physical functioning, few differences in quality are observed even among potentially vulnerable patients who are either low-income, living alone, or screening positive for a moderate to severe risk of major depression.

THE QUALITY OF PRIMARY CARE DELIVERED BY PHYSICIAN GROUPS: DOES AFFILIATION OF PHYSICIAN GROUPS WITH ONE ANOTHER PRODUCE HIGHER QUALITY CARE?. M.W. Friedberg[1]; K. Coltin[2]; S. Pearson[3]; K.P. Kleinman[3]; J. Zheng[4]; J. Singer[2]; E.C. Schneider[1]. [1]Brigham and Women's Hospital Division of General Internal Medicine, Boston, MA; [2]Massachusetts Health Quality Partners, Watertown, MA; [3]Department of Ambulatory Care and Prevention, Harvard Medical School, Boston, MA; [4]Department of Health Policy and Management, Harvard School of Public Health, Boston, MA. *(Tracking ID # 152860)*

BACKGROUND: Recent reports from the Institute of Medicine calling for improvement in the quality of health care in the United States have suggested that health care delivery systems, rather than individual physicians, should be the focus of quality improvement efforts. The current organization of primary care delivery systems varies widely, both in the size of physician groups and in the degree to which groups affiliate with each other in networks. Larger physician groups or networks of affiliated physician groups, rather than small independent physician practices, may be best situated to employ the systems approach envisioned by the IOM, but few prior studies have assessed differences in the quality of primary care delivered by physician groups that differ in size and organizational configuration. Our objective was to determine whether the quality of primary care delivered by physician groups is higher for larger groups compared to smaller groups and whether it is higher for groups that affiliate with networks of physician groups.
METHODS: We performed a cross-sectional analysis of the quality of adult primary care delivered by 132 physician groups (including 4,358 physicians) in Massachusetts during 2002. To do this, we analyzed data on 12 Health Plan Employer Data and Information Set (HEDIS) measures that were provided by the 5 largest commercial health plans operating in Massachusetts. The relationships between group size, network affiliation, and HEDIS performance scores were assessed in bivariate analysis and in multivariable models for each measure that included receipt of the HEDIS measured service as the dependent variable and group size, network affiliation status, and the health plan associated with each observation as the independent variables.
RESULTS: Average performance scores across the 12 measures ranged from 31% (antidepressant medication management: optimal practitioner contacts during acute phase) to 87% (comprehensive diabetes care: HbA1c testing). In unadjusted bivariate analysis, network-affiliated physician groups had higher performance scores than non-network-affiliated groups for 9 of the 12 HEDIS measures ($p<0.0005$). After statistical adjustment, there was no consistent relationship between group size and clinical performance, but network-affiliated groups had higher performance scores than non-network-affiliated groups on 8 of the 12 HEDIS measures ($p<0.05$). Adjusted differences in the performance scores of network-affiliated and non-network-affiliated groups on these measures ranged from 2% to 15% (with statistically significant odds ratios of 1.10 to 1.97). For 4 HEDIS measures related to diabetes care, the performance score difference between network-affiliated and non-network-affiliated groups was greatest when groups were small and diminished when groups were medium or large in size. There were no statistically significant interactions between group size and network affiliation for the remaining HEDIS measures.
CONCLUSIONS: Compared to smaller physician group size, larger group size was not consistently associated with higher quality primary care. Affiliation of physician groups with networks of multiple groups was associated with higher quality, and this association seemed to be especially important for smaller physician groups. Future studies should explore the features of network affiliation that contribute to the higher quality of primary care we observed.

THE RELATIONSHIP BETWEEN GUIDELINE ADHERENT ANTIDEPRESSANT TREATMENT WITH GLYCEMIC CONTROL AMONG VETERANS WITH DIABETES MELLITUS. L.E. Jones[1]; C.C. Doebbeling[2]. [1]Richard L. Roudebush VA Medical Center Health Services Research Center for Excellence, Indianapolis, IN; [2]Indiana University School of Medicine, Indianapolis, IN. *(Tracking ID # 154321)*

BACKGROUND: Almost 50% of subjects with major depression have poor glycemic control. Little is known on how the quality of antidepressant therapy influences glycemic control. Results from one study conducted to date in a HMO population report that the quality of antidepressant therapy is not associated with glycemic control, although methodologic problems limit the inferences that can be made. The objective of this study was to determine whether receipt of a minimum therapeutic antidepressant dosage and an adequate duration of antidepressant therapy result in improved glycemic control among veterans with diabetes mellitus (DM) in the Veterans Health Administration (VHA).
METHODS: A 100% sample of clinical data (1997–2005) from the Roudebush VAMC in Indianapolis was analyzed. Subjects with DM were included if they had a new-onset depression, had neither schizophrenia nor bipolar disorder, had a baseline and follow-up HbA1c test, and received antidepressants within the first 84-days (acute phase) of the depression diagnosis. The baseline HbA1c test reflects glycemia in the 180-day period prior to the depression diagnosis when antidepressants were not used and depression symptoms were minimized or non-existent. The follow-up HbA1c test was the first HbA1c test occurring 60-days following initiation of antidepressant therapy to the end of the 264-day depression treatment period. The quality of antidepressant dose and duration was assessed in the 60-day period prior to follow-up HbA1c testing. Adequate treatment was received if both a minimum therapeutic antidepressant dosage and at least 48-days (medication possession ratio of 80%) of antidepressant medication were received. Otherwise, the quality of therapy was inadequate. Analysis of covariance was used to determine if the mean glycemic control at follow-up was associated with the quality of antidepressant therapy after adjusting for demographic, clinical, and healthcare utilization factors.
RESULTS: 773 subjects had DM, a new-onset depression and received antidepressant therapy. 323 (42%) received both a baseline and follow-up HbA1c test at the specified time periods. 20 (6%) subjects received both an adequate antidepressant dosage and duration in the 60-day period prior to follow-up HbA1c testing. Subjects in the two groups were similar with respect to demographic, clinical and healthcare utilization factors. A non-significant reduction in HbA1c level was noted ($p>0.05$). Subjects who received adequate treatment experienced a 0.5% decline in HbA1c level (from 7.9% to 7.4%) and subjects who received inadequate treatment experienced a 0.2% reduction (from 7.7% to 7.5%). Follow-up HbA1c testing was measured, on average, 149-days following the depression diagnosis. Multivariate analysis did not show a significant association between quality of antidepressant therapy and glycemic control ($\beta_{inadequate}=0.38$; CI_{95}: -0.56, 1.32).
CONCLUSIONS: The quality of antidepressant therapy was not related to glycemic control in this VHA population. Results show that adequate pharmacotherapy of depression result in a clinically, albeit not statistically, meaningful decline in HbA1c level. Insufficient statistical power due to small sample size

may be related to the non-significant statistical finding. The overall quality of pharmacotherapy in this population was poor. Further research, including a national VHA population, with sufficient statistical power is required to determine if and how treatment of depression influences glycemic control.

THE RELATIONSHIP BETWEEN PAY-FOR-PERFORMANCE INCENTIVES AND QUALITY IMPROVEMENT: A SURVEY OF MASSACHUSETTS PHYSICIAN GROUP LEADERS. A. Mehrotra[1]; S. Pearson[2]; K. Coltin[3]; K.P. Kleinman[2]; J. Singer[4]; B. Rabson[4]; E.C. Schneider[1]. [1]Dept of General Internal Medicine, Brigham and Women's Hospital, Boston, MA; [2]Harvard Medical School, Boston, MA; [3]Harvard Pilgrim Health Care, Boston, MA; [4]Massachusetts Health Quality Partnership, Boston, MA. *(Tracking ID # 152335)*

BACKGROUND: Despite growing enthusiasm for pay-for-performance incentives, few studies have examined the scope of these incentives or the responses of physician groups.
METHODS: Our object was to gather current information from leaders of physician groups about pay-for-performance incentives and to examine whether incentives are associated with greater use of quality improvement initiatives. We conducted a structured telephone survey of leaders of 79 of the 100 Massachusetts physician groups. Our main outcomes were the prevalence of pay-for-performance incentives in physician group contracts with health plans and prevalence of physician group quality improvement initiatives. To test the association between pay-for-performance incentives and quality improvement initiatives, we specified a single multivariable logistic regression model that encompassed the eight HEDIS® measures in our study. This model controlled for other factors that might influence the use of quality improvement initiatives.
RESULTS: Most groups (89%) reported pay-for-performance incentives in at least one health plan contract. Incentives were most commonly tied to performance on HEDIS® quality measures (89% of all groups) and utilization measures (66% of all groups). Among groups with pay-for-performance the incentives accounted for 2.2% of overall revenue (range 0.25–8.8%) and 36% reported that pay-for-performance incentives were very important or moderately important to the group's financial success. Across the eight HEDIS® quality measures, we found an association between the presence of a pay-for-performance incentive on a measure and the use of a quality improvement initiative related to the measure (OR 1.6, $p=0.04$) after adjustment for other characteristics of physician groups.
CONCLUSIONS: Pay-for-performance incentives are now common among physician groups in Massachusetts. Although the scope and magnitude are still modest for most groups, we found an association between pay-for-performance incentives and use of quality improvement initiatives.

THE RELATIONSHIP BETWEEN PERFORMANCE ON QUALITY INDICATORS AND MORTALITY RATES: RESULTS FROM MEDICARE'S HOSPITAL COMPARE REPORT CARD. R.M. Werner[1]; E. Bradlow[1]. [1]University of Pennsylvania, Philadelphia, PA. *(Tracking ID # 152960)*

BACKGROUND: In response to concerns about poor quality of care in US hospitals, the Centers for Medicare and Medicaid Services recently began reporting data on hospital performance on their website, Hospital Compare. It is unknown whether performance on these measures is related to hospital-level outcomes. Our objective was to examine the relationship between hospitals' performance on the quality indicators (QIs) used in Hospital Compare with risk-adjusted mortality rates at those hospitals.
METHODS: We studied all hospitals nationally that participated in Hospital Compare for the first six months of 2004 (this data was published on Hospital Compare on April 1, 2005). Our data came from two sources. First, we used publicly available data on the 10 QIs initially included in Hospital Compare. These indicators cover three disease areas (acute myocardial infarction (AMI), congestive heart failure (CHF), and pneumonia) and were used to determine the performance of each hospital. Second, for all hospitals included in Hospital Compare, we used MedPAR data to calculate average disease-specific inpatient and 30-day risk-adjusted mortality rates (RAMR) for each hospital. We used a Bayesian approach to compare hospital's performance based on Hospital Compare's quality indicators with hospital's average RAMR. To do this, we applied Bayesian "shrinkage" to each hospital's "pass-rate" for each of the QIs, which weights the hospital's performance based on the number of patients, and thus the degree of uncertainty used to calculate that rate. For instance, hospitals that report their performance based on a smaller number of patients have greater uncertainty and hence their results are shrunken more towards the population average. Then, to test the relationship between each QI and disease-specific RAMR, we calculated hospital-level logistic regression models with each hospital's baseline performance modeled as a function of its RAMR.
RESULTS: The number of hospitals included in the analysis ranged from 2,825 to 3,587 for each QI. Of the 10 QIs included in the analysis, there were 5 QIs related to care of patients with AMI, 2 QIs for CHF, and 3 QIs for pneumonia. Performance on all 5 AMI QIs were significantly associated with lower inpatient and 30-day AMI mortality rates. Among the 2 CHF QIs, 1 was significantly associated with lower inpatient and 30-day CHF mortality rates (ACE inhibitor for LVSD) and one was significantly associated with higher inpatient and 30-day CHF mortality rates (LV assessment). Among the 3 pneumonia QIs, 2 were significantly associated with lower inpatient pneumonia mortality rates (initial antibiotic timing and pneumovax), but were not associated with improved 30-day mortality. The third pneumonia QI (oxygenation assessment) was significantly associated with higher inpatient and 30-day pneumonia mortality rates.
CONCLUSIONS: While quality indicators for AMI are significantly associated with lower mortality rates, this relationship does not hold true for CHF of pneumonia. In fact, several of the QIs for CHF and pneumonia were associated with significantly higher mortality rates for those diseases. Measuring and reporting performance has great potential for improving health care quality, but if measures are not correlated with lower mortality rates their role in quality improvement may be limited.

THE RELATIONSHIP OF SELF-RATED HEALTH AND MORTALITY AMONG BLACK AND WHITE OLDER AMERICANS. S.J. Lee[1]; K. Lindquist[1]; K.E. Covinsky[1]. [1]San Francisco VA Medical Center, San Francisco, CA. *(Tracking ID # 153140)*

BACKGROUND: Numerous studies have shown that self-rated health (SRH) is a strong predictor of mortality, even after adjusting for other known predictors such as sociodemographic variables, chronic diseases and functional status. Beyond mortality prediction, SRH is an appealing measure of overall health because it is inherently patient-centered, allowing subjects to rate their health based on domains most important to them. Since it is unclear whether the prognostic value of SRH varies across groups, we compared the relationship between SRH and mortality in black and white Americans.
METHODS: We examined the relationship between SRH and 4-year mortality among 16432 subjects (14004 white, 2428 black) enrolled in the 1998 wave of the Health and Retirement Study (HRS), a nationally representative population-based study of community dwelling US adults over age 50 (mean age 67, 59% women). Subjects were asked to self-identify their race with the question, "Do you consider yourself primarily white or Caucasian [or] black or African-American ?" Subjects were asked rate their health with the question, "Would you say your health is excellent, very good, good, fair, or poor?" The outcome of death by 2002 was determined through the National Death Index.
RESULTS: We found that SRH is a much stronger predictor of mortality among whites than blacks. (See Table) Adjustment for age and gender did not significantly alter these results. Stratified analysis by gender showed that this difference was present in both men and women. Stratified analysis by age showed that this difference was present in subjects under 80, but not in subjects over 80.
CONCLUSIONS: In this population-based study, we found that the relationship between SRH and mortality is much stronger in white Americans than in black Americans. While the reasons for this striking difference are unclear, these results suggest that questions regarding health may be interpreted differently by white and black Americans.

	White		Black	
	% Mortality	Age and gender Adjusted OR (95% CI)	% Mortality	Age and gender Adjusted OR (95% CI)
Excellent	4	Ref	8	Ref
Very Good	5	1.1 (0.83–1.4)	9	1.0 (0.52–2.0)
Good	9	1.8 (1.4–2.3)	9	1.2 (0.63–2.2)
Fair	18	3.7 (2.9–4.8)	19	2.4 (1.3–4.4)
Poor	36	10 (8.0–14)	22	2.9 (1.5–5.5)
Overall	11		13	
C-statistic		0.71 (0.70–0.73)		0.62 (0.59–0.66)

THE ROLE OF BIOETHICISTS IN FAMILY DECISION MAKING AT THE END OF LIFE. L.T. Watkins[1]; A.K. Karasz[1]; G.M. Sacajiu[1]; M. Kogan[1]. [1]Albert Einstein College of Medicine, Bronx, NY. *(Tracking ID # 153882)*

BACKGROUND: Together with the hospice movement and the growth of palliative care, the development of bioethics consultation services in hospitals emerged in recent years as part of a general movement to reform and rationalize end of life care. Many hospitals employ bioethicists to help health care teams, patients, and family surrogates navigate the difficult terrain of end of life decision-making. In the literature on family decision making, bioethicists are seen to function in two primary capacities: as consultants who define and support ethical principles such as beneficence and autonomy; and as mediators who enhance communication to reduce conflict between staff and families. While hospital staff report high levels of satisfaction with bioethics consultations, families reviews have been less positive. Recent studies have shown that ethics consultations reduce the amount of non-beneficial life-sustaining treatments, but there has been little systematic study of the actual content of bioethics consultations with families. In this study, we examine the content of bioethicists' communication in family meetings to investigate the relationship between the positions of surrogates and staff and the role adopted by the bioethicist.
METHODS: Researchers observed and recorded 24 decision-making meetings between hospital staff and family members of elderly patients identified as being in the last stages of illness, who were unable or unwilling to make the decision for themselves. Bioethics consultants were present during 5 of those meetings. Transcriptions were analyzed using standard qualitative techniques and Nvivo software.
RESULTS: In most meetings, bioethicists functioned to diffuse conflict between staff and families. Techniques included: interpreting participants' points of view

so they could be understood by all parties; supporting and comforting families when they displayed grief and other emotions; rehearsing with families how to communicate with dying patients about their wishes, asking physicians to translate technical language into everyday language; and persuading families to adopt the staff's point of view—usually, to withdraw aggressive end of life care. Interestingly, bioethicists spent relatively little time explaining ethical consensus statements or legal guidelines, or raising issues for moral inquiry. Consultants were more likely to employ ethical rhetoric and raise ethical questions during intractable, high conflict cases than in cases with minimal conflict. For example, consultants tended to emphasize the importance of patients' wishes when these wishes supported the position of hospital staff that life-extending care should be withdrawn.
CONCLUSIONS: Results indicate that the chief role of bioethical consultants is to help staff and family members resolve conflicts and communicate more effectively about decision making at the end of life. Bioethicists tended to raise ethical questions during high conflict meetings, mostly with the goal of persuading families to adopt a particular point of view. Further study is needed to determine the extent to which such context-dependent use of ethical models result in decisions reflective of patient and family values.

THE ROLE OF SPIRITUALITY IN END-OF-LIFE DECISIONS. M. Kogan[1]; G.M. Sacajiu[2]; L.T. Watkins[2]; A.K. Karasz[2]. [1]Montefiore Medical Center, Bronx, NY; [2]Albert Einstein College of Medicine, Bronx, NY. *(Tracking ID # 153960)*

BACKGROUND: Family members are involved in the majority of end-of-life decisions, yet little is known of the values that shape family decision-making at the end of life. There has been speculation in the literature that spirituality may play a major role, but little empirical data supports this view. This paper presents data from a qualitative, observational study of the role of spirituality in family decision-making at the end of life.
METHODS: We recruited 24 families of patients approaching the end of life, in a large, inner city teaching hospital. 24 meetings between staff and families were observed and recorded. Follow-up interviews were conducted with families. Data was analyzed using standard qualitative procedures.
RESULTS: Spiritual matters were mentioned during meetings or follow-ups in the majority of cases (22/24). The most common references to spirituality included: "It's God's will" or "It is in God's hands". These references were brought up as a rationale for either extending or limiting aggressive care. Family members generally used this language to support a decision that had already been made. Another common reference was to the family's religion or church. In a few cases a church or church leader appeared to play a role in decision making: for example, in one case, a family member agreed to limit life extending care because this was the position taken by her church. In all other cases, church or church leaders were brought up in answer to questions about their 'support system.' Prayer was usually described as a form of supplication, expressing a person's wish to end the suffering of their dying family member: "I ask God to take him"; " I'd ask him to take 5 years off my life if he could give them to my mother."; Prayer was also mentioned occasionally as a source of comfort and support. "He's the one that pulled me along one step at the time." In a few cases we found that families brought in references to spirituality and to church leaders as a way of justifying their position or opinion. A few families told doctors that they would have to 'pray' before making a final decision. In one case, a family member who was unhappy with a previously signed DNR tore it up after consulting her priest. Experiences of mystical transcendence were uncommon. In one case a daughter reported a transcendent experience at the moment of her mother's death: "it felt like a very warm embrace. It really felt like you know she came over to say good-bye and to give me a hug".
CONCLUSIONS: Contrary to what the literature suggests, we did not find evidence that spiritually plays a major role in family decision-making. Most references to spirituality served to justify a previous decision, or as a source of comfort. Results suggest that the emphasis on spirituality as an important source of values in end of life decision making may be exaggerated. More research is needed on this important topic.

THE TEST CHARACTERISTICS OF A NEW DEPRESSION SCREENING TOOL USED BY MEDICINE RESIDENTS EVALUATING HOSPITAL ADMISSIONS. E. Chinga-Alayo[1]; C.A. Smith[1]; S. Mandelbaum[1]; S. Fung[1]; A.T. Evans[1]. [1]Cook County (Stroger) Hospital/Rush Medical College, Chicago, IL. *(Tracking ID # 151679)*

BACKGROUND: Although many studies have evaluated screening for depression in the outpatient setting, fewer studies have screened medical inpatients and none using medical residents as the initial screeners. This study was designed to evaluate the test characteristics of a simple screening tool (based on DSM-IV criteria) used by medicine residents during their initial evaluation of patients admitted to the inpatient medical service.
METHODS: The study was conducted on the medical service at a university-affiliated public teaching hospital, using consecutive patients admitted to 4 medical teams from Sunday through Thursday during a 4-week period. The screening tool required that 2 questions be asked initially. If either question was positive then residents asked seven more (yes/no) questions. Scores between 5–9 were consistent with major depression. The gold standard diagnosis of major depression required a consensus between 2 attending psychiatrists, each of whom evaluated the patient independently and blinded to the residents' screening tool score. All patients with a high screening score (5 or more) and a stratified random sample with a low score (1–4) received the gold standard evaluation. We adjusted for the differential gold standard evaluation in the analysis in order to avoid verification bias.
RESULTS: Among the 248 eligible patients 20 (8%) were not screened, (18 altered mental status, 1 intubated, 1 interpreter not available), and 228 (92%) were screened for depression by the residents. The prevalence of major depression in the study population was 6% (adjusting for differential work up). The screening tool's sensitivity was 82% and the specificity was 92% using a cut-point score of 5. For patients with scores of 6–9 the likelihood ratio (LR) was 24; for a score of 5 the LR=4; for a score 1–4 LR=0.8. All patients with a score of 0 were presumed not to have major depression. An ROC curve had an area under the curve of 0.95.
CONCLUSIONS: Application of a new, brief, simple depression screening tool by medical residents proved to have excellent sensitivity and specificity in identifing inpatients with major depression. Use of the tool required minimal training and is typically completed in under 60 seconds. Based on the screening tool's score our inpatients can be stratified into a high-risk group (60% probability of major depression), a moderate risk group (20%) and a low risk group (<10%). Routine use of this tool has the potential to improve the detection of major depression among medicine inpatients.

THE THREE-MINUTE MENTAL HEALTH CARE: INSIGHTS FROM VIDEOTAPES OF ELDERLY PATIENTS' PRIMARY CARE OFFICE VISITS INVOLVING MENTAL HEALTH TOPICS. M. Tai-Seale[1]. [1]Texas A&M Health Science Center, College Station, TX. *(Tracking ID # 153312)*

BACKGROUND: Late-life mental disorders are common, with the prevalence of major depression at 6–9% and milder depressive symptoms affecting up to an additional 37% elderly population. Practice guidelines call for at least four office visits during which mental health problems are discussed in a six-month period. Despite the interest in measuring quality of mental health care, very few studies have used direct observation to understand how mental health care is delivered. Many studies of quality are constrained by their reliance on global assessments of clinical practices based on administrative data, patient or physician self-reports, or chart reviews. When compared with direct observation, those data have been documented to misrepresent the reality of clinical care. The purpose of this study is to assess the actual care process using videotapes of office visits involving mental health topics.
METHODS: Qualitative and quantitative methods were used to study videotapes of 392 elderly patients' visits to primary care physicians – covering 2,506 diverse topics – in three U.S. locations between 1998 and 2000. The videotapes were coded to obtain data on the nature of the topics – biomedical, mental health, or psychosocial – discussed and the time spent on each topic. Quantitative estimates measured the amount of time physicians and patients spent on discussing mental health issues and other issues in each visit. Patient and physician surveys provided additional information on patients' health status, physician specialty, years in practice, and demographics.
RESULTS: Mental health topics occurred in 20.2% of visits, accounting for 3.5% of total topics. The average time a physician spent discussing mental health issues was less than one minute (58.8 seconds) in comparison to 65.9 seconds on biomedical topics ($p>0.05$). A patient spent, on average, 114.8 seconds on mental health topics, compared with 57.2 seconds on biomedical topics ($p<0.01$). The range of mental health topics included depression, general anxieties, and other mood disorders. Female physicians and family practitioners were twice more likely to discuss mental health than male and other physicians, respectively ($p<0.01$). Critical discourse analysis suggested that physicians' effort in treating mental health issues was no greater than what's spent on biomedical issues. In some cases, only perfunctory effort was made on mental health before physicians redirected the conversation to biomedical issues. In-depth discussions of psychotropic medications were uncommon. Very few physicians recommended psychotherapy or discussed referrals to mental health specialists.
CONCLUSIONS: Physicians spent an average of 1 minute, and the patients, 2 minutes, talking about mental health concerns during elderly patients' office visits. The contents of interactions on mental health often appeared superficial. Having a visit, by itself, does not guarantee that the patient will receive guideline-concordant mental health service in primary care settings. As the majority of elderly patients with mental health problems seek care from primary care physicians, quality improvement effort should take into account how mental health care is actually delivered. Incentives should be aligned with care that provides patient-centered mental health care. Direct observation offers information that is unavailable from self-reported survey or chart review on the actual process and content of care.

THE TOYOTA PRODUCTION SYSTEM IN HEALTHCARE, A CONTINUOUS STUDY IN PROGRESS. C.S. Kim[1]; D.A. Spahlinger[1]; J. Carpenter[1]; J. Shlafer[1]; J. Lapinski[1]; L. O'Donnell[1]; J. Kin[1]; J.E. Billi[1]. [1]University of Michigan, Ann Arbor, MI. *(Tracking ID # 150308)*

BACKGROUND: The Toyota Motor Corporation is a leading automobile manufacturing company known for their quality and efficiency in delivering their products to their customers. Their management philosophy is firmly founded in the Toyota Production System (TPS). TPS is also known more generally as Lean production. Lean has been widely employed in manufacturing industries with a focus on continuously transforming waste into value from the customer's perspective. At the University of Michigan Health System, we believe that Lean methods can be applied in health care settings. We conducted two Lean pilot projects. The orthopedic surgery clinics see 12,350 new patients annually. The process of pre-approving and scheduling a new patient appointment averaged 23 days, which led to frustration among referring physicians and patients. The inpatient demand for Peripherally Inserted Central Catheter (PICC) is greater than 300 per month, and has increased by more than 51% over the past year.

The time to place a PICC line averaged 26 hours, which led to delays in discharge and therapy.
METHODS: The Lean project teams created a value stream map of the current process which was then used to create a future ideal state in map form by identifying areas of waste and eliminating or minimizing them. The team members then proposed a plan for implementing the new ideal future state. The implementation plans are ongoing, and have demonstrated some promising results.
RESULTS: The PICC results showed a 36% reduction in the average amount of time to place a PICC, and a 46% reduction in the number of PICC referrals to interventional radiology, thus decreasing the workload of a constrained resource. The orthopedic referral initiative resulted in 88% of the patients being scheduled within 2.5 minutes of their phone call at one of the two sites. These positive results are promising, however as with many new initiatives, we have found progress may be halted or resisted. Since the initial results, we have seen a decline toward baseline in average time for PICC placements; and a separate clinic site for orthopedic surgery has resisted embracing the new methodology to date.
CONCLUSIONS: These early results demonstrate the potential benefits of applying Lean in health care; however also demonstrate some of the challenges of initiating and perpetuating a new way of developing improvements. At the core of the TPS is the embedded process of continuous experimentation by the front line workers to improve and standardize the work flow. As healthcare professionals, we are rooted in the practice of science to experiment and test our hypothesis to improve the product. It is this link of experimenting at the front lines to demonstrate sound improvements in a rapid fashion that can anchor healthcare professionals to the practice of TPS for our patients and practice. In a recent editorial, Berwick called this type of experimenting and learning "pragmatic science;" and health care can gain significant and rapid knowledge through this type of reflective practice, and sharing of learning through transparent, accurate, and complete published reports (1). We will continue to explore how to implement a Lean management philosophy, with the goal of continuous improvement and delivering high quality care that is safer, more efficient, appropriate and patient-centered. The progress of these two pilot projects will continue to be monitored. 1. Berwick DM. Broadening the view of evidence-based medicine. Qual Saf Health Care 2005;14(5):315–6.

THE USE OF A NEW PRESENTATION FORMAT IMPROVES PATIENT CARE AND TEACHING IN THE ICU. J. Kamali[1]; B. Chang[1]. [1]University of New Mexico, Albuquerque, NM. *(Tracking ID # 150219)*

BACKGROUND: ICU patients require a detailed, accurate assessment and plan for optimal care. We conducted a study to determine how a well-organized, daily progress note can help the Housestaff understand the complex ICU issues, improve documentation, and optimize application of standard of care.
METHODS: 33 interns, 9 medical students and 7 intensivists in two affiliated institutions, a University hospital and a VA hospital participated in this study. The Housestaff were observed for four months. During the first two months Housestaff used their own or institution's progress notes and presentation format. After two months the new standardized progress note was introduced and Housestaff were asked to present and document using the new format. Housestaff and intensivists completed questionnaires assessing several areas during observation and intervention months. The survey included documentation of relevant data, application of ICU standards of care (such as daily discontinuation of sedation, GI and DVT prophylaxis), and presentation of problem list and plan. A Total of 320 valid evaluation forms were submitted.
RESULTS: Subjective evaluation by the Housestaff did not considerably change, ranking themselves high regardless of intervention. Intensivists however, noticed in intervention group significant improvement in identification and documentation of relevant data (50% vs. 73%, $P<0.01$), presentation of assessment and plan (57% vs. 76% $P<0.01$), and appropriate application of certain ICU standards in patient care, such as GI prophylaxis (63% vs. 87%, $P<0.01$) and DVT prophylaxis (66% vs. 86%, $P<0.01$) with the standardized progress note. Documentation and presentation areas which did not significantly improve were daily discontinuation of daily sedation (62% vs. 70%, P 0.15) and ventilator weaning (58% vs. 62%, P 0.56).
CONCLUSIONS: We believe this is the first study assessing the impact of a standardized presentation format on applying well-established ICU standards by residents. Based on intensivists' evaluations, this format improves patient care in several areas, as well as documentation, accurate assessment and plan and therefore, likely, resident teaching. The poor performance and lack of improvement in some areas identified by this study highlight the need for additional attention for more complicated ICU standards. A larger study with evaluation of objective data is needed to more accurately confirm these results.

THE YIELD OF CORONARY ANGIOGRAPHY IN PATIENTS WITH SEVERE CARDIOMYOPATHY AMONG COCAINE USERS IS COMPARABLE TO NON-COCAINE USERS. M. Shenoda[1]; C. Caraang[2]; R. Yu[3]; A. El-Bialy[4]; R. Wachsner[5]. [1]University of California, Los Angeles, Granada Hills, CA; [2]University of California, Los Angeles, Sepulveda, CA; [3]Olive View-UCLA, Los Angeles, CA; [4]Olive View/University of California, Los Angeles Medical Center, Sylmar, CA; [5]University of California, Los Angeles - San Fernando Valley Program, Sylmar, CA. *(Tracking ID # 154849)*

BACKGROUND: The role of coronary angiogram in the evaluation of cardiomyopathy (CM) among cocaine users in the absence of acute coronary syndrome (ACS) is not well defined. Congestive heart failure (CHF) guidelines categorize cocaine as a cardiotoxic agent and are divergent as to the utility of angiography in CHF with severe cardiomyopathy without chest pain or history of coronary artery disease (CAD). However, studies suggest that there are multiple mechanisms responsible for the development of CM with cocaine use, including excessive catecholamine stimulation, vasospasm, contraction band necrosis, myocardial inflammatory infiltrates, and acceleration of atherosclerosis. It is the latter that implores an angiogram to rule out the presence of CAD. The yield of this diagnostic approach has not been systematically evaluated. The aim of our study is to clarify the yield of angiography for detecting CAD in patients with severe CM and a history of cocaine use.
METHODS: We retrospectively studied the diagnostic catheterization database and medical charts of a Los Angeles public county hospital and a VA hospital between January 2000 to May 2005 of CHF patients (EF $<35\%$) who underwent coronary angiography to detect CAD. Patients with chest pain, prior myocardial infarction (MI), diagnosis of CAD, positive functional studies or bio-chemical cardiac markers, dynamic EKG changes, or suggestion of ACS that would justify the use of an angiogram were excluded. Detection of angiographic CAD (stenosis $>70\%$) was the main outcome of interest.
RESULTS: Among 6,208 consecutive angiograms, 122 patients met the above criteria. Among the 122 patients with cardiomyopathy, 28 were cocaine users, 25 of whom had normal or non-obstructive CAD. The three with CAD had 4 cardiac risk factors each with an average duration of 7.5 years of cocaine use. The 25 patients with normal coronaries or non-flow limiting disease were younger (age $51 +/- 6$), had only 1.5 risk factors, and <5 years of cocaine use.
CONCLUSIONS: Based on the results of this retrospective study, the yield of an angiogram to detect significant CAD in cocaine users with severe cardiomyopathy, in the absence of ACS, was relatively low and not significantly different from similar patients without a history of cocaine use. Incidence of CAD was not incrementally increased in cocaine users with severe cardiomyopathy, which suggests that mechanisms other than CAD acceleration may play a more dominant role in the development of CM. These results suggest that a history of cocaine use does not provide adequate justification for undergoing coronary angiography. This study further implies that the presence of CAD risk factors and the duration of cocaine use should be taken into account when considering coronary angiography.

"THEY BLEW THE LEVEE": DISTRUST AMONG HURRICANE KATRINA EVACUEES. K.M. Cordasco[1]; D. Eisenman[1]; S. Asch[2]; J. Golden[3]; D. Glik[4]. [1]University of California, Los Angeles, Los Angeles, CA; [2]Veterans Administration Greater West Los Angeles Healthcare System, Los Angeles, CA; [3]West Los Angeles VA, LA, CA;[4]University of California, Los Angeles, LA, CA. *(Tracking ID # 154581)*

BACKGROUND: Distrust of physicians and hospitals can be a critical factor influencing health care decisions among African American and other minority communities. Less is known about how distrust in authorities influences individuals' responses to public health messages and warnings before, during, and after crises. We analyzed data from qualitative interviews conducted with Hurricane Katrina evacuees to better understand the influence of trust and distrust in pre-hurricane evacuation decisions and post-hurricane perceptions.
METHODS: From September 9 (11 days post-hurricane) to September 12, 2005, we performed qualitative interviews with a random sample of 58 adult evacuees living in Houston's three major evacuation centers. We transcribed and analyzed the interviews using grounded theory methodology with three investigators independently coding and resolving disagreements by consensus. Statements were coded as belonging to instrumental, cognitive/affective, or sociocultural domains. This sub-analysis focuses on one aspect of the sociocultural category- that of trust or distrust.
RESULTS: Participants were mainly African-American, low income, and from New Orleans. 55% had a high school diploma or equivalent. Distrust of authorities was spontaneously discussed in reference to evacuation decisions prior to the hurricane, evacuation experiences after the hurricane, and post-evacuation assistance. Prior to the hurricane, participants did not believe the pre-hurricane warnings, reporting that they had thought "they're just trying to scare us." Sheltering decisions were also influenced by distrust: "But I wasn't going to go to the Superdome ..I never did trust the Superdome." Instead, participants trusted and acted on the advice or actions of members within their social network. Some participants expressed skepticism of the connection between the hurricane and the flooding: "That water that cause all those people to drown. - that wasn't from the hurricane." . . . This distrust extended beyond believing the authorities as incompetent in that some believed they had been caused intentional harm; six participants offered the belief that the levees had been deliberately broken in order to sacrifice their neighborhoods and save the more affluent, non-black neighborhoods and business interests: "I do believe they intentionally ran that water in that direction" in order to save "where Donald Trump is building." Other participants felt deceived by emergency responders about where they were being taken, claiming "they lied to us". Participants also viewed slow and ineffectual responses to be indicative of the authorities not prioritizing the lives of poor and black individuals: "When the helicopters were going back and forth getting people from the richer neighborhoods, they saw us waving flags." Post-evacuation experiences, such as difficulties obtaining financial assistance, further contributed to levels of distrust for some participants.
CONCLUSIONS: Participants' distrust of authorities (media, government, emergency responders) was evident before Hurricane Katrina, in the evacuation of New Orleans, and participant's understanding of their disaster experiences. Public health authorities must engage with minority communities to establish trusting relationships.

THROMBOCYTOPENIA AND PROGNOSIS IN THE MEDICAL INTENSIVE CARE UNIT. O.N. Obi[1]; G. Downie[1]; M. Franco[1]. [1]East Carolina University, Greenville, NC. *(Tracking ID # 154759)*

BACKGROUND: The need for an effective, accurate and simple mortality prediction model for patients in the Medical Intensive Care Unit cannot be

overemphasized. It has been postulated by several authors including Vanderschueren S, MD, PhD; De Weerdt A, MD et al (Thrombocytopenia and Prognosis in Intensive Care; Critical Care Med 2000; 28 (6):1871–1876) that thrombocytopenia may be a predictor of mortality in the Medical Intensive Care Unit and may parallel the APACHE scoring system in accuracy.
METHODS: This is a prospective observational cohort study recruiting all consecutive patients admitted to the Medical Intensive Care Unit (MICU) of Pitt County Memorial Hospital, Greenville NC in September 2004. Each new patient was evaluated and an APACHE score determined. Subsequent intervention involved daily platelet counts while the patient was in the MICU. A nadir platelet count was noted. All patients were monitored until discharge from the MICU, Hospital or death. The outcome of interest was mortality in the MICU or in the hospital for patients discharged from the MICU.
RESULTS: Thrombocytopenia appears to be a predictor of mortality in the Medical Intensive Care Unit (MICU) and parallels APACHE scores in identifying patients who may not do well. 37% of patients in the study were thrombocytopenic. Mortality in the MICU was 33%. Overall mortality in the hospital (Mortality in the MICU and on the floor following discharge from the MICU) was 50%. Thrombocytopenic patients had a higher mortality than patients with normal platelet counts – 41% of patients with thrombocytopenia died in the MICU as compared to 28% of non-thrombocytopenic patients. Overall hospital mortality was also higher – 59% of thrombocytopenic patients vs. 45% of non-thrombocytopenic patients. In addition, thrombocytopenic patients had longer MICU stays than patients with normal platelet counts (8.4 days vs. 4.5 days; p 0.02).
CONCLUSIONS: Thrombocytopenia is a potential predictor of mortality in the Medical Intensive Care Unit. It is simple, cheap, universally available and has the added advantage of providing dynamic day to day information that can help physicians identify critically ill patients in the MICU that may need further interventions or closer observation.

TIME COURSE OF KNOWLEDGE RETENTION AMONG RESIDENTS AFTER AN ON-LINE TUTORIAL. D.S. Bell[1]; C. Harless[1]; C.M. Mangione[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 152839)*

BACKGROUND: Most physicians attempt to maintain their knowledge through isolated educational events, which typically produce immediate knowledge gains but poor long-term retenion and little change in physicians' practices. Reinforcement activities can substantially improve the long-term retention of learning, but psychological experiments show that this effect is greatest if reinforcement is delivered after the original learning has been at least partially forgotten. To inform the design of a longitudinal online tutorial, we sought to elucidate the the time course of retention for newly-acquired knowledge about diabetes care among resident physicians.
METHODS: We authored 20 learning objectives covering principles embodied in the American Diabetes Association (ADA) guidelines on blood pressure and lipid management, and we designed 2 multiple-choice quiz questions to measure achievement for each learning objective. We recruited residents from 2 internal medicine and 3 family medicine programs, paying $50 for participation. Subjects completed an online enrollment survey, a pretest consisting of one randomly-selected question per learning objective, and then a tutorial that provided feedback for each learning objective. Subjects were then randomly assigned to take a post-test, consisting of the 20 questions that the subject had not previously seen, at one of 6 time intervals after the tutorial. Those assigned to 0 days took the post-test immediately; the remainder returned from an email invitation sent on the appropriate day. Tests were scored with one point per correct answer, after excluding 5 learning objectives for which the tutorial failed to engender knowledge gains. We used linear regression to correlate post-test scores with elapsed time after the tutorial, controlling for subject characteristics.
RESULTS: Of 197 residents invited to participate, 105 enrolled, 91 completed the tutorial and were randomized, and 88 completed the post-test (45% of those invited). Participants' characteristics did not differ significantly from non-participants. The mean pretest score was 6.8 (SD 1.8) out of a possible 15 points (45%); these scores correlated with postgraduate year (r^2=0.24, P=.03). Post-test scores reflected considerable learning among those tested immediately (2.5 SDs), followed by a steady decay in retention, with little remaining after 8 weeks. The best-fitting regression model corresponded with a decay in retention of 0.5 points per square-root day (R^2=0.34). No subject characteristic significantly modified this decay rate.
CONCLUSIONS: After a one-time online tutorial, residents' retention of new learning had a half-life of about 8 days, though the decay in retention fit better with the square root of elapsed time than it did with an exponential decay model. These results suggest that a 1-week interval may weaken retention enough to be an optimal time for delivering reinforcement. They also suggest that learning without subsequent reinforcement may have little long-term educational value for physicians.

Knowledge retention over time

Days from tutorial to post-test	n	Mean post-test score (% correct)
0	14	11.3 (75%)
1	15	9.8 (65%)
3	15	9.4 (63%)
8	16	9.1 (60%)
21	14	8.2 (55%)
55	14	7.2 (48%)

TIME TRENDS IN FAILURE TO RETURN FOR HIV TEST RESULTS. J.J. Kinsler[1]; W.E. Cunningham[1]; C. Davis[2]; M.D. Wong[1]. [1]University of California, Los Angeles, Los Angeles, CA; [2]Charles R. Drew University, Lynwood, CA. *(Tracking ID # 153958)*

BACKGROUND: HIV counseling and testing are essential for HIV prevention in the United States, but its impact may be greatly reduced if persons testing for HIV do not return to receive their results and posttest counseling. This failure to return represents missed opportunities for preventing infections and offering early medical treatment, social services, and psychological support. The purpose of this study is to examine time trends in failure to return for HIV test results among a mobile van population in Los Angeles.
METHODS: We examined administrative records collected between July 1997 and December 2004 from the Mobile HIV Testing and Outreach Project (MoHOP), which provides testing, counseling, and referral services to groups at risk for HIV infection across Los Angeles County. We conducted multiple logistic regression analyses to determine the relative odds of failure to return for HIV test results by year tested controlling for demographics, exposure, STD's, number of sex partners, and number of previous HIV tests.
RESULTS: Of the 9,340 clients tested during the observation period, 54% were male, 58% were African-American, 28% were Latino, and the mean age was 34. Eighty-three percent of the clients were heterosexual, 13% intravenous drug users (IVDU's), and 4% men who have sex with men (MSM). A worsening trend was found in the percentage of clients who failed to return for HIV test results between 1997 and 2004 (see table below). Multivariate analyses showed that the adjusted odds of failure to return for test results significantly increased relative to 1997, the first year tested (see table below).Multivariate analyses also showed that females were less likely than males to return for test results (OR=0.85; 95% CI=0.77, 0.94), African Americans were less likely than Whites to return for their test results (OR=0.75; 95% CI=0.63, 0.90), and younger clients were less likely than older clients to return for their test results (OR=0.71; 95% CI=0.60, 0.84).

	YEAR TESTED							
Failed to return	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**
Unadjusted %	18	24	28	37	43	37	41	35
Adjusted OR	1.0 (ref)	1.47*	1.69†	2.56†	3.13†	2.27†	2.86†	2.27†

*P<0.01, †P<0.001

CONCLUSIONS: Among persons receiving HIV tests at a mobile van program in Los Angeles, the proportion failing to return for test results was high and increased substantially between 1997 and 2004. Further studies need to understand if this trend occurs in other HIV testing settings. Given the importance of identifying HIV-infected persons, it is critical to understand ways to improve return rates for test results, including the impact that rapid testing might have.

TIMELY FOLLOW-UP OF OUTPATIENT LAB RESULTS: PERCEIVED BARRIERS AND IMPACT ON PATIENT SAFETY. J.J. Lin[1]; O. Saigh[2]; A. Trikha[3]; C. Moore[1]. [1]Mount Sinai School of Medicine, New York, NY; [2]Beth Israel Medical Center, New York, NY; [3]University of California, San Diego/San Diego VA, San Diego, CA. *(Tracking ID # 153297)*

BACKGROUND: Timely follow-up of patients' laboratory results is an important component of high-quality patient care; however, the follow-up of outpatient test results is often sub-optimal and AHRQ recommends that patients always ask physicians about the results of tests and not to assume that "no news is good news". We sought to assess internal medicine (IM) physicians' perceptions of the magnitude, mechanisms, and clinical consequences of delayed follow-up of outpatient lab results, and to assess if these perceptions are impacted by use of an electronic medical record (EMR).
METHODS: Anonymous survey of IM physicians at 3 large urban teaching hospitals (two without EMR, one with EMR). The survey asked about physician practices for following up lab results, worries about inadequate follow-up, barriers to timely follow-up, and perception of clinical consequences of delayed follow-up. Data were analyzed using Chi-squared statistics. Multivariate logistic regression was used to identify the factors that influenced timely follow-up of lab results. Independent variables were physician type (attending vs. house staff), system issues (presence of EMR and methods used to follow-up), and perceived barriers to follow-up.
RESULTS: Of 297 eligible IM physicians, 195 (66%) completed the survey (146 house staff, 49 attendings). The response rate was higher for attending physicians than for house staff (82% vs. 62%, p=.003). Forty percent of respondents reported being unable to follow-up on lab results at least once a month and house staff were more likely than attendings to be unable to follow up on results (28% vs. 13%, p=.02). Additionally, 37% of physicians reported that at least once a month they come across an abnormal lab result that "has not been acted upon in a timely manner" and attendings were more likely to report this than house staff (51% vs. 32%, p=.02). Attendings were also more likely to report having seen a delay in diagnosis due to inadequate follow-up of lab results when compared to house staff (89% vs. 65%, p=.001). Forty-three percent of physicians (house staff and attendings equally) were moderately or very worried about lab results not being followed up. The major reasons why results were not followed up in a timely manner were a lack of a reminder system (78%), difficulty accessing lab results (74%) and too many competing demands (68%). Physicians with an EMR were less likely to report lack of a reminder system (OR=0.11, p<.001) or difficulty accessing labs (OR=0.22, p=.001) as a barrier to timely follow-up. However, in multivariate analysis, having an EMR was not a significant predictor of being unable to follow-up lab results at least once a month (OR=.63, p=.5).

CONCLUSIONS: There appears to be a significant difference between house staff and attendings with regards to their ability to follow-up on lab results and their perceptions of adverse events from inadequate follow-up. Additionally, EMRs may decrease systems issues as barrier for follow-up but may not actually facilitate the timely follow-up of outpatient lab results.

TRAINING NEEDS OF GENERAL INTERNISTS - SURVEY OF POST-RESIDENCY PRACTICE PATTERNS AND PERCEPTIONS OF PREPAREDNESS. S. Green[1]; P. Bailey Seals[2]; J. Wilson[2]; M.B. Duke[2]; C. Feddock[2]; T.S. Caudill[2]. [1]Society of General Internal Medicine, Lexington, KY; [2]University of Kentucky, Lexington, KY. *(Tracking ID # 153329)*

BACKGROUND: Internal Medicine residency training programs must provide a diverse set of knowledge and skills for graduates to effectively enter general internal medicine practice. We surveyed graduates from the last ten years of our internal medicine and medicine-pediatrics residency programs to characterize current practice patterns and to evaluate self-assessed preparedness for general medicine practice.
METHODS: We mailed paper surveys to all residents who completed our program from 1995–2005. Graduates were asked to rate on a five point Likert scale preparedness (1 =poorly prepared, 5= very prepared) and frequency of performance (1 =never, 5 =very often) of managing common chronic adult diseases and fifteen procedures traditionally performed by general internists. Proficiency at several of the procedures we queried about is required by the American Board of Internal Medicine (ABIM). "Well prepared" and "very often" were identified as a rating of 4 or 5 while "poorly prepared" and "infrequent" were identified as a rating of 1 or 2. Graduates were also asked to list any skills for which they had received additional training after residency.
RESULTS: Of 217 surveys received, 112 were returned. (52%). Of these, seventy-eight graduates were general internists. General internist graduates felt well prepared for managing common diagnoses such as heart failure, diabetes mellitus and COPD and also reported managing them frequently. However, they reported managing behavioral conditions, such as depression, obesity and pain frequently but did not feel well-prepared by their residency training. Seven of the fifteen procedures were performed infrequently by more than seventy percent of internists. Only three of the fifteen procedures were performed frequently by more than fifty percent of respondents. Graduates reported seeking additional training most frequently for performing office orthopedic procedures, such as joint aspirations (18%) and dermatologic procedures (9%).
CONCLUSIONS: Graduates of our program felt well-prepared to care for common chronic medical conditions seen in general internists' practices. However, they felt ill-prepared for common behavioral diagnoses they frequently manage. A number of ABIM required procedures are not frequently performed by our graduates. These findings support the need for further curricular interventions designed to improve resident preparedness in behavioral medicine and raise questions regarding the efficiency of training all residents in procedures infrequently performed by general internists.

TRANSFERS OF CARE ON THE INTERNAL MEDICINE WARDS: RESULTS OF A NATIONAL SURVEY. L. Horwitz[1]; H.M. Krumholz[2]; M.L. Green[3]; S.J. Huot[2]. [1]VA Connecticut Healthcare System, New Haven, CT; [2]Yale University, New Haven, CT; [3]Yale University, Waterbury, CT. *(Tracking ID # 151566)*

BACKGROUND: Transfer of responsibility for patient care between physicians is a key process in the care of hospitalized patients. Systems of transfer management and transfer frequency may both affect clinical outcomes. However, little attention has been paid to this process in medical residency programs, in which recent work hour restrictions may also have led to an increase in transfers of care.
METHODS: We conducted a mail survey of chief residents at all 324 accredited internal medicine residency programs outside New York State, which was previously subject to regulation. Surveys were mailed in March, 2005 and resent a maximum of twice to non-responders. All remaining non-responders then received a follow-up telephone call. Transfers of care were defined as times at which immediate responsibility for a patient is passed from one physician to another, excluding short-term transfers between team members such as for clinic. Outcomes included systems of transfer sign-out (mechanism, format, participating personnel, method of alerting other staff, and training), and frequency of transfers before and after work hour regulation for a hypothetical four-day admission. Differences between respondents and non-respondents were analyzed using t-tests and $\div$ 2 tests. Changes in numbers of transfers and primary team coverage hours were analyzed using paired t-tests. We used descriptive statistics to report systems of transfer.
RESULTS: Surveys were obtained from 202 programs (response rate 62%). There was no significant difference in size, geographic setting or practice setting between respondents and non-respondents. Transfer systems varied among and within institutions. Fifty-five percent of programs did not consistently require both a written and oral sign-out at transfers of care. Of written sign-outs, 29% were hand-written, 45% typed, and 7% imported clinical information directly into the sign-out. Oral sign-out was left to interns alone in 34% of programs, and 60% of programs did not provide any lecture or workshop on sign-out skills. Finally, 59% of programs had no means of informing nurses a transfer had taken place, while just 14% directly forwarded pages to covering physicians. After work hour regulations were instituted, transfers of care increased by an average 11% (7.0 to 7.8, $p<.0001$) during a Monday-Friday hospitalization, and by 10% (6.2 to 6.8, $p<.0001$) during a Thursday-Monday hospitalization. A member of the primary team was in the hospital for 47% of the hospitalization after work hour regulation.
CONCLUSIONS: Although transfers of care are increasingly frequent, few internal medicine residency programs have comprehensive transfer of care systems in place and most do not provide formal training in sign-out skills to all residents.

TREATING CHRONIC PAIN IN CURRENT AND FORMER DRUG USERS ON METHADONE MAINTENANCE: A QUALITATIVE STUDY OF PROVIDERS' EXPERIENCES. K.M. Berg[1]; A.K. Karasz[1]; L. Zallman[2]; J.H. Arnsten[1]. [1]Albert Einstein College of Medicine, Bronx, NY; [2]New York University, New York, NY. *(Tracking ID # 153859)*

BACKGROUND: Chronic non-cancer pain is more prevalent among methadone maintained current and former drug users than in the general population. Prescription opioid medications are increasingly used to treat chronic pain but considerable debate exists regarding their use in patients with co-morbid drug addiction. To better understand the challenges in managing patients with co-morbid pain and addiction, we conducted in-depth interviews with health care providers delivering comprehensive medical care to methadone maintained current and former drug users in a substance abuse treatment program.
METHODS: We completed qualitative semi-structured interviews with seventeen generalists practicing in a large outpatient substance abuse treatment program with on-site comprehensive medical care. Interviews focused on barriers to successful pain management and strategies used to diagnose and treat patients. Using an iterative process, we developed a coding scheme and then coded the data.
RESULTS: Providers' overarching goal was to provide high quality medical care. However, the profound ambiguity that characterizes the treatment of drug users with chronic pain was major barrier to achieving this goal. This ambiguity was perceived to arise in part from conflicting messages from professional organizations and regulatory authorities, with providers being told both that doctors undertreat pain and cause patients to "suffer unnecessarily," and that there might be disciplinary consequences if they prescribe opioids. Additional sources of ambiguity included the subjectivity of pain and the inadequate nomenclature of abuse, addiction, tolerance, and dependence. Because of these multiple sources of ambiguity, many providers experienced significant internal conflict. In addition, providers felt that prescribing opioids to methadone patients is inherently risky citing the following risks: diversion, deception, relapse, misuse, and disciplinary consequences. However, providers differed significantly in their general assessment of the central risk-benefit equation. For example, some providers felt that the risk of relapse to illicit drug use was higher if opioids were prescribed for pain, while others felt that the risk of relapse was higher in patients with undertreated pain. How providers managed ambiguity and answered this central risk-benefit question determined their pain management practice patterns. Providers prioritized three goals in managing pain: deciding if pain is real, relieving pain, and preventing misuse of prescritpion drugs. Variability was observed in how providers approached each of these goals. Strategies to decide if pain is real included knowing the patient over time, completing a full diagnostic work-up, assessing the patient's pain history for narrative cohesion, and collaborating with clinic staff. Strategies for assessing pain relief ranged from observing the patient after providing early and aggressive opioid treatment to observing the patient while a diagnostic workup or specialty referral was obtained. Strategies to prevent misuse included frequent visits, dispensing limited pills, directly observed therapy, and urine toxicology testing.
CONCLUSIONS: Among generalist providers experienced in addiction medicine, we found that treating chronic non-cancer pain in methadone maintained drug users is characterized by ambiguity and variation in practice patterns. Rigorous research is needed to establish broader guidelines for treating chronic pain with opioid medications.

TRENDS AND CHARACTERISTICS OF INTERNATIONAL MEDICAL GRADUATES IN THE US. E.A. Akl[1]; R.A. Mustafa[1]; F. Bdair[2]; H.J. SchüNemann[1]. [1]University at Buffalo, Buffalo, NY; [2]Unity Health System, Rochester, NY. *(Tracking ID # 154684)*

BACKGROUND: Major US medical organizations admit we are currently experiencing physician shortages that are likely to worsen. Some experts are projecting deficits by 2020 or 2025 as great as 200,000 physicians, 20% of the needed workforce. Increasing the number of USMGs is challenging and might not suffice the projected needs. International medical graduates (IMGs) have been a valuable resource for the US physician workforce and will likely remain so. The objective of this study is to describe the historical trends of the number of IMGs who are active physicians in the US, and to compare their characteristics to those of US medical graduates (USMGs).
METHODS: We described the historical trends of the number of IMGs who are active physicians in the US using the 1978–2004 files of the American Medical Association Physicians' Professional Data (AMA-PPD). We evaluated the trends for the following three groups: total IMGs, resident IMGs, and practicing physician IMGs. We then analyzed and compared the characteristics of a random sample of 1000 USMGs and a random sample of 1000 IMGs using the 2004 AMA-PPD. These characteristics included age, gender, number of years since graduation from medical school, country of birth, board certification, practice specialty, practice type, practice location, and primary employer. We conducted both univariate and multivariate analyses.
RESULTS: Over the last 26 years, the total number of IMGs in the US grew by 4873 per year reaching a total of 215, 576 in 2004, about 2.4 times its size in 1978. The results also show growth for the two subgroups of resident IMGs (growth of 702 per year, total of 31,147 in 2004) and practicing physician IMGs

(growth of 4171 per year, total of 184,429 in 2004). The proportion of total IMGs grew yearly by 0.12 % up to 25.6% in 2004. Results are parallel for resident IMGs (0.38% per year, 28.4% in 2004) and practicing physicians IMGs (0.08% per year, 25.2% in 2004). In 2004, compared with USMGs, IMGs were older, less likely to be board certified, less likely to work in group practice or in a medical school, more likely to have Internal Medicine as practice specialty and more likely to be residents.
CONCLUSIONS: Over the last quarter century the IMGs pipeline provided a significant and steady supply for the US physician workforce that continues to grow. Policymakers should consider the sustainability of the trend and its consequences on both the US and the source countries.

TRENDS AND GEOGRAPHIC VARIATION OF OPIATE MEDICATION USE IN STATE MEDICAID FEE-FOR-SERVICE PROGRAMS 1996–2002. J.T. Zerzan[1]; N.E. Morden[2]; S. Soumerai[3]; D. Ross-Degnan[4]; E. Roughhead[5]; L. Simoni-Wastila[6]; S.D. Sullivan[2]. [1]Puget Sound VA, Seattle, WA; [2]University of Washington, Seattle, WA; [3]Harvard Medical School, Boston, MA; [4]Harvard University, Boston, MA; [5]School of Pharmacy and Medical Sciences, University of South Australia, Adalaide, South Australia; [6]University of Maryland at Baltimore, Baltimore, MD. *(Tracking ID # 154706)*

BACKGROUND: While studies have documented hospital and surgical service geographic variability, prescription use geographic variability is largely unknown. Opiate pain medications are widely used, particularly since the promulgation of clinical guidelines promoting aggressive pain treatment. This study describes temporal and interstate variability in aggregate prescription opiate medication use within US Medicaid programs.
METHODS: A dataset of 49 states' fee-for-service (FFS) aggregate Medicaid prescription drug dispensing records from 1996 to 2002 was compiled and used to quantify medication dispensing examining all opiates and two specific medications in the opiate class: controlled release oxycodone and methadone. The defined daily dose (DDD) per 1000 FFS Medicaid adult enrollees per day was calculated for all opiate medication categories. A market basket of non-pain prescription medications was constructed for comparison. Rates, trends and the coefficient of variation were determined overall, by year and for each state.
RESULTS: From 1996 to 2002, overall use of opiate pain medications increased 184 percent. The market basket use increased 55 percent. Total opiate dispensing varied widely from state to state with a range of 6.9 to 44.1 DDD/1000/day in 1996, and 7.1 to 165.0 DDD/1000/day (a 23 fold difference) in 2002. (Figure 1) The coefficient of variation was 49.6 in 2002. Controlled release oxycodone and methadone had a greater rate of increase compared to all opiates.

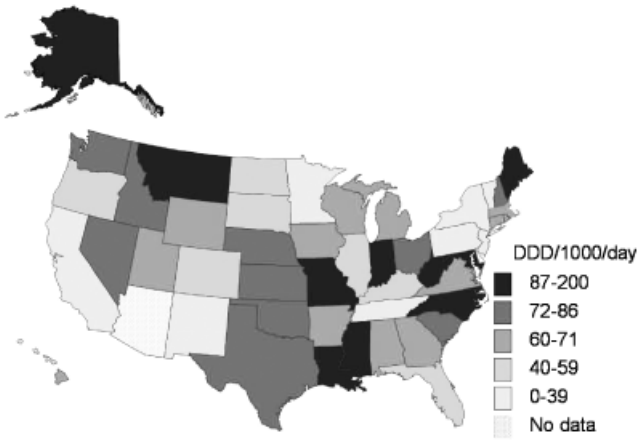


FIG. 1. Variation in Total Opiate Use in State Medicaid Fee for Service Programs 2002.

CONCLUSIONS: Dispensing of opiate medications in Medicaid programs increased at almost twice the rate of non-pain related medications during the seven-year study period. Large, unexplained geographic variation in aggregate use exists. The impact of Medicaid cost-containment strategies on utilization and outcomes should be investigated. (Fig. 34)

TRENDS AND PREDICTORS OF AGGRESSIVE THERAPY FOR CLINICAL LOCALLY ADVANCED PROSTATE CARCINOMA. T. Denberg[1]; B. Beaty[1]; M. Glode[1]; J.F. Steiner[2]; R.M. Hoffman[3]. [1]University of Colorado Health Sciences Center, Denver, CO; [2]University of Colorado Health Sciences Center, Aurora, CO; [3]University of New Mexico, Corrales, NM. *(Tracking ID # 152037)*

BACKGROUND: The NCI recommends adjuvant androgen deprivation therapy with external beam radiotherapy (XRT) for most patients with clinically advanced (cT3) prostate carcinoma. Currently, there is less evidence supporting the use of radical prostatectomy (RP) for most patients. Little is known about patterns and predictors of aggressive local therapies for cT3 disease.
METHODS: We used data from the Surveillance, Epidemiology and End Results (SEER) cancer registries to describe trends in the local treatment of cT3 prostate carcinoma and employed multivariable logistic regression to identify significant predictors of receiving (1) RP versus XRT and (2) any aggressive local treatment (RP or XRT) versus none. Predictors included patient age, tumor stage and grade, race/ethnicity, marital status, year of diagnosis, and SEER registry.
RESULTS: Between 1995 and 2001, the proportion of men receiving aggressive local therapy for cT3 disease increased by 11%, corresponding with a declining frequency of RP (18.1% to 9.3%) and a 20% increase in XRT (40.3% to 60.2%). Younger age was the strongest predictor of receiving RP versus XRT and younger age along with marriage predicted any form of aggressive local therapy versus none (adjusted RR for marriage=1.33 (1.18–1.87)). Blacks were significantly less likely than non-Latino whites to receive aggressive therapy (adjusted RR=0.56 (0.45–0.69)). The frequency of RP among patients with seminal vesicle involvement and high-grade tumors was 13.6% and 11.3%, respectively.
CONCLUSIONS: By 2001, 70% of patients with cT3 disease were receiving aggressive local therapy, with XRT 6.5 times more common than RP. Black men and unmarried men were less likely than their non-Latino white and married counterparts to receive aggressive treatment. Clinical trials are needed to rigorously assess the effects of RP, and of RP versus XRT, on clinical outcomes in cT3 prostate carcinoma.

TYING UP LOOSE ENDS: DISCHARGING PATIENTS WITH UNRESOLVED MEDICAL ISSUES. C. Moore[1]; E.A. Halm[2]. [1]Mount Sinai School of Medicine, New York, NY; [2]Mount Sinai School of Medicine, Mamaroneck, NY. *(Tracking ID # 153784)*

BACKGROUND: Patients hospitalized for acute medical conditions are often discharged with unresolved medical issues requiring further work-up, but that do not merit additional days of hospitalization. Failure to work-up these unresolved issues after discharge may result in poor patient outcomes because of delays in diagnosis and/or treatment. The purpose of this study is to determine the frequency with which patients are discharged from the hospital with unresolved medical issues requiring outpatient work-ups and the frequency with which the work-ups are completed. Fig. 35
METHODS: We conducted a retrospective cohort study of adult patients discharged from the medicine or geriatrics service of a large urban teaching hospital between June '02 and Jan. '04 and who subsequently had post-hospital outpatient follow-up visits with their primary care physicians at several affiliated general internal medicine or geriatrics practices. Subjects' inpatient medical records were reviewed to determine if their hospital physicians recommended post-discharge outpatient tests, procedures, or outpatient sub-specialty visits to work-up any unresolved medical issues present at the time of discharge, but not requiring further hospitalization. Subjects' outpatient medical records were then reviewed in order to determine if the recommended outpatient workups were completed.
RESULTS: The 208 study patients had a mean age of 59 years with a median of 3 chronic medical conditions, the most common being hypertension (67%), diabetes (40%), asthma (28%), CAD (19%), and COPD (14%). The median length of stay was 4 days and the most common discharge diagnoses were asthma/COPD (22%), pneumonia (13%), chest pain or rule-out myocardial infarction (10%), and CHF (10%). One quarter of patients (27%) had post-discharge outpatient work-ups recommended by their hospital physicians for unresolved medical issues. Of the 64 recommended outpatients work-ups: 23% were radiologic, 23% were cardiac, 22% were GI, 19% were laboratories, and 13% were miscellaneous. Overall, 39% of the recommended post-discharge work-ups were never completed in the outpatient setting. GI and cardiac work-ups (usually for GI bleeding and chest pain, respectively) were the least likely to be completed and laboratory work-ups (usually to monitor warfarin therapy) were the most likely to be completed. In addition, we found that only 31% of the recommended work-ups were clearly documented in patients' discharge summaries.
CONCLUSIONS: Patients are frequently discharged from the hospital with unresolved medical issues for which their hospital physicians recommend outpatient work-ups; however, over a third of these work-ups are not addressed by patients' outpatient physicians, and fewer then one-third of the work-ups are documented in patients' discharge summaries. Future research will determine if the failure to address these outpatient work-ups results in poor patient outcomes.

Work-Up Category	# Work-Ups Recommended (% Total)	Description of Most Commonly Recommended Work-Up in Category	% of Work-Ups Not Completed
Radiologic	15 (23)	Follow-up of an incidental lung nodule	33
Cardiology	15 (23)	Stress test or echocardiogram to work-up chest pain	47
GI	14 (22)	Colonoscopy or EGD to work-up GI bleeding	50
Laboratory	12 (19)	PT (INR) check to monitor warfarin therapy	25
Miscellaneous	8 (13)	Anemia work-up, bone marrow biopsy	38
Total	64 (100)	.....	39

FIG. 1. Recommended Post-Discharge Outpatient Work-ups (N=64)

TYPE 2 DIABETES CARE IN AMERICAN SAMOA: PATIENT AND PROVIDER ATTITUDES AND PRACTICES. A. Bitton[1]; J. Depue[2]; J. Tuitele[3]; S.T. McGarvey[2]. [1]Brigham and Women's Hospital, Boston, MA; [2]Brown University, Providence, RI; [3]Tafuna Family Health Center, Tafuna, AS. *(Tracking ID # 154682)*

BACKGROUND: The prevalence of type 2 diabetes (T2D) in American Samoa is among the highest in the world. T2D prevalence among all adult ages in 2002

was 21.6% in men and 18.0% in women, nearly double the rates seen in 1990 (Keighley et al., 2006). 2002 T2D prevalence among subjects >45 years was 25–50% (men) and 30–42% (women). We undertook surveys of diabetic patients and providers at the Tafuna Family Health Center (TFHC), a large American Samoan primary care clinic, to understand patient self-care T2D practices and provider attitudes toward T2D care provision in order to develop culturally appropriate T2D interventions.
METHODS: In May¬June 2004, we administered a survey regarding T2D self-care to 50 consecutive diabetes patients at TFHC. The brief survey, with items in both English and Samoan, was completed before the medical visit during patients' wait time. Items were adapted for ease of use in a low-literacy population from standardized measures to assess diabetes-related beliefs and self-care behaviors. In August 2005, we administered the Diabetes Attitudes Survey (DAS, a previously validated survey of provider attitudes by Andersen 1998) to 19/22 TFHC staff members.
RESULTS: In the 2004 patient survey, average age was 59, 64% were females, with an average 6 years since diagnosis. 82% reported using oral hypoglycemics; only 8% used insulin. 60% reported never attending diabetes education classes. Self care behaviors were reported for "how many of the last 7 days" they: followed eating plan=3 days; did physical activity=3.8 days; tested blood sugar=1.7 days; took diabetes medicine=4.8 days. Most commonly reported patient problems caring for T2D were inadequate exercise and diet (59%) and hyperglycemic symptoms (41%). Among providers in the 2005 survey, we found positive attitudes on most DAS sub-scales (5=strongly agree to 1=strongly disagree): a) need for special training of staff about diabetes care, mean score 4.6; b) seriousness of diabetes, 4.1; c) the psychosocial impact on patients of diabetes, 4.0; and d) support for patient autonomy, 3.9. The value of tight control score, however, was lower at 3.4.
CONCLUSIONS: These data suggest that many American Samoan patients are struggling with adopting T2D self-care behaviors. Of particular concern are irregular medication use, low insulin use and blood sugar monitoring, and high levels of hyperglycemic symptoms. The 2005 DAS provider attitude survey results are similar to a larger US DAS study (Andersen 1998) regarding seriousness of T2D and level of support for patients. However, there was a notable decrease in Samoan providers' value placed on tight glucose control. Our study is limited by small sample size and was only administered at one large clinic. Our results are being used to construct a larger clinical trial to examine the effectiveness of culturally acceptable interventions using community health workers and primary care providers to improve T2D self-care behaviors in American Samoa. REFERENCES Andersen et al. The third version of the diabetes attitudes scale (DAS-3). Diabetes Care. 21:1403–1407. 1998. Keighley et al. Nutrition and health in modernizing Samoans: evolutionary and adaptive perspectives. In: Ohtsuka R ed. Nutrition and health changes in the Asia-Pacific region. Cambridge, England: Cambridge University Press (2006, in press).

UNDERSTANDING PHYSICIAN TRUST: THE IMPORTANCE OF CONSIDERING INTERACTIONS AMONG PATIENT CHARACTERISTICS. D. Kuykendall[1]; M. Kallen[1]. [1]Department of Veterans Affairs, Houston, TX. *(Tracking ID # 153341)*

BACKGROUND: Patients' trust in their physicians can influence satisfaction, treatment adherence, even health outcomes. Trust is influenced by a variety of factors associated with life experience, such as type of illness, health beliefs, and previous physician interactions. To the extent that certain groups have different life experiences, different "starting-point" levels of physician trust might be expected at the beginning of a medical encounter. Research shows an unclear relationship between patient characteristics and physician trust. For example, some studies show trust is lower among African American patients, although other works fail to find this relationship. A limitation is that patient characteristics are typically viewed as main effects only, and interactions of patient characteristics and other life experiences are not investigated. We hypothesize that understanding physician trust will be enhanced by considering complex interactions among patient characteristics (e.g., health status, income, education).
METHODS: Consecutive patients from outpatient clinics representing one public, one private, and one VA clinic were recruited from waiting rooms prior to appointments. Participants completed demographic questions and a battery of scales about their health and health care. Completed questionnaires were received from 104 African Americans and 131 White Americans. The overall sample composition was: 46% females; 57% incomes < = $20,000 per year; 36% completed high school or less; 47% experienced moderate to severe pain during the previous 4 weeks. Summated scores on the 11-item Trust in Physician Scale were calculated and used to categorize patients as having high or low trust. Potential predictors of trust status were identified with CHAID (i.e., Chi-squared Automatic Interaction Detector). Using a chi-square independence test, this algorithm first identifies the predictor that discriminates best between patients of high versus low trust. The algorithm then examines the remaining predictor variable set and seeks the next best predictor, given the predictor(s) already identified. This iterative process continues until no additional significant predictors can be found.
RESULTS: Overall, 20% of the sample expressed low physician trust. However, there was considerable variability in trust when the sample was broken down by combinations of patient characteristics. For example, low physician trust was reported by 44% of one subgroup (males, lower income, at least moderate pain), but by only 9% of another (mild pain or less, at least some college education). Taken together, these two patient subgroups were large, representing over 50% of the sample.
CONCLUSIONS: Findings suggest the association between patient characteristics and physician trust is complex. Using combinations of patient characteristics, it was possible to identify a patient subgroup that was four times more likely than another to report low physician trust. From health disparities and policy perspectives, there might be distinct patient subgroups that begin medical encounters with low physician trust. Developing a model of patient trust based on the interactions of a variety of predisposing circumstances would help identify potential communication challenges and inform educational initiatives.

UNDERSTANDING RACIAL/ETHNIC DIFFERENCES IN THE INCIDENCE OF TYPE 2 DIABETES IN A NATIONALLY REPRESENTATIVE SAMPLE OF OLDER MIDDLE AGE ADULTS. P.A. Nsiah-Kumi[1]; J.M. Feinglass[1]; J.A. Thompson[1]; D.W. Baker[1]. [1]Northwestern University, Chicago, IL. *(Tracking ID # 151498)*

BACKGROUND: African Americans (AA) and Hispanics have an excess prevalence of type 2 diabetes compared to whites as well as increased morbidity/mortality resulting from the disease. Although reasons for racial disparities between African Americans and whites in the incidence of diabetes have been examined, few longitudinal studies have included Hispanics. This study compares incident diabetes over four years of follow-up in AA, Hispanic and white women and men, aged 51–61 and examines the effects of age, education, household income, body mass index (BMI) and physical activity (PA) level on racial/ethnic differences in diabetes incidence.
METHODS: We used the Health and Retirement Study (HRS), a nationally representative prospective study of community-dwelling adults aged 51–61 in 1992. We analyzed 8,331 participants who were not diabetic in 1992 and had complete data through 1996. Self-reported data on BMI (categorized as obese, overweight, normal weight), household income, education, PA and physician diagnosis of diabetes were collected every 2 years. Questions about light and vigorous leisure time PA were used to classify participants as being inactive, having insufficient PA, or meeting the Surgeon General's recommendations. All analyses were adjusted for the complex survey design and personal level analytic weights. Multivariate logistic regression was used to determine the age adjusted odds ratio (OR) of diabetes incidence for each racial and ethnic group. Changes in these ORs were examined after analyzing the effects of education, household income, BMI and PA.
RESULTS: Between 1992 and 1996, the overall incidence of diabetes was 4.1%. Among men, the incidence was 9.2%, 7.7%, and 4.2% for AA, Hispanics, and whites, respectively. Among women, the incidence was 7.4, 7.3%, and 2.7%, respectively. Compared to whites of the same sex, age adjusted ORs for developing diabetes were greatest in AA females (OR 2.3; 95% CI 1.6–3.3), followed by AA males (OR 2.1; 95% CI 1.4–3.4), Hispanic females (OR 2.0; 95% CI 1.1–3.7), and Hispanic males (OR 1.6; 95% CI 0.9–2.9). Education was strongly related to diabetes incidence among women (e.g., adjusted OR 2.0 for 0–8 years compared to >12 years of education) but not for men. Baseline BMI and meeting PA recommendations were strong, independent predictors of diabetes incidence for men and women. The OR for obese women was 10.1 (compared to underweight or normal weight) and 8.7 for obese men. In both women and men, OR for meeting PA recommendations was 0.5. However, inclusion of these socioeconomic and behavioral risk factors in multivariate models explained very little of the racial and ethnic differences in diabetes incidence.
CONCLUSIONS: AA and Hispanic men and women were more likely than whites to develop diabetes. Although body mass index and physical activity were strongly predictive of incident diabetes, these traditional risk factors do not explain racial/ethnic differences in the incidence of diabetes. Future studies should examine the incidence of diabetes in this sample at later points in time as well as the impact of other factors including diet and low birth weight (Barker Hypothesis) on racial/ethnic differences in diabetes incidence.

UNDERUSE OF GASTROPROTECTIVE AGENTS IN PATIENTS AT RISK FOR GASTROINTESTINAL EVENTS AND THE EFFECTS ON GASTROINTESTINAL COMPLICATIONS. L. Tamariz[1]; H. Florez[2]; A. Palacio[2]. [1]University of Miami, Miami, FL; [2]University of Miami - Humana Health Services Research Center, Miami, FL. *(Tracking ID # 157034)*

BACKGROUND: Anti-inflammatory drugs increase the risk of gastrointestinal complications. Gastroprotective agents decrease the same risk. The purpose of this report is to determine the frequency of use of gastroprotective agents and the effects of the use on gastrointestinal complications in a large managed care population.
METHODS: We analyzed retrospective claims data of a large health benefits company. Subjects were selected from the database between the dates of April 1, 2003 and June 30, 2003 if they had filled a prescription for NSAID or Cox-2 inhibitors. Subjects were identified as having higher gastrointestinal risk if they had at least one of the following ICD-9 or NDC codes: age >65 years, use of warfarin and oral corticosteroids, prrior use of prescription strength NSAID's, H. pylori infection, and prior gastrointestinal ulcer. All subjects were followed for the development of gastrointestinal bleed using cox proportional models including an interaction term between GI risk and gastroprotective agent use.
RESULTS: We identified 27,827 patients using anti-inflammatory medications. Of those, 72% used NSAID and 28% used Cox-2 inhibitors. Cox-2 users, when compared to NSAIDs users, were younger, more likely to be male, and have lower gastrointestinal risk. Twenty-four percent of the entire cohort used gastroprotective agents and the overall use of proton pump inhibitors was 13%. In logistic regression models, significant predictors for gastroprotective use were gastrointestinal risk (OR 1.1; 95% CI 1.0–1.2). The hazard ratio for the development of a gastrointestinal bleeding decreased from 0.88; 95% CI 0.60–1.2 to 0.73; 95% CI 00.7–6.73 in those subjects using gastroprotectve agents.

CONCLUSIONS: In a large managed care population, Cox-2 inhibitors were more frequently used in patients at lower risk for gastrointestinal complications and gastroprotective agents were underused in chronic anti-inflammatory users.

UNIDENTIFIED NEED FOR EMERGENCY CONTRACEPTION IN URGENT CARE SETTINGS. E.B. Schwarz[1]; B. Gerbert[2]; R. Gonzales[2]. [1]University of Pittsburgh, Pittsburgh, PA; [2]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 152491)*

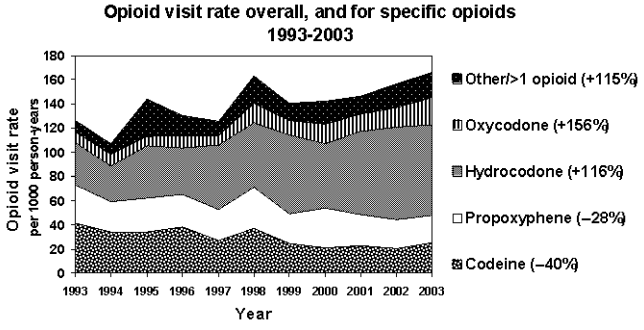
BACKGROUND: Emergency contraception (EC) is effective for 5 days after unprotected sex. Urgent care settings serve many women who may benefit from EC. The goal of this study was to quantify the magnitude of need for EC among women seeking urgent care services and the frequency with which EC was discussed by urgent care clinicians. In addition, we sought to describe the group of women who were trying to avoid pregnancy and reported sex without any form of contraception in the 5 days prior to their clinic visit, as these women might benefit from taking EC the day of that visit.
METHODS: We surveyed 446 women (35% of eligible women) aged 18–40 years at two urgent care clinics in San Francisco about their desire to avoid pregnancy and the frequency with which they had sex without any form of contraception. We excluded women who were unlikely to become pregnant in the next year (due to surgical sterilization, use of intrauterine contraception, or having female partners). We abstracted information from medical records about issues discussed during clinic visits. We considered women who stated they were trying to avoid pregnancy and had sex without any form of contraception to be candidates for EC. We examined factors associated with need for EC on the day of clinic visit using multivariable logistic regression.
RESULTS: This was an educated (48% had college degrees), ethnically diverse (44% were white) sample. On the day they completed this survey, women were most frequently diagnosed with an upper respiratory tract infection (40%), musculoskeletal problem (20%), rash (12%), urinary tract infection (8%), vaginitis (8%), or abdominal pain (5%). Twelve percent of women in urgent care settings could have benefited from EC the day they were seen in clinic, but none of them addressed this need with a clinician. EC could have been used by 17% of women the last time they had sex and 33% of women in the prior 6 months. However, functional knowledge of EC was limited and only 6% of women had used EC in the prior 6 months. Women who reported poor or fair overall health (OR=3.25, 95% CI 1.65–6.41), who had annual incomes less than $30,000 (OR=2.97, 95% CI 1.58–5.59), who had less than a college education (OR=2.09, 95% CI=0.95–4.58), who were under 30 years of age (OR=2.91, 95%CI 1.42–5.98), and who reported a prior abortion (OR=3.13, 95% CI 1.74–5.65) were more likely to need EC on the day they presented to urgent care. Seeking care for a uro-gynecologic issue was not significantly associated with acute need for EC (OR=1.52, 95% CI 0.74–3.13). Few women (8%) who needed EC reported a personal objection to EC.
CONCLUSIONS: Many women presenting for urgent care services may benefit from EC. Provision of information about emergency contraception in urgent care settings could have significant public health benefit.

UNMET NEED FOR SYMPTOM MANAGEMENT FROM BREAST CANCER TREATMENT. J. Yoon[1]; J. Malin[2]; D. Tisnado[1]; M. Tao[3]; P.A. Ganz[4]; K.L. Kahn[1]. [1]University of California, Los Angeles, Los Angeles, CA; [2]Amgen, Thousand Oaks, CA; [3]St John's Health Center, Los Angeles, CA; [4]University of California, Los Angeles, Sepulveda, CA. *(Tracking ID # 153091)*

BACKGROUND: We used a diverse, multi-ethnic, multi-lingual population-based cohort of women with incident breast cancer to examine the extent to which prevalent symptoms for women with incident breast cancer are addressed by their providers and how symptom management varies as a function of patient characteristics.
METHODS: We conducted a survey of 1,219 of breast cancer patients in Los Angeles County. The sample was drawn from a census of incident breast cancer cases diagnosed during 10 consecutive months in 2000. Patients were initially identified by Rapid Case Ascertainment from 103 hospitals or other settings in which breast cancer was diagnosed, and the survey was conducted in both English and Spanish. Breast cancer patients were surveyed about the presence of five severe symptoms. Among patients with any reported severe symptom, we identified women with an unmet need if she had at least one severe symptom for which she reported not receiving the help she wanted. Patients were also asked the reasons she did not receive help. Bivariate analyses were conducted looking at unmet need prevalence and reasons for unmet need by type of symptom and patient characteristics (patient age, race/ethnicity, income, education, marital status, working status, insurance coverage, and number of comorbidities). Multivariate analyses predicted any unmet need for help with a severe symptom using logistic regression with patient characteristics as covariates.
RESULTS: The prevalence of patients wanting help and receiving wanted help varied by symptom: of women who wanted help, the proportion who received help was 0.91 for nausea and vomiting, 0.70 for difficulty sleeping, 0.69 for arm problems, 0.51 for severe hot flashes, and 0.48 for vaginal dryness. Black women (OR=2.82, 95% CI: [1.41, 5.64]) and Spanish-speaking women (OR=1.94; 95% CI: [1.04, 3.62]) were significantly more likely to report an unmet need after adjusting for patient characteristics. Amongst women who did not receive help for their severe symptoms, a greater proportion of black and Hispanic women compared to white women, cited the doctor not thinking treatment would benefit her (P=0.0181), the doctor not appreciating how much the problem bothered her (P=0.0333), the doctor not knowing about treatments (P<0.0001), or insurance/cost barriers (P=0.0085).
CONCLUSIONS: Amongst a population-based cohort of women with incident breast cancer, black and Spanish-speaking women were more likely to report not receiving help for symptoms they wanted treated. Most frequently, these women reported mutable factors as the reasons for their not receiving adequate symptom management. A systematic evaluation by providers of the prevalence of symptoms and the response of patient's symptoms to interventions should be considered as a means to reduce the burden on patients with incident cancer. There is no apparent reason this proposed intervention should be delivered differentially across racial or ethnic groups of cancer patients. The greater unmet need amongst black and Hispanic Spanish-speaking women is noted despite growing awareness of racial disparities in the health care system.

US TRENDS IN AMBULATORY CARE OPIOID PRESCRIBING FROM 1993–2003. M.J. Pletcher[1]; S.G. Kertesz[2]; J. Mendelson[3]; R. Gonzales[1]. [1]University of California, San Francisco, San Francisco, CA; [2]University of Alabama at Birmingham, Birmingham, AL; [3]California Pacific Medical Center (CPMC), San Francisco, CA. *(Tracking ID # 153464)*

BACKGROUND: Prescription opioid misuse has increased rapidly during the last decade and emerged as an important cause of substance abuse-related morbidity in the US. Opioid prescribing by physicians contributes to the supply of abusable opioids, but little is known about how opioid prescribing patterns have changed during this time.
METHODS: We used 10 years of survey data from the National Ambulatory Medical Care Survey, a nationally representative stratified cluster sample of nearly 30,000 physician office visits per year, to estimate how many US office visits included prescription of an opioid medication (an "opioid visit") to persons aged 12 and over during 1993–2003, calculated rates using yearly US Census denominator estimates, and categorized opioid visits by type of opioid prescribed in order to explain overall trends. Linear time trends were estimated taking into account the survey design.
RESULTS: Among 272,983 observations representing 7.4 billion ambulatory care visits in the US from 1993–2003 by persons age 12 and over, we identified 11,327 opioid visit observations, or 32 million office opioid visits/year in the US, an average rate of 0.142 opioid visits per person per year (142 per 1000 person-years (/1000 py); 95% CI: 134–149). Two pronounced time trends were evident: there was both a significant increase in the opioid visit rate over the decade (126 in 1993 to 166/1000 py in 2003, a 32% increase, p<.001 for trend) and a large shift in the types of opioids prescribed. Whereas codeine and propoxyphene visit rates declined, visit rates for higher potency opioids such as hydrocodone and oxycodone increased markedly (Figure). Most of the overall opioid visit trend was explained by hydrocodone visits, which increased at a rate of approximately 1 million additional visits per year from 1993–2003, up to a total of 18 million hydrocodone visits in 2003 (95% CI: 14–22 million, 45% of all 2003 opioid visits).
CONCLUSIONS: Opioid prescribing patterns in ambulatory care have changed markedly in the last decade. Co-occurring increases in opioid abuse and prescribing suggest that office visit prescribing may be one channel (whether direct or indirect) for the supply of abused opioids in the US.



USE OF COMPLEMENTARY AND ALTERNATIVE MEDICINE (CAM) IN A MIDDLE-AGED, INNER-CITY POPULATION WITH OR AT RISK FOR HIV. F.B. Milan[1]; D. Buono[2]; J. Arnsten[1]; E. Schoenbaum[1]; R.S. Klein[1]; M. Webber[1]. [1]Albert Einstein College of Medicine, Bronx, NY; [2]Albert Einstein College of Medicine, Montefiore Medical Center, Bronx, NY. *(Tracking ID # 153832)*

BACKGROUND: Use of complementary and alternative medicine (CAM) is reported to be especially prevalent among HIV infected persons (40–80%) though some herbal remedies can have adverse interactions with antiretrovirals. To date, studies of CAM use among HIV infected persons have focused primarily on men who have sex with men, and have included few persons who acquired HIV through injection drug use or heterosexual transmission. The objective of this study was to determine factors associated with CAM use in an inner city population with or at risk for HIV infection from intravenous drug use or primarily heterosexual activity.
METHODS: Persons participating in one of two research cohorts, the Cohort of HIV at-risk Aging Men's Prospective Study (CHAMPS), or the Menopause study (Ms), were invited to participate in a sub-study of CAM use. During one of the semi-annual face-to-face interviews, participants were asked about prior 6 months use of dietary supplements (DS) (i.e. vitamins, herbs) and other CAM therapies (i.e. acupuncture, massage). We also asked about reasons for DS use, adherence to antiretroviral therapy and use of other prescription

medications. Associations between categorical variables (i.e. race, gender, HIV status) and use of DS or CAM therapies were analyzed using chi-square or Fisher's exact tests and odds ratios (OR) with 95% confidence intervals (CI). Student's
T-test was used to assess differences in means of continuous variables (i.e. age). Multiple logistic regression was used to assess independent correlates of daily DS use.
RESULTS: In November 2004, 123 of 131 (94%) CHAMPS and Ms participants agreed to participate in the CAM substudy. Mean ages were higher for men 55 (+4.5) than women 45 (+5.1) ($p<.01$) due to study design. Substudy participants were 63% male, 53% HIV infected, 57% black, 26% Hispanic and 17% white, 18% were homosexual and 53% reported illicit drug use in the last 5 years. HIV infected individuals were similar to HIV uninfected individuals in age, educational attainment, and illicit drug use but were more likely to be Black (OR=2.9, 95% CI 1.4, 6.2). CAM use in the last 6 months was common, 82% reported use of a CAM therapy, 68% reported using some DS and 50% reported daily DS use. In bivariate analyses daily DS use was associated with being HIV infected ($p=0.03$) and not associated with illicit drug use or adherence to antiretroviral medications. In multivariate analysis, controlling for gender and race, HIV infected individuals were almost 3 times more likely to report daily DS use (OR 2.9; 95% CI 1.4, 6.4). 95% of HIV infected participants reported use of both DS and other prescription medications. The most common reasons given for DS use were to prevent illness or boost immunity (26%), increase energy (22%) and to cleanse/treat toxic effects of medications (7%).
CONCLUSIONS: CAM use among inner city residents with or at risk for HIV is highly prevalent, but is used almost exclusively as an adjunct to and not an alternative to conventional healthcare. Daily use of dietary supplements is especially prevalent among those with HIV infection but not associated with worse antiretroviral adherence. More research is needed to determine how health care providers can best advise patients to integrate dietary supplements and other CAM therapies safely into their health care activities.

USE OF A MODIFIED INFORMED CONSENT PROCESS AMONG VULNERABLE PATIENTS: A DESCRIPTIVE STUDY. R. Sudore[1]; C.S. Landefeld[1]; B. Williams[1]; D. Barnes[1]; K. Lindquist[1]; D. Schillinger[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 152044)*

BACKGROUND: Many research participants do not understand consent information. However, little is known about patient characteristics associated with poor understanding of consent information or whether modifications to the consent process can promote participant understanding. Therefore, our objective was to describe a modified research consent process, and explore whether literacy and demographic characteristics were associated with understanding consent information.
METHODS: This descriptive study included 204 ethnically diverse patients from an inner city public hospital in San Francisco, aged 50 or older, who were consenting for a randomized trial of advance directives. Participants had to self-report fluency in English or Spanish. We employed a modified, interactive consent process for the trial which included a simplified consent form (written at the 6th grade level) that was read to and discussed with participants. This was then combined with 7 comprehension questions followed by targeted education. Questions and targeted education were repeated until complete comprehension was achieved. Measures included the number of passes through the consent process required to answer all consent comprehension questions correctly. Literacy was assessed in English and Spanish with the short form Test of Functional Health Literacy in Adults (s-TOFHLA, scores 0–36).
RESULTS: Participants had a mean age of 61 years; 53% were female; 26% were White/non-Hispanic, 31% White/Hispanic, 24% Black, 9% Asian-Pacific Islander, and 10% were Multi-ethnic/Other. Forty percent had limited literacy (s-TOHFLA <23). Only 28% of participants answered all comprehension questions correctly on the first pass. After adjusting for age, race/ethnicity, education, gender, primary language, and s-TOFHLA score, only lower literacy and minority status were significantly associated with requiring more passes through the consent process. For example, participants' odds of requiring more passes through the consent process increased with each one-point decrease in s-TOFLA score (Odds Ratio (OR), 1.04; 95% CI, 1.00 to 1.07) with ORs ranging from 1.00 for those with s-TOFHLA scores of 36 (a perfect score), to 3.76 for those who scored 0 out of 36 (illiterate). After adjustment, being Black was also associated with requiring more passes (OR 2.45; 95% CI 1.08 to 5.56). After the second pass through the consent process, most participants (80%) were able to answer all comprehension questions correctly.
CONCLUSIONS: Despite employing a number of consent modifications, most participants had poor comprehension on the first pass through the consent process. Lower literacy and minority status were important determinants of poor understanding. However, by using an interactive, educational consent method, only modest efforts were required to improve comprehension and obtain informed consent in this diverse, vulnerable population. Employing modifications to the consent process may improve the quality of informed consent for diverse populations and, if confirmed in other settings, should be considered as a standard means to elicit informed consent for research.

USE OF A SCREENING TOOL BY MEDICAL RESIDENTS TO RECOGNIZE AND TREAT MAJOR DEPRESSION IN HOSPITALIZED PATIENTS: A CONTROLLED TRIAL. C.A. Smith[1]; E. Chinga-Alayo[1]; S. Fung[1]; A.T. Evans[1]; B.M. Reilly[1]; S. Mandelbaum[1]. [1]Cook County (Stroger) Hospital/Rush Medical College, Chicago, IL. *(Tracking ID # 151647)*

BACKGROUND: Major depression in hospitalized patients is common, but often goes unrecognized and thus untreated. We hypothesized that use of a simple screening tool by medical residents would increase the diagnosis and treatment of depression in medical inpatients.
METHODS: The study was conducted on the medical service at a university-affiliated public teaching hospital. The design was a single-blinded firm-based controlled trial. One firm served as the intervention group (n=16 residents) and were taught to use a simple screening tool (based on DSM-IV criteria). The tool required that two questions be asked initially. If either question was positive then the residents asked seven more (yes/no) questions. The intervention residents received a 1-hour lecture on the diagnosis and treatment of depression. Residents from the two control firms (n=32 residents) received their usual clinical teaching. Eligible patients were consecutive admissions to the medical service, Sunday through Thursday during a 4-week period, and had to be admitted and discharged from the same study group of residents (intervention or control). The primary outcome measure of major depression required a diagnosis of depression in the discharge summary or patient chart and a discharge medication appropriate for treating major depression. We also surveyed residents in both groups at the end of the 4-week study period.
RESULTS: A total of 651 patients were eligible for analysis after 4 weeks (220 intervention, 431 control). Residents in the intervention group screened 202 (92%) of the 220 patients and diagnosed and treated major depression in 23 (10.5%). The control group diagnosed and treated 15 (3.5%) of 431patients ($P=0.001$). The absolute benefit increase of 7% (95% CI 3%–12%) is equivalent to a number needed to screen of 14 (95% CI 8–33). In the survey at the end of the trial both groups of residents overestimated the prevalence of major depression in their inpatients at 21%. There was no difference between groups in their confidence in diagnosing or treating depression. Intervention residents reported an average time of one minute to ask the screening quesitons.
CONCLUSIONS: A brief educational intervention and adoption of a rapid simple screening tool for depression produced a clinically important improvement: For every 14 admissions to the medical service 1 extra patient was diagnosed and treated for major depression.

USE OF BETA-BLOCKERS IN COCAINE TOXICITY: IS IT SAFE?. P.B. Dattilo[1]; K. Fearon[1]; D. Sohal[1]; C. Nordin[1]. [1]Albert Einstein College of Medicine & Jacobi Medical Center, Bronx, NY. *(Tracking ID # 154713)*

BACKGROUND: Studies done in the mid-late 1980s and early 1990s suggest that beta blockers induce hypertension and coronary artery spasm when given to active cocaine users. This ultimately led to the current practice of avoiding beta blockers in the setting of cocaine use. However, no human studies have demonstrated an increased incidence of myocardial infarction (MI) or mortality in patients who are exposed to both beta blockers and cocaine. Furthermore, studies clearly show that beta blockers decrease mortality in patients with MI or systolic dysfunction heart failure. We hypothesized that beta-blockers do not increase the incidence of MI or mortality in patients admitted to an acute care inpatient setting who have recently used cocaine.
METHODS: We conducted a retrospective study analyzing beta blocker use in 365 consecutive patients over a 5 year period at an urban municipal hospital. Inclusion criteria were 1) documentation of cocaine use by urine toxicology and 2) admission to a high acuity bed (telemetry, intensive care and coronary care units). Hospital records were analyzed for documented beta-blocker administration. Fifteen patients were excluded from the analysis because they had been prescribed beta-blockers as outpatients but had no documented beta-blocker use in-house. One additional patient was excluded from the MI outcome analysis because the temporal relationship of beta-blocker administration to elevated troponin was ambiguous. MI was defined by elevated troponin levels (3 sets taken approximately 6 hours apart with a minimum single value of 0.10) and/or significant ST elevations in 2 contiguous leads by EKG. We secondarily analyzed reasons for use of beta blockers, as well as the temporal relationships between beta blocker administration, toxicologic confirmation of cocaine use and troponin elevation.
RESULTS: Sixty one patients (17%) were prescribed beta blockers during hospitalization. In the analysis of 350 patients, there were 17 deaths, only 1 of which occurred in a patient who had received beta-blockade (RR for death with beta blockade=0.30, CI 0.04–2.19; $p=0.33$). 57 patients had MIs (48 NSTEMI & 9 STEMI). Only one patient was given beta blockade prior to having an MI. Relative risk of MI following administration of beta blocker vs. MI without prior beta blocker was 0.13 (CI 0.02–0.91; $p=0.007$). Reasons for giving beta blockers included rule out MI (n=56), on beta blocker at home (n=21), cirrhosis/variceal prophylaxis with propranolol (n=5), and arrhythmia (n=3). Nine patients were started on beta blockers after positive urine toxicology, all for documented MI: one patient from this group died secondary to pericardial tamponade following thrombolysis given for an STEMI.
CONCLUSIONS: We found no evidence that giving beta blockers to patients with confirmed cocaine ingestion increased the risk of death, but rather a non-significant trend towards benefit. Further, this analysis showed a significantly lower risk of myocardial infarctions in patients receiving beta blockade prior to detection of MI.

USE OF EVIDENCE-BASED THERAPIES IN A COMMUNITY-BASED SAMPLE OF OLDER AFRICAN-AMERICANS AND LATINOS WITH DIABETES. A.F. Brown[1]; E. Goodman[2]; W.N. Steers[1]; R. Brusuelas-James[1]; C. Sarkisian[1]; K.C. Norris[3]; M.B. Davidson[3]; R.M. Anderson[4]; C.M. Mangione[1]. [1]University of California, Los Angeles, Los Angeles, CA; [2]Washington University in St. Louis, St. Louis, MO; [3]Charles Drew School of Medicine, Los Angeles, CA; [4]University of Michigan, Ann Arbor, MI. *(Tracking ID # 154180)*

BACKGROUND: Although older African Americans and Latinos with diabetes have higher mortality and rates of diabetes complications than whites, they are

less likely to use evidence-based therapies. We compared use of evidence-based medications among older African Americans and Spanish-speaking Latinos from community settings. We hypothesized that having insurance would be associated with higher rates of use of evidence-based therapies.
METHODS: We analyzed baseline data from a randomized intervention to enhance diabetes self-management among older African Americans and Latinos recruited from senior centers, churches, and community clinics in Los Angeles County between February 2004 and September 2005. Eligible participants had to be English- or Spanish-speaking, $\geq$55 years, and have HbA1c $\geq$8% on our laboratory examination. Through interviews, medication review, and physical examinations, we assessed: 1) use of insulin or $\geq$2 oral antidiabetic agents among all participants; 2) aspirin use among participants not on anticoagulants or antiplatelet therapy; 3) use of lipid lowering agents among participants with hyperlipidemia; 4) beta-blockers after myocardial infarction (MI); and 5) ACE inhibitor or ARB use among participants with albuminuria. We categorized insurance status as uninsured (reference group), insured without Medicaid, or Medicaid insured. To evaluate the effect of insurance coverage on use of evidence-based therapies, we constructed multivariate models for each therapy that included insurance type, age, sex, ethnicity, income, education, smoking, and medical comorbidities.
RESULTS: We enrolled 312 Latinos and 195 African Americans, 71% female. Mean age was 63.3 years (SD=6.2), 70% had annual household income <$15,000, 54% had less than a high school education, and mean HbA1c was 9.7% (SD=1.7). Uninsured persons were younger, more likely to be Latino, less educated, poorer, and had fewer comorbidities. In adjusted (see table) and unadjusted analyses, uninsured participants had comparable or higher rates of use of evidence based therapies, though no differences were statistically significant.
CONCLUSIONS: In this community-based sample of low-income older African Americans and Latinos with diabetes, we found that regardless of insurance status, there was extremely low use of evidence-based medications known to benefit persons with diabetes. Our findings may be explained by the receipt of free or low-cost medications through community clinics and other safety net institutions by persons without insurance or inadequate coverage for medications among insured low-income adults. We need a better understand of the complex factors driving these low rates, even among those with insurance coverage, so that we can improve care for all older adults.

Adjusted Differences in Use of Evidence Based Therapies Among Older Adults with Diabetes and HbA1c>8%

	Uninsured (Reference)	Insured (no Medicaid)	Medicaid
N	223	161	115
Insulin or $\geq$2 oral antidiabetic agents (N=499)	66%	68% (P=0.76)	65% (P=0.97)
Aspirin use (N=457)	48%	41% (P=0.30)	47% (P=0.94)
Lipid-lowering agents if hyperlipidemia (N=443)	55%	49% (P=0.37)	63% (P=0.35)
Beta-blockers after MI (N=44)	78%	50% (P=0.24)	41% (P=0.17)
ACE inhibitor or ARB use if albuminuria (N=167)	60%	48% (P=0.24)	62% (P=0.86)

USE OF HOMEOPATHIC REMEDIES FOR PAIN: A SYSTEMATIC REVIEW. S.M. McDonald[1]; M.J. Bair[2]; K. Kroenke[3]. [1]Indiana University School of Medicine, Indianapolis, IN; [2]Richard L. Roudebush VA Medical Center, Indianapolis, IN; [3]Regenstrief Institute, Indianapolis, IN. *(Tracking ID # 154295)*

BACKGROUND: Although a variety of homeopathic remedies have been used by patients and practitioners to treat pain, questions about their efficacy remain. We performed a systematic review of randomized controlled trials evaluating different homeopathic remedies for pain.
METHODS: We searched MEDLINE database from 1966 to October, 2005 using the following search terms: pain, analgesics, analgesia, and homeopathy. Studies were included if they were systematic reviews or randomized controlled trials of homeopathic remedies and measured pain severity as a key outcome. For pragmatic reasons, non-English studies or those involving non-human subjects were excluded. All potentially pertinent studies were reviewed by 2 independent investigators. Data related to target pain condition, homeopathic remedy, comparison group, study length, primary outcomes, co-intervention, blinding, and results was collected. Because of missing variance data in several studies, diverse clinical contexts and varied remedies investigated, meta-analytic techniques were precluded. Instead, mean differences in visual analog scale (0 to 100) pain scores between homeopathic remedy and control groups were calculated for each study. Study quality was assessed by checklist, using methods developed and validated by Jadad.
RESULTS: We retrieved 12 studies meeting our initial search criteria. One study was subsequently excluded because its primary outcome was "immunomodulatory activity," not pain specifically. Of the 11 studies included, 5 investigated chronic pain conditions (headaches, arthritis, and back pain), 4 involved postoperative pain control, and 2 studied muscle soreness after exercise. The homeopathic remedy tested also varied across studies: arnica (n=4 studies), spiroflor or homeopathic gel (n=2), rheus-tox (n=2), and an individualized menu of homeopathic medicines (n=3). Nine studies compared a homeopathic remedy to placebo and 2 compared homeopathy to active treatments (e.g., anti-inflammatory medication or pain-relieving gel). A total of 1351 patients were evaluated (n=24 to 184). Studies ranged in length from 1 week to 6 months and all included pain severity as an outcome. While 6 studies demonstrated greater mean pain reduction in the homeopathic remedy vs. comparison group, only 2 were statistically significant (p=0.001 and p<0.03) differences. One of the positive studies tested a combination of homeopathic remedy and an unspecified traditional anti-inflammatory treatment. The mean Jadad quality score for the 11 studies was 6.2, and 3 of the 11 studies received the maximum score of 8.
CONCLUSIONS: There are relatively few randomized controlled trials investigating homeopathic remedies for pain management. Of the existing studies, there is considerable variation in remedies tested, pain conditions, clinical context, and comparison groups. Furthermore these studies are relatively small (i.e. underpowered to show effect), of short duration, and have methodological shortcomings. Most studies found no significant improvement in pain. Thus, evidence for homeopathic remedies in pain conditions is lacking. Future efforts should focus on conducting larger studies of standardized treatments with more rigorous methodology.

USE OF MASSAGE THERAPY IN LOW BACK PAIN IN AN URBAN COMMUNITY HEALTH CARE CENTER. S.L. Schlair[1]; C.A. Levine[1]. [1]Albert Einstein College of Medicine, Bronx, NY. *(Tracking ID # 151944)*

BACKGROUND: The high prevalence, public health impact and health care expenditures of chronic low back pain are well known. Massage has been found to be a popular, effective and safe treatment modality for low back pain. Little is known about its use and barriers to its use in inner-city populations. Our goal was to explore the use of, interest in, and potential barriers to the use of massage therapy in our patients with low back pain.
METHODS: We assessed a convenience sample of 240 patients at a South Bronx community health care center via a standardized questionnaire interview administered verbally in English. Chi square analysis was performed on the data with the help of SPSS.
RESULTS: Sixty percent of the subjects were women, 40% were Black, 35% were Hispanic and 20% were mixed race. Age ranged from 18–84 years old with an average age of 26 years old. Seventy-three percent of patients were insured by Medicaid and 6% were insured by Medicare. Thirty-seven percent completed high school. Fifty-six percent of interviewees experienced chronic low back pain (LBP) lasting more than two weeks in the preceding year. Morbidity was high, vis-á-vis work or daily activities: Seventy-four percent of the patients reported cutting down on the amount of time, 80% reported accomplishing less, 81% reported having difficulty performing, and 74% reported limiting work or daily activities due to their low back pain. Forty-nine percent reported using massage to treat their LBP. Females had LBP more frequently (p=0.013). Males felt more uncomfortable about receiving massage (p=0.041) and less frequently had money for massage (p=0.038). Hispanics perceived greater efficacy of massage (p=0.012). Other commonly employed treatment modalities for chronic LBP included: Over-the-counter pain medications (86%), prescribed pain medications (58%) and heat (59%). Patients reported receiving massage from family members and friends (94% and 100% respectively) as well as from professional massage therapists (82%). Massage was viewed as at least somewhat effective, with varied perceived efficacy: Twenty-four percent found massage to be quite or extremely helpful, 20% found it to be moderately helpful, and 46% found it to have little to no effect. Barriers to massage that were most frequently cited were lack of knowledge (56%), not knowing how to find a massage therapist (68 %), and financial constraints (77%). Ninety-five percent of respondents with chronic LBP reported interest in receiving massage for their LBP if it was offered at our clinic. Eighteen percent would try it regardless of fee, 36% for a small fee (¡Ü $25), and 41% only if free.
CONCLUSIONS: LBP is a common and significantly disabling problem in our patient population. Massage has been used by many of our patients with LBP with perceived efficacy. The majority of patients with chronic LBP would be interested in utilizing massage therapy if available at our clinic with 54% willing to pay for massage services regardless of the fee or for a small fee. Our results suggest the provision of massage therapy for LBP would be utilized by a significant portion of our patient population with this common medical problem.

USE OF POLYMER-COATED EXTENDED-RELEASE MORPHINE SULFATE IN THE TREATMENT OF CHRONIC, NON-MALIGNANT BACK PAIN. J. Sasaki[1]; A. Weil[2]; E. Ross[3]; B. Nicholson[4]. [1]Casa Colina Centers for Rehabilitation, Upland, CA; [2]Non-Surgical Orthopaedic & Spine Center, Marieta, GA; [3]Brigham and Women's Hospital, Chestnut Hill, MA; [4]Lehigh Valley Hospital & Health Network, Allentown, PA. *(Tracking ID # 153967)*

BACKGROUND: Ideal treatment of chronic back pain (CBP) is multimodal and multidisciplinary. Use of pharmacologic agents for pain relief may facilitate the effectiveness of interventions such as exercise and rehabilitative therapies.[1] When other medications have failed or are not acceptable due to side effects, the role of opioids in treating appropriate patients with CBP is gaining recognition.[1,2] When pain is chronic, long-acting formulations are preferred over short-acting forms to provide continuous analgesia.[3] The purpose of this analysis is to determine the efficacy and tolerability of polymer-coated extended-release morphine sulfate (P-ERMS), a long-acting morphine formulation,[4] in patients with CBP.
METHODS: Data on 662 patients reporting back pain as a primary indication for pain medication were identified from a larger 4-week study (N=1428)[5] of patients who took P-ERMS to treat chronic, moderate to severe, non-malignant pain that was under-treated (pain score 4 on a 0–10 scale). Dosing with P-ERMS was initiated once daily at doses determined by the investigator based on

previous analgesic regimen. Dose adjustments were allowed after weeks 1 and 2, with switching to a twice-daily regimen allowed after week 2, if needed. Outcomes included pain intensity and sleep interference (0–10 scales), global patient and clinician assessments of therapy (–4 to +4 scales) and quality of life (SF-36v2™ scores).[6]
RESULTS: Patients with CBP attained significant improvements in pain scores from baseline (7.5) to week 4 (5.1; –2.4 scale points, 32% reduction, P < .001), a reduction considered clinically meaningful.[7] Sleep scores declined from 6.3 at baseline to 4.6 after week 4 (–1.7, 27%, P < .001). Patient and clinician global assessment of therapy scores improved from –1.2 and –1.3, respectively, at baseline, to +1.2 and +1.4 after week 4 (P < .001). Scores at baseline and week 4 were similar to those in patients with other pain (OP) types. On the SF-36v2 at baseline, patients with CBP had a lower physical functioning subscale score but higher general health and vitality scores than those with OP (P < .05); after week 4, both groups of patients demonstrated significant improvement (P < .05) on all subscale scores. SF-36v2 subscale scores after week 4 were similar between patients with CBP and those with OP, with the exception that patients with OP demonstrated higher scores on the Role Physical scale than those with CBP (P < .05). Patients with CBP ended the study taking a median dose of 60 mg/day; those with OP took 80 mg/day. The most frequent adverse events were constipation and nausea.
CONCLUSIONS: P-ERMS was an effective treatment option for those patients whose CBP had previously been under-treated. Patients demonstrated improvements in pain, sleep, and quality-of-life scores, as well as increased patient and clinician global assessments of therapy when compared with previous treatments. These results add to the evidence that, in appropriate patients, providers can consider use of long-acting opioids in the management of CBP. References 1. Kalso E, et al. Curr Med Res Opin. 2005;21:1819–1828. 2. Bartleson JD. Pain Med. 2002;3:260–271. 3. McCarberg BH, Barkin RL. Am J Ther. 2001;8:181–186. 4. Kadian [package insert]; 2004. 5. Ross E, et al. J Pain. 2004;5(suppl 1):75. 6. Ware JE, Jr, et al. How to Score Version 2 of the SF-36® Health Survey. Lincoln, RI, QualityMetric Incorporated; 2000. 7. Farrar JT, et al. Pain. 2001;94:149–158.

USE OF SPINAL MANIPULATION FOR PAIN MANAGEMENT: A SYSTEMATIC REVIEW. S.M. McDonald[1]; M.J. Bair[2]; K. Kroenke[3]. [1]Indiana University School of Medicine, Indianapolis, IN; [2]Richard L. Roudebush VA Medical Center, Indianapolis, IN; [3]Regenstrief Institute, Indianapolis, IN. *(Tracking ID # 154545)*

BACKGROUND: Chiropractic care or more specifically spinal manipulation therapy is commonly used for patients with chronic pain, especially neck or back pain. While numerous randomized controlled trails (RCTs) have investigated spinal manipulation to treat pain conditions, inconsistent findings have led to confusion about the efficacy of this treatment. Therefore, we performed a systematic review of RCTs evaluating use of spinal manipulation for pain management.
METHODS: We searched MEDLINE database from 1966 to October, 2005 using the following search terms: pain, analgesics, analgesia, chiropractic, and manipulation. Studies were included if they were systematic reviews or RCTs and included pain severity or pain-related disability after manipulation as key outcomes. For pragmatic reasons, non-English studies or those involving non-human subjects were excluded. All potentially pertinent studies were reviewed by 2 independent investigators. Data extracted from each article included: target pain condition, number of subjects, intervention (or co-interventions), controls, study length, blinding, primary outcomes and results. Because of missing variance data in several studies and varied clinical contexts, meta-analytical techniques were precluded. Instead, we summarized pain response from spinal manipulation compared to placebo or active treatment. Study quality was assessed using criteria and checklist validated by Jadad.
RESULTS: We identified 47 studies meeting our search criteria. The majority of studies (n = 25) evaluated spinal manipulation for subacute or chronic low back pain. Cervical spine pain was also commonly studied (13 trials). Nine articles reported on spinal manipulation for various pain conditions including: fibromyalgia, carpal tunnel syndrome, migraine and tension headaches, coccydynia, primary dysmenorrhea, shoulder dysfunction, and total abdominal hysterectomy. A total of 9,240 patients were evaluated (n = 18 to 1334). Of the 47 studies, 20 tested spinal manipulation combined with other modalities such as heat, exercise, or medication. Control or comparison groups varied across studies. Placebo-controlled or sham manipulation was compared in approximately one-third of studies (n = 15). The other studies involved exercise or stabilization (13/47, 28%); routine medical care (9/47, 19%); and medication or electrical stimulation (10/47, 21%). Overall, 18 studies (38%) demonstrated a beneficial effect of spinal manipulation over the comparison group in pain or pain-related disability. In studies comparing spinal manipulation to placebo or sham, 33% (5/15) showed statistically significant improvement in pain or disability from the intervention. Results demonstrated benefit of spinal manipulation over exercise or stabilization, routine medical care, and medication or electrical stimulation in 23%, 44%, and 60% of studies, respectively. The mean Jadad quality score for all studies was 4.5.
CONCLUSIONS: While multiple studies have shown that spinal manipulation may reduce pain severity and disability, the majority of the evidence suggests that this form of treatment is no more effective than placebo, exercise, or routine medical care. Of studies comparing spinal manipulation vs. medication or electrical stimulation, most found spinal manipulation more effective. Future studies of spinal manipulation for pain conditions should adhere to rigorous methodological guidelines and be conducted to identify which patients are most likely to benefit from this management approach.

USING A STAFF SURVEY TO IMPROVE HEALTH CARE ETHICS PRACTICES. R.A. Pearlman[1]; M. Bottrell[2]; J. Altemose[1]; M.B. Foglia[1]; E. Fox[3]. [1]National Center for Ethics in Health Care (VHA), Seattle, WA; [2]National Center for Ethics in Health Care (VHA), Berkeley, CA;[3] National Center for Ethics, Washington, DC. *(Tracking ID # 154023)*

BACKGROUND: Improving quality in health care organizations usually focuses on technical and service quality (e.g., infection rates and wait times). Another newly appreciated, essential element is ethics quality, but it receives less attention because it is difficult to measure.
METHODS: We developed a survey to measure staff perceptions of health care ethics practices, knowledge of ethics standards, and perceptions of organizational support for ethical practices in the following domains: ethics environment, shared decision making, end-of-life care, privacy and confidentiality, professionalism, and resource allocation. Development involved semi-structured interviews and focus groups with 32 patients, 55 clinicians, 69 managers, and 21 chairs of ethics committees to identify relevant content; cognitive testing to ensure meaningful questions; and alpha testing to ensure usability and psychometric properties. The resulting survey had 103 questions and took approximately 25 minutes to complete. At four VA health care facilities we recruited staff volunteers for a field test using a purposive sample for managers, a stratified random sample for clinicians from different services (e.g., medicine, surgery) and disciplines (e.g., physicians, nurses), and a random sample for clinical support staff.
RESULTS: We received 480 surveys, including 87 from managers, 284 from clinicians and 55 from clinical support staff (45% participation rate). Aggregated results suggest that facilities performed best in shared decision making and had the greatest opportunities for improvement in professionalism and resource allocation. Many responses to survey questions suggested a high level of ethics quality based on perceptions of health care ethics practices, knowledge of ethics standards, and organizational support for ethical practices. However, there were noteworthy exceptions that suggested opportunities for improvement, such as (a) 25% reported that the diagnosis of dementia means that a patient lacks decision-making capacity, (b) 67% reported that managers make important decisions related to health care delivery without staff input "about half the time" or less frequently, (c) 33% reported that patients are asked about how they want their family involved in treatment decisions "about half the time" or less frequently, (d) 41% reported that the facility trains clinicians in how to discuss end-of-life decisions with patients and families "not very well" or worse, (e) 33% reported that the layout of patient interview and examining areas protected patient privacy "not very well" or worse, (f) 42% reported that known medical errors that cause harm are disclosed to patients or surrogates "about half the time" or less frequently, and (g) 59% reported that resource allocation decisions are considered business decisions that have little to do with ethics "about half the time" or less frequently. Most of the facilities initiated improvement activities based on their site-specific data. Two sites developed educational programs. Another site altered its process for resource allocation decisions. At the fourth site leadership changes resulted in a delay in using the survey data, so no changes have been reported to date.
CONCLUSIONS: These results show that a staff survey can identify opportunities for improving health care ethics practices and motivate specific interventions.

USING A STANDARDIZED PATIENT INTERACTION TO ASSESS CROSS-CULTURAL COMMUNICATION. E.J. Gertner[1]; D.G. Cohen[2]; K. Hirschmann[1]. [1]Lehigh Valley Hospital, Allentown, PA; [2]Drexel University, Philadelphia, PA. *(Tracking ID # 151941)*

BACKGROUND: The ability to communicate effectively across cultures is an increasingly important skill for clinicians. Training in cross-cultural communication primarily has been addressed in undergraduate medical education, yet residency provides greater opportunities for experiential learning. Further, it may be difficult for residency programs to assess the abilities of residents in negotiating across cultures, even when the patient and physician speak the same language. We developed an objective structured clinical examination (OSCE) case for interns to assess their awareness of cultural beliefs, ability to incorporate cultural beliefs in a clinical encounter, consideration of culture in recommending treatment options, and ability to negotiate a plan of care with a patient with a different beliefs system.
METHODS: As part of a 10-station clinical skills examination, 269 interns from 19 training programs in the greater Delaware Valley were presented with a validated case of a Jehovah's Witness in need of a blood transfusion. Upon finishing the encounter, residents completed a questionnaire concerning their beliefs about the case, while the standardized patient (SP) completed a clinical skills assessment.
RESULTS: Overall, 42.2% of residents thought it would be very or somewhat helpful to discuss the patient's religious prohibitions against transfusion with him, while 38.1% thought it would be somewhat unhelpful or not at all helpful to do so. Although 20.9% of residents thought it would be very or somewhat helpful to ask the patient if he wanted to speak with his church leader, according to the SP, 27.6% of residents did not ask if there was anyone with whom the patient wanted to discuss their decision, and 21.0% of residents were not respectful of his decision to refuse transfusion. Among residents, 26.1% thought it would be very or somewhat helpful to negotiate terms for transfusion, while 56.1% thought it would be somewhat unhelpful or not at all helpful to do so. However, according to the SP, only 30.7% of residents asked under what circumstances the patient might consider a transfusion, and 27.6% of residents did not discuss any alternatives or try to negotiate with the patient. Finally, 15.4% of residents either disagreed or strongly disagreed that the patient has the right to refuse a transfusion, 13.5% either agreed or strongly agreed that the health care team could force a transfusion if the patient's condition deteriorated, 9.0% thought it

would be very or somewhat helpful to tell the patient that they could force him to have a transfusion, and 11.8% of residents either agreed or strongly agreed that they could be held liable for not forcing the patient to have a transfusion.
CONCLUSIONS: Residents' awareness and understanding of the patient's cultural beliefs was mixed, and their ability to negotiate a plan of care with a patient with different belief systems varied greatly. A small percentage of residents held beliefs that would be considered culturally destructive. The OSCE is a useful tool in assessing both individual and group cross-cultural understanding and communication skills, and serves as a useful common starting point to facilitate immediate feedback and ongoing conversations about these issues. Resident ability to discuss care with patients when faced with cultural differences requires good cross-cultural communication, and effective evaluation of physicians' skills can assist with further curriculum development during training.

USING ADMINISTRATIVE DATA TO IDENTIFY DIAGNOSED POST-TRAUMATIC STRESS DISORDER. S.M. Frayne[1]; D.R. Miller[2]; J.H. Halanych[3]; F. Wang[2]; E. Sharkansky[4]; B. Kader[2]; T. Keane[4]; L. Pogach[5]; C.S. Rosen[1]; D.R. Berlowitz[2]. [1]VA Palo Alto Health Care System, Palo Alto, CA; [2]VA HSR&D Center of Excellence, Bedford, MA; [3]University of Alabama at Birmingham, Birmingham, AL; [4]VA Medical Center, Boston, MA; [5]VA New Jersey Health Care System, East Orange, NJ. *(Tracking ID # 153525)*

BACKGROUND: There is growing recognition of disparities in medical care for patients with mental illnesses, e.g., post-traumatic stress disorder (PTSD). Administrative data are potentially a rich resource for this line of inquiry. As part of a study of mental illness-related disparities in diabetes care, we determined positive and negative predictive value (PPV, NPV) of various strategies for identifying diagnosed PTSD from administrative data.
METHODS: From all fiscal year 1999 Veterans Health Administration (VHA) ambulatory care diabetic patients (Diabetes Epidemiology Cohort, N = 392,059), we examined the 133,068 participating in VHA Office of Quality & Performance's 1999 Large Health Survey of Veteran Enrollees; self-reported PTSD (whether a doctor ever told the patient he/she had PTSD) was available for that subset. Using self-reported PTSD as the gold standard, we tested how varying the definition of PTSD in administrative data (ICD9 code 309.81) affected PPV and NPV. Specifically, we examined the effect of (1) varying the time window for PTSD ascertainment, (2) requiring > 1 instance of ICD9 309.81 in administrative records, (3) allowing only ICD9 diagnoses associated with specific types of clinic visit (mental health, primary care), and (4) supplementing VHA administrative records with Medicare data.
RESULTS: The effect of varying the algorithm for ascertaining a PTSD diagnosis from administrative records upon prevalence, PPV and NPV is summarized in the Table.
CONCLUSIONS: Administrative data have moderately high positive and negative predictive value for identification of diagnosed PTSD, making this a promising source for investigators interested in mental illness-related disparities in care. However, changes in assumptions influence PPV and NPV, so investigators need to be familiar with the limitations of these data and the effect of varying assumptions, and consider whether optimizing PPV or optimizing NPV is most important to their research questions.

	Prevalence, %	PPV, %	NPV, %
Any VHA record, 1+ instance of ICD9 309.81			
1 year (1999)	5.2	86.1	87.7
2 years (1998–99)	6.5	81.6	88.3
3 years (1997–99)	7.4	78.7	88.7
Any VHA record, 1998–99			
1+ instance of ICD9 309.81	6.5	81.6	88.3
2+ instances of ICD9 309.81	4.9	89.7	88.7
VHA records, 1998–99, 1+ instance of ICD9 309.81			
Mental health outpatient visits	5.3	84.7	87.7
Primary care visits	1.8	88.1	85.3
VHA records plus Medicare records, 1998–99, 1+ instance of ICD9 309.81	6.6	81.2	88.3

USING WEB-BASED QUALITY DATA TO CHOOSE A PRIMARY CARE PHYSICIAN: WHICH INFORMATION DO PATIENTS RELY ON MOST. G. Fanjiang[1]; T. Von Glahn[2]; H. Chang[1]; W. Rogers[1]; D. Safran[1]. [1]Tufts-New England Medical Center, Boston, MA; [2]Pacific Business Group on Health, San Francisco, CA. *(Tracking ID # 151970)*

BACKGROUND: While there is growing demand to help patients make informed health care decisions by providing data on quality, studies suggest that available data is often ignored. This may be due, in part, to the types of quality data that have been available to date. Studies consistently find that patients are most interested in data to inform their physician choices, but scant physician-level quality data is available. This study examines whether patients seeking a new primary care physician (PCP) make use of web-based physician-specific information and evaluates which types of information users find most important.
METHODS: Adult patients seeking a new PCP at two California medical groups (n = 2225) were invited by mail to view web-based information about the physicians. Information included physician credentials (years in practice, medical school, specialty certification, hospital affiliation), personal characteristics (age, gender, ethnicity, languages spoken), office location and hours, and patient-survey scores. Patient-survey scores were based on the Ambulatory Care Experiences Survey: Short-Form, a well-validated questionnaire that produces 5 summary measures: appointment access, interpersonal quality, coordination of care, health promotion and willingness to recommend the physician. After viewing the data (n = 382), participants were asked to complete a questionnaire that asked them to indicate their preferred PCP and to evaluate the usefulness of the information presented. We examined the relative importance to patients of the different types of information, and evaluated the concordance between the information patients rated as most important and the characteristics of the physicians they preferred.
RESULTS: Seventeen percent of invited patients reviewed the web-based physician data. Patient-survey results were considered more important than each of the 6 other types of information by approximately half of patients (range: 49% compared to MD personal characteristics, 61% compared to office convenience). Among the survey-based measures, those considered most important were willingness to recommend the physician (41%) and interpersonal quality (37%). Nine of every ten patients reported that they would recommend the patient-survey results to family or friends. Patients reported information priorities were highly concordant with the characteristics of their actual physician choice. For example, 84% of those citing "willingness to recommend" as most important selected the PCP with the highest or second highest score on this measure. Similarly, 88% of participants citing interpersonal quality as most important selected the PCP with the highest interpersonal quality score.
CONCLUSIONS: With minimal outreach, approximately one in six patients seeking a new physician logged-on and used web-based data to inform their choice. Of the types of information available, patient survey results were widely regarded as a priority, with patients' assessments of interpersonal quality and willingness to recommend valued most highly by prospective patients. Moreover, users appear capable of using the information accurately, selecting physicians that were well-aligned with their stated priorities.

VALIDATION OF CLAIM-BASED DISEASE SURVEILLANCE METHODS FOR IDENTIFYING INDIVIDUALS WITH DIABETES AT A POPULATION LEVEL. D.A. Southern[1]; A.E. Edwards[1]; P. Norton[1]; L. Svenson[2]; E. Larson[3]; P.M. Sargious[4]; D.C. Lau[1]; S. Dean[3]; B. Roberts[3]; W.A. Ghali[1]. [1]University of Calgary, Calgary, Alberta; [2]Alberta Health and Wellness, Calgary, Alberta; [3]Calgary Health Region, Calgary, Alberta; [4]None Given, Calgary, Alberta. *(Tracking ID # 153813)*

BACKGROUND: Diabetes is a high prevalence disease that requires surveillance at a population level, but the optimal methodology for identifying individuals with diabetes in a population has not yet been determined. We assessed the performance of the currently accepted disease surveillance methodology for identifying individuals with diabetes (using administrative hospital discharge records and physician claims) relative to the use of a centralized laboratory database that allows for the identification of individuals with laboratory test results suggesting diabetes.
METHODS: We established glucose and AIC queries for a centralized live laboratory database that captures all lab tests done for an urban population of approximately 1 million. This yielded 1,083,887 laboratory tests for 52,968 unique patients between July 1, 2000 and June 30, 2002. We created three different diabetes definitions with this data: the first defined as the 'glucose laboratory definition' based on a fasting blood glucose >= 7 mmol/L (126 mg/dL) or a random glucose >= 11 mmol/L (200 mg/dL) or a 2 hour glucose >= 11 mmol/L (200 mg/dL); the second defined as the 'glucose and A1C (6.7) laboratory definition' that also includes individuals with a HbA1c > 0.067, and the final defined as the 'glucose and A1C (6.1) laboratory definition' that includes individuals with a HbA1c > 0.061. Administrative hospital discharge and physician claims data were also used to determine diabetes status. Two administrative data definitions were used: the 'strict administrative data definition' of one hospitalization or two separate physician claims for diabetes and a 'liberal administrative data definition' of one hospitalization or any one physician claim for diabetes. Each definition was calculated for the same time frame as the laboratory data, and personal identifiers in the data permited a case-by-case determination of detection of laboratory-defined diabetes cases in the corresponding administrative data. This permitted us to determine sensitivities for the two administrative data definitions relative to the 3 laboratory data definitions serving as gold standards.
RESULTS: The table below presents the sensitivities for the two administrative data definitions relative to 3 laboratory definitions serving as a gold standard.
CONCLUSIONS: Administrative data surveillance definitions have imperfect sensitivity. Accordingly, the resulting estimates of diagnosed diabetes are likely to be an underestimate. Future chronic disease surveillance systems would benefit from then use of centralized laboratory data such as those used in this study.

Sensitivities

Gold Standard	Liberal Administrative Data Definition Sensitivity (95% C.I.)	Strict Administrative Data Definition Sensitivity (95% C.I.)
Glucose laboratory definition (N = 25,419)	81.6 (81.4, 81.9)	70.8 (70.5, 71.0)
Glucose and A1C > 6.7% (N = 27,381)	81.7 (81.5, 82.0)	70.8 (70.5, 71.1)
Glucose + A1C > 6.1% (N = 29,143)	79.5 (79.3, 79.7)	68.4 (68.2, 68.7)

VALIDITY OF RACE AND ETHNIC CLASSIFICATION AMONG WOMEN IN A HOSPITAL ADMINISTRATIVE DATA SYSTEM. H.V. Kunins[1]; K.M. Berg[1]; E. Bellin[1]; C. Chazotte[1]; Y. Du[1]; X. Li[2]; J.H. Arnsten[1]. [1]Albert Einstein College of Medicine, Bronx, NY; [2]Montefiore Medical Center, Bronx, NY. *(Tracking ID # 153809)*

BACKGROUND: Hospital-based administrative data may be useful for measuring health outcomes among patients from different racial and ethnic groups, but validity of these categories is essential to minimize misclassification bias and provide meaningful assessment of disparities. Prior studies have found poor agreement between data sources in racial classification of patients, particularly among non-white persons. In this study, we sought to determine whether poor agreement between data sources in racial classification of non-white patients persists in an urban hospital providing care to a largely minority population. Our objective was to assess the validity of racial and ethnic classification in a hospital administrative database by comparison to self-report.
METHODS: We examined racial and ethnic classifications from an urban hospital's clinical information system, in which clerks enter a patient's race using the following pre-defined response categories: "white," "Black," "Hispanic," "Asian," "Native American," and "other." We then obtained self-reported maternal race from electronically available birth certificates, in which a clerk asks post-partum women to describe their race without pre-defined response options. Two investigators independently coded self-reported race as "white," "Black," "Hispanic," "Asian," "Native American," "other," or "unknown" with differences resolved by discussion. "Hispanic" was coded as a race, and not as an ethnicity. To evaluate rates of agreement, we calculated the Kappa statistic. We also calculated sensitivity of the hospital administrative data and misclassification rates for each group.
RESULTS: Of the 8487 women who provided maternal birth certificate data from January 2002 through December 2003, 1443 (17%) identified as white, 3169 (37%) identified as Black, 3421 (40%) identified as Hispanic, 376 (4%) identified as Asian, and 78 (1%) identified as other or were of unknown race. Overall rates of concordance between hospital administrative data and self-reported birth certificate data were 94% for whites (=0.78), 94% for Blacks (=0.87), 92% for Hispanics (=0.83), and 97% for Asians (=0.60). Self-identified Black and Hispanic women were classified with greatest sensitivity by the hospital administrative data (93% and 88%), self-identified white and Asian women with the least sensitivity (71% and 46%). Overall misclassification rates were 7% for Black women, 12% for Hispanic women, 29% for white women, and 54% for Asian women. Among the 417 white women misclassified by the administrative data, the majority (76%) was identified as Hispanic and the remaining 24% were misclassified as Black (4%), unknown race (11%), other race (9%) or Asian (1%). Among the 203 misclassified Asian women, the majority (78%) was identified as other race and the remainder was identified as unknown race (22%), Black (5%), Hispanic (4%) or white (2%).
CONCLUSIONS: The agreement between self-reported race on the maternal birth certificate and race identified through hospital administrative data was least consistent and least sensitive for Asian and white women, with self-identified white women frequently misclassified as Hispanic. Hospital administrative data were most sensitive in identifying Black and Hispanic women and achieved greater concordance in classifying Hispanics than previously reported. However, the high rate of misclassification of white women as Hispanic may limit the identification of health disparities in our population.

VETERAN WOMEN'S EXPERIENCES WITH DISCONTINUING HORMONE REPLACEMENT THERAPY. S.G. Haskell[1]; B. Bean-Mayberry[2]; J. Goulet[3]; C.B. Good[2]; A.C. Justice[3]. [1]VA Connecticut, West Haven, CT; [2]CHERP VA Pittsburgh/University of Pittsburgh, Pittsburgh, PA; [3]Yale University, West Haven, CT. *(Tracking ID # 156396)*

BACKGROUND: The 2002 Women's Health Initiative (WHI) stated that the risks of hormone replacement therapy (HRT) exceeded benefits. This study examined how this reversal impacted HRT use among women veterans nationally. The objectives were to 1) determine the number of women veterans prescribed HRT during 2001, 2) determine the discontinuation rate after the WHI publication, and 3) describe differences in demographic and clinical factors between women who discontinue therapy and women who continue.
METHODS: We identified a national retrospective cohort of women veterans using HRT from VA Pharmacy Benefits Management in 2001and linked them to the National Patient Care Database (NPCD). We performed bivariate comparisons between the groups along patient demographics and clinical factors. We used multiple logistic regression to explore independent factors associated with HRT discontinuation.
RESULTS: In 2001, 36,222 women veterans used combination or estrogen only HRT; by 2003, 18,161 (51.1%) had discontinued; and by 2004, 23,924 (66.1%) had discontinued. Discontinuers were older (mean age 58.9 vs. 55.0), used lower estrogen doses in 2001 (0.67 vs. 0.74 mg), frequently used combination HRT in 2001 (31% vs. 10%), less frequently had breast procedures or breast plastic surgery, but had significantly higher frequency of mastectomy. The groups did not differ on income or hysterectomy status. Multiple logistic regression revealed the following significant associations with discontinuation: age (OR 1.02, 95% CI 1.01- results: 1.02), lower estrogen dose in 2001 (OR 0.50, 0.47–0.54), receipt of combination therapy in 2001 (OR 3.74, 3.50–4.00), and receipt of mastectomy (OR 2.64, 1.84–3.79), plastic surgery for the breast (OR 0.78, 0.62–0.99), or hysterectomy (OR 1.36, 1.14–1.62).
CONCLUSIONS: Two-thirds of women veterans prescribed HRT regimens in 2001 discontinued by 2004. These rates are consistent with smaller studies showing 65–70% discontinuation rates after publication of the WHI results. Our study provides national quality assurance data about the discontinuation rate for HRT regimens among women who received VA pharmacy benefits. It indicates that clinical factors may contribute to ongoing use versus discontinuation. Further understanding of clinical and demographic factors associated with ongoing HRT regimens is necessary to determine if use is consistent with guideline reversals and overall quality of care.

VIEWS OF POTENTIAL RESEARCH PARTICIPANTS ON FINANCIAL CONFLICTS OF INTEREST: BARRIERS AND OPPORTUNITIES FOR EFFECTIVE DISCLOSURE. K.P. Weinfurt[1]; J.Y. Friedman[1]; J.S. Allsbrook[1]; M.A. Dinan[1]; M.A. Hall[2]; J. Sugarman[3]. [1]Duke University, Durham, NC; [2]Wake Forest University, Winston-Salem, NC; [3]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 152991)*

BACKGROUND: Despite broad calls for disclosure of researchers' financial interests to potential research participants there is little guidance on how to do this. To be most effective, policies on disclosure should address a number of important issues, including what information potential research participants want to know, the capacity of potential research participants to understand disclosed information and its implications, and the reactions of potential research participants to disclosure statements. Therefore, we elicited the perspectives of potential research participants to help inform the development of such policies.
METHODS: We conducted 16 focus groups in 3 US cities. The groups consisted of healthy adults (6), adults with mild chronic illness (6), parents of healthy children (1), parents of children with cancer (1), adults with congestive heart failure (1), and adults with cancer (1). Focus groups were recorded, transcribed, and coded using a dictionary that was developed and refined during the coding process. Overall themes were independently identified and verified.
RESULTS: Overall, 139 people participated in the focus groups (range 7–10 participants/group). Participants generally wanted to know about financial interests in research, whether or not they believed that those interests would affect their decision to participate. Participants varied in their desire and ability to understand the nature and implications of financial interests in research. The importance of disclosure depended upon the risk involved. For example, participants stated that their desire to know about financial interests increased with the risk of the study (eg, focus group research compared to a bone marrow transplantation study). The severity of the person's illness also affected the desire to know, such that some participants felt that if they were extremely ill and desperate for a cure, investigators' financial interests would not play a role in their decision especially as compared to information about possible medical benefit. Trust in providers was strongly related to views regarding disclosure. Many participants who expressed a desire to know about financial interests said that a disclosure would lead them to trust the investigator more. Implicit in many comments was the notion that the researcher who discloses a financial interest will be more likely to conduct the study in an ethical fashion. If given the opportunity to ask questions during the consent process, some participants reported that they would not have known what to ask; however, after the focus group sessions, several participants could identify information they would want to know.
CONCLUSIONS: Financial interests are important to potential research participants, but substantial obstacles to effective disclosure exist. These obstacles include the ability of research participants to understand financial interests, the complex and variable role of risk in potential research participants' perceptions of financial interests, the role of potential research participants' trust in researchers and health care providers, and the ability of research participants to ask questions when they may not understand enough to know what questions to ask.

VIEWS ON THE MEANING OF GENETIC RESEARCH AMONG A SAMPLE OF PARTICIPANTS IN A COLORECTAL CANCER GENETIC EPIDEMIOLOGY STUDY. J. Bussey-Jones[1]; G.E. Henderson[2]; G.M. Corbie-Smith[2]. [1]Emory University, Atlanta, GA; [2]University of North Carolina at Chapel Hill, Chapel Hill, NC. *(Tracking ID # 154216)*

BACKGROUND: Genetic research seeking to explore genetic variation, gene-environment interaction, and disease expression is moving ahead at a rapid pace, particularly for multi-factorial conditions like cancer, with hopes of addressing racial disparities in health. There has been relatively little examination of lay perceptions and knowledge of such research. Instead, most studies have focused on responses to offers of genetic testing and how those responses differ by race/ethnicity. We sought to (1) explore genetic knowledge and understanding of genetic research of participants enrolled in a genetic epidemiology study of colorectal cancer (CRC) and (2) determine whether these understandings vary by race/ethnicity or other participant characteristics.
METHODS: We surveyed African American and white CRC cases and controls who participated in the North Carolina Colorectal Cancer Study. Case participants were between the ages of 40 and 80, resided in the specified 33-county area, and had an initial diagnosis CRC. Matched controls were drawn from Division of Motor Vehicles records and selected from lists of Medicare beneficiaries. Our phone survey elicited knowledge and opinions about genetic research. Qualitative and quantitative methods were used to examine responses to the question: "Some people have heard about genetic research and others have not. What comes to mind when you hear the phrase, 'genetic research'?"
RESULTS: Our response rate was 74%. We present preliminary results of a sample of 301 respondents: 87% white, 13% African American, 59% male, with a mean age of 64. Responses to this question varied. The majority of respondents defined genetic research as related to heritability of traits or characteristics in families, or as the study of individual genes. Some went further to link genes to disease causation; these responses ranged from describing probabilities to highly deterministic views of the link between genes and disease. Respondents demonstrated positive expectations of genetic research, such as preventing and

curing disease conditions, yet also remarked on the fearful potential for control and manipulation. Among our sample of respondents, 16% reported having no knowledge of genetic research or did not understand the question. In bivariate analysis, less education, lower income, older age, and male gender (all $p < 0.05$) were significantly related to lack of knowledge or understanding while race ($p = 0.26$) and prior personal ($p = 0.16$) or family history ($p = 0.82$) of cancer were not. In logistic regression, only education [HS vs. technical/some college (OR 0.3; CI .13–.72) HS vs. college/grad (OR 0.1; CI .04–.52)] and male gender (OR 0.3; CI .132–.74) remained independently associated with lack of knowledge.
CONCLUSIONS: Despite having participated in genetic research, genetic knowledge and understanding of genetic research still varied based on sociodemographic characteristics. Interestingly, understanding did not differ by race, personal or family history of disease. As genetic research continues to move forward researchers, policy makers, and physicians will need to take into account pre-existing and limited knowledge of different groups about this topic in development of educational programs about genetic innovations both in the clinical setting and in research.

VIRTUAL EVIDENCE CART AND RESIDENT USE OF EBM. P. Ho[1]; P. Kim[1]; J.J. Hong[1]; P. Fontelo[2]. [1]Washington Hospital Center, Washington, DC; [2]National Library of Medicine, Bethesda, MD. *(Tracking ID # 152032)*

BACKGROUND: Within the last several years, EBM has come to the forefront as an important tool in both medical education and clinical practice. Studies have demonstrated that the use of current evidence can lead to better outcomes in patient care. Few studies have evaluated the impact of EBM centered rotations as a part of medical training. However, no study has evaluated the use of internet-based tools to facilitate both training in and use of EBM. The Virtual Evidence Cart (VEC) is a project supported by the National Library of Medicine to develop a searchable database of critical reviews of current evidence in the medical literature. The VEC guides the user in the basic evaluation of an original research article and streamlines the process via a user-friendly interface. The VEC allows users to build their own individual databases of reviews. All registered users of the VEC will also have access to reviews provided by others.
METHODS: A prospective cohort study of physicians accessing the VEC was conducted. By the use of a pre and post intervention survey, we determined residents' views and attitudes towards EBM; and, whether VEC is a useful tool in enhancing their interests towards EBM and Journal Club. Methods: a. Procedures: A survey was distributed to volunteer resident physicians in the Internal Medicine Department at the Washington Hospital Center. Participants were then asked to register at the VEC website and given instruction on its use. Two months later the survey was re-administered to all the participants in the study. b. Study Sample: Internal medicine residents in the Department of Internal Medicine at the Washington Hospital Center. We believe that this group is representative of other medical residents in Internal Medicine training throughout the country. c. Data Management: Anonymous paper based surveys were collected for subsequent data manipulation and extraction with appropriate statistical analysis software.
RESULTS: The majority (80%) of residents agreed that the use of EBM in their clinical practice was either important or very important. However, only 20% of residents noted that the practice of EBM was "easy" with no respondents noting it was "very easy." The main obstacle identified in the use of EBM in their clinical work was noted to be the lack of time with a strong response rate of 85%. Comparing the pre and post-intervention responses, we observed trends towards improved ability to identify key elements essential to diagnostic and therapeutic study design ($p = 0.078$ and $p = 0.079$ respectively). The use of the VEC correlated strongly with improved ability to identify key elements essential to therapeutic studies ($p = 0.005$) however was not able to demonstrate a relationship to diagnostic study elements.
CONCLUSIONS: We found very positive resident attitudes towards the value of evidence-based medicine; however, also identified significant barriers to its use. We also report the educational value of a simple web-based educational tool (VEC) in helping residents acquire competency with EBM. We believe that by encouraging the use of the VEC in more residency programs, residents can improve their EBM competency while collaborating to build a national shared database of evidence-based reviews.

VISIT VARIATION IN DIABETES MELLITUS: VARIATION ACROSS METROPOLITAN STATISTICAL AREAS. A. Barbour[1]; G.L. Barbour[2]; C.H. Olsen[2]. [1]George Washington University, Washington, DC; [2]Uniformed Services University of the Health Sciences, Bethesda, MD. *(Tracking ID # 151633)*

BACKGROUND: Variation in medical practice is considered a potential cause for higher cost and lower quality of care. As quality markers become more routine in clinical practice, areas of variation in medical practice will come under greater scrutiny. Diabetes is a common medical illness requiring frequent visits for optimal care. Outpatient visits are a resource utilized early in a diagnostic evaluation and/or in each step of a treatment regimen, thus outpatient visit capacity is an important resource for continuity of care, however, data are limited about the best use of this resource. Our study examines the variation in office visits rates across the top 100 Metropolitan Statistical Areas (MSA) for people with diabetes and its relation to mortality rates.
METHODS: Data were collected from a 5% random sample of Medicare claims from 1998–2000. Patients were included in the diabetic cohort if they filed a Medicare claim with an ICD-9 code (primary or secondary diagnosis) corresponding to the disease during the six months immediately preceding the study period and resided in the same area throughout the study period. A retrospective analysis of the data was performed and risk adjusted visit and mortality rates were calculated for the top 100 Metropolitan Statistical Areas. We estimated variability using a series of hierarchical Poisson regression models, which allowed adjustment for both patient-levelcharacteristics including gender, age, race and disease burden and at the MSA-level characteristics such as resource availability: physicans/hospital beds. The relationship between visit rates and mortality was estimated using hierarchical logistic regression.
RESULTS: Overall three-year mortality in the national cohort was 33%. Mortality rates in the MSAs ranged from 23 to 46%. Mortality rates appeared strongly related to individual-level outpatient visit rates ($p < 0.001$). Patients living in MSAs with higher outpatient visit rates had lower mortality rates; even after adjusting for individual-level visit rates, patient demographics, and resource availability at the MSA level. For each additional visit per person-year at the MSA level, the odds of death were 6 percent lower ($p = 0.017$). Variability in visit rates across MSAs was relatively low and was not affected by adjusting for patient level characteristics, MSA-level characteristics or both, despite a wide variability within MSAs.
CONCLUSIONS: Nationally there is a clear relationship between the number of visits by individual patients with diabetes and the mortality rate, underscoring the probability that the physicians are seeing sicker patients more frequently. Within MSAs there was wide variation in the number of visits per patient year which was not explained by adjustment for either patient characteristics, MSA characteristics or both, suggesting the liklihood that physician characteristics are also playing a role. In comparing data across MSAs, there was no significant difference in the mean visit rates. The evidence, however, does indicate that for MSA populations, improved access to physician directed care is associated with reduced overall mortality. Coupled with the information that physicians are matching their use of visit resources to the disease burden of their patients, the MSA-level data is encouraging as it shows no detrimental effect of the variation in visit rates on mortality.

VOLUNTARY PHYSICIAN SWITCHING AMONG HIV-INFECTED INDIVIDUALS: A NATIONAL STUDY OF THE EFFECT OF PATIENT, PHYSICIAN, AND ORGANIZATIONAL FACTORS. H.P. Rodriguez[1]; I.B. Wilson[1]; B.E. Landon[2]; P.V. Marsden[3]; P.D. Cleary[2]. [1]Tufts-New England Medical Center, Boston, MA; [2]Harvard University, Boston, MA; [3]Harvard University, Cambridge, MA. *(Tracking ID # 152460)*

BACKGROUND: Users of medical care are generally unable to assess the technical quality of care, and lack reliable and accessible information to make informed decisions. Thus, most patients do not actively search for or select physicians on the basis of quality. Patients with chronic conditions, however, rely heavily on the technical expertise of their medical provider. Because of this, there is reason to believe that the technical aspects of care, including technical quality, physician knowledge, and specialization, could be salient factors influencing loyalty to a physician. This study aims to clarify which patient, physician, and organizational factors are related to voluntary physician switching among HIV-infected patients.
METHODS: Subjects were part of the HIV Cost and Services Utilization Study (HCSUS), a longitudinal study of a nationally representative sample of 2,864 non-institutionalized HIV-infected individuals receiving care in the contiguous United States in early 1996. Respondents were interviewed three times, using computer-assisted personal interviewing instruments. Physicians and site directors were also surveyed. This study is based on 2,466 patients enrolled during the first follow-up, when the first assessment of physician switching was made. The relationship between measures of physician-patient relationship quality, structural aspects of care, the technical quality of care, physician and site characteristics, and voluntary switching were analyzed using generalized linear latent and mixed models (GLLAMM). The analysis used hierarchical logit models that nested repeated observations over time within patients, patients within providers, and providers within region to account for sampling effects.
RESULTS: Approximately 15% of the sample voluntarily changed their usual source of care at some point during the two-year study period. There were few patient characteristics that differed between respondents who switched and those who did not. Significant predictors of voluntary switching in a multivariate model were patient trust (OR = 0.73, CI = 0.60–0.89), physician anti-retroviral knowledge (OR = 0.71, CI = 0.54–0.93), HIV care site patient volume (OR = 0.48, CI = 0.30–0.78), and Ryan White Care Act funding (OR = 0.58, CI = 0.42–0.80).
CONCLUSIONS: These results indicate that structural aspects of care for patients with complex chronic conditions are less important determinants of voluntary switching than the quality of the physician-patient relationship. In addition, expertise is more strongly associated with switching than visit continuity with an individual physician. This study contributes to our understanding about the effect of physician and organization characteristics on patients' decisions to voluntarily change their physicians. While most studies have found that patients cannot assess the technical quality of care they receive, the findings from this study challenge this notion. Patients with complex, chronic illnesses have several markers of technical quality, including their physician's specialization, whether or not other patients with their condition are being cared for at their physician's site, and the level of services available to support the management of their condition. Our results suggest that patients may use this information to make decisions about their care.

WEIGHT CHANGE IN WELL-CONTROLLED TYPE 2 DIABETES: A 2 YEAR ANALYSIS. M. Huizinga[1]; T.A. Elasy[2]. [1]VA National Quality Fellowship Program, Veterans Affairs Tennessee Valley Healthcare System, Vanderbilt University, Nashville, TN; [2]VA Tennessee Valley Healthcare System, Vanderbilt University, Nashville, TN. *(Tracking ID # 154542)*

BACKGROUND: Weight gain during initiation and intensification of diabetes management has been well-described. The subsequent weight effects after

control has been achieved are less well known, especially in regard to baseline BMI. As part of a randomized control trial on glycemic relapse prevention, we assessed the long term weight change for 4 categories of BMI in well-controlled type 2 subjects.
METHODS: Individuals with type 2 diabetes who achieved significant improvement in their glycemic control after completion of an intensive diabetes improvement program were then enrolled in a randomized control trial to study glycemic relapse prevention. Individuals (n=165) were randomized to three groups of differing intensity of telephonic management for the purpose of sustaining glycemic control. We report on the first 91 patients to complete 24 months of follow-up. Weight change is defined as weight at 24 months minus weight at enrollment. Four BMI categories were defined as follows: lean (<25), overweight (25–30), stage 1&2 obesity (30–40), and stage 3 obesity (>40). Data was analyzed using Stata 9.1.
RESULTS: The average age was 56, 40% female, 20% African American, average initial BMI 33.8, average initial Alc 6.8% and the median duration of diabetes was 8 years. Overall, 57% percent used insulin with an average of 64 units/day. There were no statistically significant differences between intervention arms at baseline. Overall, the group gained 2.6 ± 17lbs. The lean group (n=6) gained 8 ± 15.7lbs, the overweight group (n=20) gained 3 ± 10lbs, the stage 1&2 obesity group (n=50) gained 5 ± 17lbs and the stage 3 obesity group (n=15) lost 8.5 ± 24lbs (p=0.06). These differential findings in weight change were consistent across all treatment arms and persisted after adjusting for insulin use.
CONCLUSIONS: In our study, there was a non-statistically significant difference in weight gain between BMI categories in well controlled type 2 diabetes after 24 months of follow-up. The trend of more weight gain in the lean group as compared to the overweight and obese groups is the subject of further research.

WEIGHT LOSS ADVICE BY HEALTHCARE PROFESSIONALS: INVESTIGATING THE IMPACT OF CLINICAL GUIDELINES FOR TREATMENT OF OVERWEIGHT AND OBESITY. J. Plahuta[1]; C.A. Noble[1]. [1]Northwestern University, Chicago, IL. *(Tracking ID # 156981)*

BACKGROUND: Health care practitioners have a poor record of treating patients for obesity and overweight. The need for improvement in obesity care and growing prevalence of these conditions has lead to issuance of practice guidelines by leading health organizations. To date, there has been no focused investigation of changes in practice patterns across the time period (1998–2003) during which national obesity and overweight treatment guidelines were issued. This study investigates whether or not there was an increase in the frequency of weight loss advice given by health care providers during the six year period. Associations between socio-demographic and behavioral risk characteristics of overweight and obese populations and the receipt of weight loss advice were also evaluated. Finally, the study examines the link between these characteristics and attempts to lose weight among overweight and obese individuals who were advised to lose weight by a health care professional.
METHODS: The present study used the 1998 (n=146,992) and 2003 (n=257,659) Behavioral Risk Factor Surveillance System (BRFSS). Data from this cross-sectional telephone survey of adults greater than 18 years was included for all 50 states and the District of Columbia. Statistical analyses were performed using STATA 9.0 (College Station, Texas) to adjust for the complex survey design and weighting of the survey data.
RESULTS: Approximately 10% of overweight and 35% of obese respondents received advice to lose weight in 1998. There was a small but significant increase in the percentage of obese subjects who received weight loss advice in 2003 (37.2%), but no change for overweight subjects. In both years obese men had lower odds of receiving weight loss advice than their female counterparts (OR 0.73 in 1998 and OR 0.75 in 2003). This was also the case for overweight men as compared to overweight women (OR 0.48 in 1998 and OR 0.51 in 2003). In both years, a greater percentage of overweight and obese respondents aged 40 to 79 years were advised to lose weight than respondents in other age groups. No significant change was seen in the percent of overweight advice recipients trying to lose weight over the six year period. There was, however, a small but significant increase in the percent of obese advisees trying to lose weight between 1998 (78.3%) and 2003 (82.3%). This was true for both men and women. In both years, evaluation of subjects demonstrated that more respondents who received advice to lose weight were trying to do so than those who had not received weight loss advice.
CONCLUSIONS: Data from this study suggest that national overweight and obesity care guidelines have not had a substantial impact on clinical practice. Only a minority of overweight and obese patients are being advised to lose weight by healthcare providers. Failure to provide weight loss advice to overweight patients is of particular concern as it represents a missed opportunity to assist those in whom development of obesity and related co-morbidities may be avoided. More research is needed to determine effective ways of changing practice behaviors so that providers are better equipped to combat this growing public health issue.

WELL-BEING DURING RESIDENCY: A TIME FOR TEMPORARY IMBALANCE?. N. Ratanawongsa[1]; S.M. Wright[1]; J.A. Carrese[1]. [1]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 151350)*

BACKGROUND: Physician well-being has become a priority for the Accreditation Council for Graduate Medical Education, which requires formal procedures to promote resident well-being as part of its duty hour guidelines. Quantitative scales used in previous studies primarily focus on negative well-being, such as burnout or depression. We conducted this qualitative study to explore and better understand residents' conceptions of well-being.
METHODS: One investigator conducted 45-minute semi-structured interviews with residents from 9 residency programs at 2 academic medical centers from February to June 2005. Using random sampling stratified by program and gender, 49 residents were approached for recruitment, and 26 consented. The semi-structured interview instrument was designed to elicit descriptions of well-being in residency and factors related to its promotion or reduction. Using grounded theory content analysis, 3 investigators independently coded 6 randomly-selected transcripts to develop a coding template. All remaining transcripts were coded by at least 2 investigators using this template. Final template coding categories and their application to the transcripts were discussed and agreed upon by consensus.
RESULTS: The 26 respondents were from the following programs: internal medicine (38%, 3 different programs); psychiatry (15%); surgery and emergency medicine (12% each); and anesthesia, obstetrics/gynecology, and pediatrics (8% each). 54% of respondents were women, and 19% were interns. Residents described well-being as a balance among multiple domains, including professional development, relationships with family and friends, physical health, mental health, spirituality, and financial security. One informant described well-being as: "Feeling like there's more than one dimension to yourself, but within each of those dimensions feeling like you are reasonably successful. Feeling like I'm a good resident is important, but if I were to be a good resident to the exclusion of all other things, that wouldn't be good enough." Residents viewed their training years as a time for temporary imbalance, requiring investment in their professional development at the expense of other domains. Professional satisfaction was enhanced by opportunities for growth, challenge, learning, autonomy, camaraderie with colleagues, and positive feedback from faculty. Factors that reduced professional satisfaction – such as 'scut work,' heavy workloads, dysfunctional systems, or workplace conflict – reduced overall well-being and led residents to question their decision to sacrifice personal life for their work. With limited time off from work, residents described feeling a loss of self, and they struggled to prioritize among personal relationships and activities in the limited discretionary time available. Residents described numerous factors that helped them maintain their well-being, such as supportive personal and professional relationships and hobbies like physical exercise. Residents appreciated aspects of their training programs that enabled them to maintain a sense of self by valuing their individual priorities and allowing them flexibility in scheduling.
CONCLUSIONS: In this qualitative study, well-being during residency was closely connected to professional development and satisfaction and required varying degrees of self-sacrifice with re-balancing of personal priorities. These findings should be considered by training programs planning to invest in interventions to enhance resident well-being.

WHAT ARE RESIDENT PHYSICIANS ATTITUDES AND BELIEFS REGARDING OBESITY MANAGEMENT?. N.J. Davis[1]; H. Shishodia[2]; B. Taqui[2]; C. Dumfeh[3]; J. Wylie-Rosett[4]. [1]Albert Einstein College of Medicine, Montefiore Medical Center, Bronx, NY; [2]Temple University, Philadelphia, PA; [3]Albert Einstein College of Medicine, Montefiore Medical Center, New City, NY; [4]Yeshiva University, Bronx, NY. *(Tracking ID # 154124)*

BACKGROUND: Primary care physicians often do not make weight loss recommendations or referrals for obesity treatment for their obese patients, but the reasons for this are unknown. To address this, we examined internal medicine residents' beliefs and attitudes about obesity treatment, and assessed associations between resident characteristics, including resident BMI, and their beliefs and attitudes about obesity treatment.
METHODS: We conducted a survey of internal medicine residents in two ambulatory continuity clinics, one in Philadelphia PA, and the other in Bronx, NY. Survey items were adapted from a previous study, and included questions about frequency of weight loss recommendations, weight loss methods recommended, beliefs about the causes of obesity, and attitudes about obesity treatment. Responses were collected using Likert scales, and were then dichotomized and analyzed as categorical variables. We used chi-square tests to assess associations between independent variables (clinic site, resident year of training, resident BMI) and outcome variables (frequency of weight loss recommendations, beliefs about causes and attitudes about obesity treatment). The survey also included one open ended question which required residents to fill in the amount of weight loss they would consider an acceptable outcome in a hypothetical 5′5, 200 lb female patient with type 2 diabetes (BMI 33.3 kg/m^2).
RESULTS: Of 156 residents invited to complete the survey, 101 (65%) responded. Residents were predominantly male (55%) with equal representation of each training year: PGY1 (35%), PGY2 (37%), and PGY3 (26%). Mean resident BMI was 24.0 kg/m^2. Most residents (78%) reported frequently or always recommending weight loss. Increasing exercise was more frequently recommended than eating less, or referral to nutrition services. Most residents (80%) considered physical inactivity and high fat diets to be extremely important in causing obesity. Regarding resident beliefs about obesity treatment, 99% of residents believed that obesity is a chronic disease but only 11% believed that medications to treat obesity should be used chronically. Only 19% of residents felt competent in prescribing weight loss programs, and a smaller minority (10%) thought they were successful in helping obese patients lose weight. Although half of residents believed a 10% weight loss was sufficient to reduce the risk of obesity related complications, only 37% considered a weight loss of 20 pounds or less to be an acceptable outcome in the hypothetical diabetic patient with BMI 33.3 kg/m^2. There were no associations between resident characteristics and their beliefs and attitudes.
CONCLUSIONS: Obesity is considered a chronic disease by resident physicians. The majority of residents, however, do not feel competent in prescribing weight loss recommendations and do not agree with chronic medication use in obesity treatment. Though current evidence suggests that exercise does not

increase weight loss, residents recommend exercise more often than potentially more successful nutritional services. Only a minority of residents considered a weight loss of 20 pounds (equivalent to 10% in the hypothetical patient) to be an acceptable outcome. Our findings highlight the need for further training of internal medicine residents about obesity treatment options and goals.

WHAT DO RESIDENTS BELIEVE ARE THE MOST IMPORTANT COMPONENTS OF DNR DISCUSSIONS?. K.S. Deep[1]; S. Green[1]; C. Griffith[1]; J.F. Wilson[1]; A. Hensley[1]. [1]University of Kentucky, Lexington, KY. *(Tracking ID # 153243)*

BACKGROUND: Many medical students' and interns' first encounter with do-not-resuscitate discussions are led by a resident physician. Residents' prior experience with end-of-life care may influence their approach to these discussions. The purpose of this study was to explore the themes residents consider most important in DNR discussions.
METHODS: During September 2005 an anonymous survey was administered to all Internal Medicine residents. The survey consisted of 15 items including demographics and open-ended responses describing their experience, beliefs and important features of DNR discussions. The cue for the open-ended response was: As you prepare your medical student for a discussion of code status, what would you tell them are the three most important things to remember? Based on a review of the literature, we developed six themes important in end-of-life planning: empathy, the patient's medical condition, the nature of cardiopulmonary resuscitation (CPR), alternatives to CPR, possible outcomes of CPR, and the patient's values or goals of care. Additionally, the approach the resident advised was coded for complete impartiality (providing information only) versus recommending a particular course of action. Three independent raters coded the data.
RESULTS: Fifty-five residents completed the survey (response rate 64%). More than two-thirds of residents reported participating in >20 discussions of code status. They estimated that only one-third of patients or families understand resuscitation. Consequently, explaining what resuscitation involves was the most frequently identified open response (51%) such as "explain what "code" actually means (chest compressions, etc)." This was followed by determining the patient's wishes or expectations of care (33%). Less than 1/4 of residents included information about the possible outcomes of CPR including "know the statistics/pros/cons" or "odds of long-term survival after a code." Only 20% addressed affective components such as empathy or compassion; another 20% felt understanding the patient's medical condition was essential. Alternatives to CPR were touched on briefly by 12% usually with a variation of the phrase "DNR does not mean do not treat." While most responses emphasized the content of DNR discussions, some highlight the process by which it should be shared. Seven advised using "simple terms" the patient can understand. One resident recognized the physician should "get on the patient's/family's level don't tower above them during the discussion." No residents mentioned recommending a particular course of action. Eight specifically stated the physicians should keep their opinions out of the discussion. Considering religious or spiritual beliefs was deemed important by two residents.
CONCLUSIONS: Residents believe the most important component of DNR discussions is a description of CPR. Few put that information in the necessary context such as possible outcomes or alternatives to CPR. While many recognized the importance of determining the patient's values, only two included spirituality. None of the residents felt it important to recommend a decision regarding code status. Few residents focused on the affective components of a DNR discussion.

WHAT DOES THE "FIFTH VITAL SIGN" MEAN? A PROSPECTIVE STUDY OF PAIN SCREENING IN PRIMARY CARE. E.E. Krebs[1]; T.S. Carey[1]; M. Weinberger[1]. [1]University of North Carolina at Chapel Hill, Chapel Hill, NC. *(Tracking ID # 153080)*

BACKGROUND: Pain screening, also known as the "5th vital sign," has become routine practice in many primary care clinics, in large part due to pain assessment and management standards introduced by the Joint Commission on Accreditation of Healthcare Organizations in 2001. Pain screening has been promoted to improve clinicians' awareness and treatment of unrelieved pain. The most common tool used for pain screening is a numeric rating scale (NRS), in which patients are asked to rate the intensity of current pain on a scale from 0 to 10. The pain intensity NRS has not been validated as a screening measure for pain, and it is unclear how well the NRS can identify primary care patients who require comprehensive pain assessment and management. This study will examine: 1) whether pain screening using the pain intensity NRS accurately identifies primary care patients with substantial functional impairment due to pain; 2) the relationship between NRS pain screening scores and depression, anxiety, and somatic symptom severity.
METHODS: We conducted a prospective study of pain screening in a university general medicine clinic. At the time of vital sign measurement, nurses ask all patients to rate their current pain severity on a 0–10 scale. Established adult clinic patients were invited to participate after pain screening, without being alerted to the focus of the study. They were asked to identify their chief complaint prior to their seeing their physician. After their visit, participants completed an interview that assessed pain severity, duration, location, and functional interference; psychiatric illness; severity of somatic symptoms; current pain management strategies; and satisfaction with pain management. Data related to physicians' assessment and management of pain were abstracted from the chart. We calculated sensitivity and specificity and fit receiver operator characteristic (ROC) curves to describe the accuracy of pain screening score cutoffs for detection of substantial functional impairment due to pain. We used multivariable regression models to determine associations between pain scores and depression, anxiety, and somatic symptom severity.
RESULTS: The first 107 participants enrolled were predominantly female (64%) and white (67%), with a mean age of 53 years; 18% reported a chief complaint of pain. A pain screening score of 1 was 68% sensitive and 71% specific for substantial functional impairment due to pain, and the area under the ROC curve was 0.73 (95% CI 0.62, 0.83). The sensitivity, specificity, and overall accuracy of pain screening scores for substantial functional impairment were similar for all NRS cutoffs. Higher pain screening NRS scores were associated ($p<0.05$) with depression, anxiety, and high somatic symptom severity. Results from the complete cohort will be available at the time of presentation.
CONCLUSIONS: Pain screening with an NRS for pain intensity does not accurately identify primary care patients with substantial functional impairment due to pain. Universal pain screening as currently practiced is unlikely to achieve its intended purpose of improving identification of patients in need of comprehensive pain assessment and management.

WHAT HEALTH CARE PROVIDERS THINK ABOUT LANGUAGE BARRIERS. E. Jacobs[1]; M. Gadon[2]; G. Balch[3]. [1]John H. Stroger, Jr Hospital of Cook County & Rush University Medical Center, Chicago, IL; [2]American Medical Association, Chicago, IL; [3]Balch Associates, Oak Park, IL. *(Tracking ID # 152266)*

BACKGROUND: Language barriers to access to medical care are a large and growing problem in the United States. Most research has been focussed on how language barriers impact patients. Less is known about how health care providers view these barriers and efforts to overcome them. We undertook this study to better understand the health care provider perspective.
METHODS: We conducted 9 computer-assisted telephone focus groups (n=67): 3 each with primary care physicians (n=24), specialists (n=21) and medical office managers (n=22). Physicians were selected from the American Medical Association master file of those who worked in group practices of 4–9 doctors and in census tracts in which there had been a greater than 100% increase in the limited English proficient (LEP) population beween the 1990 and 2000 censuses. In addition they had to see at least one LEP patient per week. Office managers from these same pracitices were also invited to participate. The focus groups were conducted by a professional focus group leader using a semistructured interview guide. Questions asked about participants' experiences working with LEP patients, their concerns about caring for them, what types of linguistic access services they used, and their thoughts about the different types of interpreters they had encountered in their practices. Discussions were audio taped, transcribed and coded by themes for interpretation using grounded theory.
RESULTS: Physicians and medical office managers were uniformly concerned about how language barriers negatively impacted physician-patient encounters. They were especially worried about how these barriers might increase their risk for malpractice suits, yet they were unaware of how working with untrained interpreters could increase this risk. They frequently used friends, family and minor children as interpreters. When asked about using professional interpreters, either in person or via the telephone, they mentioned cost and inaccessibility as barriers to accessing their services. However, the physicians in this study rarely tried to access professional interpreters or paid for them and therefore had very little first-hand experience to inform these opinions. While some participants saw caring for LEP patients as a "business opportunity," many viewed it as a burden that they wished they did not have to bear.
CONCLUSIONS: Health care providers recognize the importance of overcoming language barriers in their private practices. However, they have very little understanding about the risks and benefits of working with different types of interpreters, how to easily access professional interpreter services, or how much they might cost. Physicians in private practice would benefit from education about how to most effectively overcome language barriers in their practices in an efficient manner that they can afford.

WHAT HELPS AND WHAT HURTS SIGNIFICANT RELATIONSHIPS DURING RESIDENCY?. D.W. Rudy[1]; M. Hoffman[1]; C. Griffith[1]; J. Wilson[1]. [1]University of Kentucky, Lexington, KY. *(Tracking ID # 153871)*

BACKGROUND: Residency is a very stressful both emotionally and physically. Significant interpersonal relationships are a major source of support during residency. However, the time commitment and stresses of residency may have adverse effects on the maintenance of significant relationships. How can this destructive cycle be disrupted? The purpose of our study was to investigate house staff and their significant others' perceptions of challenges along with what has helped them as a couple during residency. Such information may be useful in developing interventions and policies at the level of the residency program.
METHODS: During a retreat addressing stress in residency 29 Internal Medicine house staff and their significant others were asked to independently write responses to: What are your most significant challenges as a couple during residency and what has helped with these challenges? Written responses were analyzed for thematic categories by two reviewers in an iterative process. The two reviewers then coded the students' responses for the presence or absence of the themes. Discrepancies were resolved via consensus.
RESULTS: Major challenge themes included: time (83%), especially couple's time (43%), sharing of domestic responsibilities (33%), decreased contact with family/friends (22%), fatigue/irritability (22%), work/home boundary issues (20%). Less prevalent (<10%) were: Financial, communication, adjusting to new location. Helpful strategies included: planning (57%), especially couple's time

(38%), communication (38%), seeking support from family/friends (26%), strength of the relationship (24%). Less prevalent (<10%) were: faith/religion, psychological help, and financial help.
CONCLUSIONS: Limited time appeared to be the major challenge to couples. Common challenges to residents in general such as financial or relocation were much less prevalent. To help overcome challenges, couples primarily worked together using planning, communication, and drawing on the strength of the relationship. Other than support of families/friends, couples reported little utilization of outside resources. Efforts tailored to help couples spend more quality time together as well as facilitating access to outside resources may be beneficial in reducing stress experienced during residency.

WHAT IS NECESSARY TO SUPPORT INFORMED DECISION MAKING REGARDING FINANCIAL CONFLICTS OF INTERESTS IN RESEARCH?. K.P. Weinfurt[1]; M.A. Hall[2]; M.A. Dinan[1]; V. Depuy[1]; J.Y. Friedman[1]; J.S. Allsbrook[1]; J. Sugarman[3]. [1]Duke University, Durham, NC; [2]Wake Forest University, Winston-Salem, NC; [3]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 153017)*

BACKGROUND: A prevailing argument for disclosing researchers' conflicts of interest during the informed consent process is that this information is necessary for potential research participants to make more informed decisions about participation. The purpose of this study was to evaluate model disclosure language with respect to fulfilling this criterion.
METHODS: An online survey was administered to 3,623 adults with diabetes or asthma. All respondents read a brief description of a hypothetical clinical trial relevant to their diagnosis that included one of five disclosure statements about the researcher's or institution's financial interest, that were based on findings from focus groups. Four of the disclosure statements specified a particular type of financial relationship (such as equity ownership, speaker's fees, or per capita payments) and one did not ("generic"). Participants were asked how well (on a five-point scale) they thought they understood the possibility that the researcher or institution might benefit financially from the research. For those participants who answered "Do not understand at all" or "Understand a little," a follow-up open-ended question asked what they did not understand. Participants also rated the amount of detail provided in the disclosure as either "Too little," "Just right," or "Too much." An additional open-ended question asked participants to describe any other information they would want regarding the possibility of financial benefit. Quantitative responses were analyzed using general linear models and effects were summarized using the standardized effect size, d (difference between groups divided by common standard deviation).
RESULTS: Close to half of the participants said they "understood completely." Perceived understanding did not differ substantially among the four disclosures of specific financial interests (all d's<.16). Respondents receiving the generic disclosure, however, reported slightly less understanding (M=3.90, SE=0.04) than those receiving a disclosure that the investigator owned equity (M=4.20, SE=0.04), d=.31. (A score of 3="Understand Well", and 4="Understand Very Well"). No participant characteristic had a substantial relationship with perceived understanding. Forty-nine percent of the respondents reported that the level of detail in the disclosure statements was "just right". However, 13% felt that there was too little information provided, so that the average rating for all types of disclosures was slightly less than "Just Right." None of the disclosure types' means differed substantially from one another (all d's<.30). In qualitative responses, respondents most frequently had questions about the relationship between the investigator and the sponsor, how research is funded in general, the amount of the financial interest, and the potential consequences of the financial interest.
CONCLUSIONS: Most respondents thought the model disclosure statements were understandable and sufficiently detailed. Many respondents, however, had questions or wanted more information. Thus, those charged with obtaining informed consent should provide layers of information that respond to the particular information needs of most participants.

WHAT IS THE QUALITY OF REPORTING OF EXPERIMENTS IN MEDICAL EDUCATION? A SYSTEMATIC REVIEW. D.A. Cook[1]; T.J. Beckman[1]; G. Bordage[2]. [1]Mayo Clinic, Rochester, MN; [2]University of Illinois at Chicago, Chicago, IL. *(Tracking ID # 153695)*

BACKGROUND: Medical education research is a rapidly growing field and the quality of reported research appears to vary. The purpose of this study was to quantify the strengths and deficiencies of published education research. Specifically, we sought to determine the prevalence of essential components of reporting experimental studies in medical education and clinical journals.
METHODS: Using established frameworks for conducting and reporting research and reflecting on previously noted shortcomings in medical education research, we identified essential features of reports of experiments: Critical literature review, conceptual or theoretical framework, statement of study intent (e.g. aim, research question, or hypothesis), statement of study design, explicit description of intervention and comparison groups, and consideration of human subject rights. An abstraction form was piloted and refined using a sample of articles published in 2002. We then reviewed all abstracts published in 2003 and 2004 in the journals Academic Medicine, Advances in Health Sciences Education (AHSE), American Journal of Surgery, Journal of General Internal Medicine, Medical Education, and Teaching and Learning in Medicine, and identified all reports of education experiments including evaluation studies. From these articles we selected a weighted random sample of 101 articles for full review. Each article was rated independently by two authors, who then reached consensus on final ratings.
RESULTS: A minority of articles (44%) contained a critical review of the literature, while 54% presented a conceptual or theoretical framework for the study. A statement of study intent was present for 76%. Among these, the independent variable, dependent variable, and target population were incomplete or absent in 52%, 68%, and 69%, respectively. At least one of these elements was incomplete or absent in 97%. Most articles (80%) lacked an explicit study design statement. The majority of studies (52%) had no control or comparison group. Among studies with a comparison group 33% failed to clearly define the comparison/control intervention. Overall, 40% of the studies had both pre- and post-intervention assessments. Sixteen percent were randomized trials. IRB approval or participant consent was reported in 41%. Conceptual frameworks were present more frequently in Academic Medicine, Medical Education, and AHSE (chi-square 12.9, $p<0.001$). There were no other significant differences among journals.
CONCLUSIONS: The quality of reporting of experimental research in medical education is generally poor, although quality varies widely from paper to paper. While our review could not directly assess the quality of the actual research conducted, we are concerned that poor reporting may reflect suboptimal research methods and a lack of attention to human subject rights. Some simple measures, such as required elements for journal submission, could improve the quality of research reporting. This in turn will improve the reputation of medical education research as a field, enhancing the careers of physician-educators and attracting talented physicians to education research. Furthermore, greater attention to critical literature reviews, sound conceptual frameworks, clearly expressed research questions, and strong study designs will better enable researchers to advance the art and science of education.

WHEN GENERALISTS ARE NOT ENOUGH: A NATIONAL SURVEY OF MEDICARE BENEFICIARIES. M.B. Herndon[1]; L.M. Schwartz[1]; S. Woloshin[1]; D.L. Anthony[2]; P.M. Gallagher[3]; F.J. Fowler[3]; J.S. Skinner[2]; E.S. Fisher[1]. [1]Dartmouth Medical School and the VA Outcomes Group, White River Junction, VT, White River Junction, VT; [2]Dartmouth College, Hanover, NH; [3]University of Massachusetts at Boston, Boston, MA. *(Tracking ID # 153633)*

BACKGROUND: Generalist physicians often bear primary responsibility for deciding when their patients need diagnostic tests and specialty referrals. It is not known whether patients accept the judgments of their generalist physicians.
METHODS: We conducted a telephone and mail survey of a nationally representative sample of community-dwelling Medicare beneficiaries in 2005. The response rate was 65%. The 2,515 participants had an average age of 76; 58% were women; and 90% were white. We considered patients to be cared for by a generalist if they reported having a personal doctor ("one you would see for a check up or advice if you were sick") and described that doctor as "a general doctor who treats many different kinds of problems."
RESULTS: Eighty-six percent of respondents had a generalist physician. Ninety-four percent of these patients reported seeing their generalist at least once in the past year, making an average of 3 visits per year. Among those cared for by a generalist, one-fifth believed "it is better for a patient to have each problem cared for by a specialist than to have one general doctor who manages most of their medical problems." When faced with new symptoms, many wanted care beyond the recommendation of their generalist. Even if their generalist told them they "probably did not need to see a specialist but could if they wanted to" 35% would want to see a lung specialist for a cough that persisted one week after a flu, and 55% would want to see a heart specialist for one week of mild but definite chest pain when walking up stairs. Higher proportions would want diagnostic testing even if their generalist thought it was not necessary: 57% wanted a chest x-ray for the cough, and 73% wanted "special tests" for the chest pain. These findings did not vary by age or health status.
CONCLUSIONS: Elderly Americans see their generalists regularly. When new symptoms occur, many would choose to have specialty referrals and testing even if they were not recommended by their generalist physician.

WHEN LESS IS MORE: A NEW MEASURE OF APPROPRIATELY CONSERVATIVE MANAGEMENT BASED ON THE INTERNAL MEDICINE CERTIFYING EXAM. B.E. Sirovich[1]; R.S. Lipner[2]; E.S. Holmboe[2]; K.S. Nowak[3]; P. Poniatowski[2]; E.S. Fisher[3]. [1]VA Medical Center, White River Junction, VT; [2]American Board of Internal Medicine, Philadelphia, PA; [3]Dartmouth Medical School, Hanover, NH. *(Tracking ID # 153903)*

BACKGROUND: Growing concern about the rising costs and potential harms of excess medical care has stimulated interest in assessing physicians' ability to practice conservatively – that is, avoiding unnecessary or harmful interventions. We sought to develop a new measure of appropriately conservative management style using existing items from the American Board of Internal Medicine (ABIM) certifying examination and validate the measure by assessing whether trainees from more highly interventional training programs have worse performance.
METHODS: The 327-item 2002 ABIM internal medicine certifying exam consisted of 181 management questions and 146 knowledge questions. Two content experts independently reviewed all management questions and identified 32 for which the correct response involved pursuing an appropriately conservative management strategy – i.e. taking no action (13 questions), employing a watchful waiting strategy (3), discontinuing a therapy (5), or choosing the least costly option offered (11). For each candidate, we calculated a conservative management score (% correct out of 32) as well as a knowledge score (% correct out of 146 knowledge questions). Reliability of the conservative management scale was assessed using Cronbach's coefficient alpha and the standard error of measurement. For our validation procedure, scores were aggregated at the level of the training program and weighted to reflect the number of candidates in each program. Intensity of the training environment was measured by the average

number of physician visits in the last 6 months of life for Medicare patients age 65 and older cared for at the training program's primary hospital, a measure that is highly correlated with costs of care.
RESULTS: In 2002, 7067 internists took the Internal Medicine certifying exam for the first time (pass rate 87%). The conservative management scale showed satisfactory reliability (0.68). The standard error of measurement (2.3) was comparable to other subscales routinely reported for ABIM exams (e.g. Pulmonary Disease). We assessed the measure's validity using 5544 candidates from 298 training programs associated with primary teaching hospitals for which our intensity measure was available. Mean scores were 78% on conservative management (range 61%–89%) and 74% on knowledge (61%–84%); the two were highly correlated. In analyses controlling for knowledge level (mean knowledge score) of trainees of the residency program, a higher intensity training environment was independently associated with poorer conservative management scores ($r = -0.17$, $p = 0.003$).
CONCLUSIONS: The ABIM exams can be successfully rescored to assess trainees' ability to practice conservatively – that is, to practice efficiently and avoid unnecessary interventions. High intensity training programs may foster an inappropriately interventional practice style.

WHERE DO ELDERLY BLACK AMERICANS RECEIVE HOSPITAL CARE? RACIAL CONCENTRATION IN HOSPITAL CARE AND THE PERFORMANCE OF HOSPITALS THAT CARE FOR BLACKS. A. Jha[1]; E.J. Orav[2]; Z. Li[1]; A.M. Epstein[1]. [1]Harvard University, Boston, MA; [2]Brigham and Women's Hospital, Boston, MA. *(Tracking ID # 153064)*

BACKGROUND: Racial differences in health care are well described, although the reasons behind these differences are less well understood. The site of care may play an important role. While most elderly black Americans receive primary care from a small number of physicians, it is not known whether hospital care is similarly concentrated.
METHODS: We used the complete Medicare Part A data to examine the racial composition of hospital care. For each hospital, we calculated the number of black elderly patients discharged every year. The structural characteristics of those hospitals were captured using data from the American Hospital Association annual survey. In addition, quality of care within each hospital was measured using standard process-based quality metrics for three common conditions from the Hospital Quality Alliance program. We used multivariable regression models to adjust for baseline differences between hospitals that care for a large number of black Americans ("black hospitals") and those hospitals that do not: We adjusted for differences in hospital characteristics and also local region (hospital referral region) using a fixed-effects model to account for the large regional variation in both quality of care and concentration of black Americans.
RESULTS: Of the 4,541 hospitals that care for Medicare beneficiaries, just 261 (5.7%) care for nearly 50% of all elderly black Americans and a total of 1,150 hospitals (25.3% of all hospitals) care for nearly 90% of elderly black Americans. The hospitals that care for the vast majority of black Americans are much more likely than other hospitals to be large, urban, teaching hospitals located in the southern United States. They are also more likely to have medical and cardiac ICUs, take care of more Medicaid patients, and fewer Medicare patients. Black hospitals had a lower nursing to census ratio than non-black hospitals. Our examination of the quality metrics revealed that after adjusting for baseline differences in hospital characteristics, black-hospitals had lower performance for Acute MI and Pneumonia, but not CHF. Differences in performance between black hospitals and non-black hospitals for Acute MI treatment were explained by local regional variations, but differences in pneumonia performance persisted.
CONCLUSIONS: A small number of hospitals care for the vast majority of elderly black Americans. These hospitals are often large academic hospitals but many are non-academic hospitals in the south. They have lower nurse staffing and poorer process quality for two of three conditions examined, although the lower quality was explained in part by being located in regions of the country with pervasively lower quality.

"WHO AM I TO TELL?": NURSES AND ERROR DISCLOSURE. S. Fein[1]; L.H. Hilborne[1]; E.M. Spiritus[2]; G.B. Seymann[3]; C. Keenan[4]; K.G. Shojania[5]; M. Kagawa-Singer[1]; N.S. Wenger[1]. [1]University of California, Los Angeles, Los Angeles, CA; [2]University of California, Irvine, Irvine, CA; [3]University of California, San Diego, San Diego, CA; [4]University of California, Davis, Sacramento, CA; [5]University of Ottawa, Ottawa, Ontario. *(Tracking ID # 152793)*

BACKGROUND: Nurses provide most direct inpatient care and as a central part of the healthcare team are often aware of – or even involved in – the occurrence of medical errors. Prior work has shown that when errors occur, patients want to know more than healthcare workers are apt to tell. Physicians avoid disclosing errors not only by blatant non-disclosure, but also by more subtle forms of inconclusive information transmission. "Partial disclosures" exclude essential links between the error and the outcome, leaving the patient to speculate about the causes of their care outcomes. Attitude studies in the nursing literature suggest that nurses, more than other members of the healthcare team, tend to align themselves with patients. Yet, some reports suggest that nurses are less likely than physicians to disclose their own errors to patients. We conducted focus groups to determine how nurses disclose errors and to better understand the apparent discrepancy between nurses' behaviors and patients' wishes.
METHODS: We conducted separate focus groups with nurses and physicians at five academic medical centers in one university healthcare system. The protocol asked whether participants would disclose medical errors to patients and hospitals, and if so, how they would do so. Audiotapes of focus groups were transcribed, de-identified and analyzed using grounded theory to code quotations with appropriate identifying labels. Based on the codes, themes describing the views and reported behaviors of nurses and physicians were identified, as well as barriers to and facilitators of disclosure.
RESULTS: The 45 nurses had a mean age of 41 years; 95% were female, 60% were white and had worked at the hospital for a mean of 10 years. The 55 physicians had a mean age of 47 years; 75% were male, 77% were white and had worked a mean of 13 years at the hospital. Both groups endorsed the use of partial disclosure when discussing an error with a patient; nurses were particularly likely to use a partial disclosure when they were not primarily responsible for the error. While most nurses believed that patients had "a right to know what we were doing on every level" there was a limit to the amount of information they would give patients about an error. One nurse explained that a bedside nurse would not reveal an error to a patient "because you're basically diagnosing. And that's not within our scope of practice." Nurse participants described "curbing" the information provided to patients and employing "judicious use of words." When explaining an event to a patient, nurses would leave out the word "error" or references to a mistake. Not fully disclosing errors reflected the power limitations nurses perceived, as one stated, "Who am I to tell?" Whereas physicians were more likely to cite malpractice suits as the most important barrier to patient disclosure, nurses were more concerned with being fired. Nurses were more likely than physicians to believe that a policy or protocol requiring error disclosure to patients would change behavior.
CONCLUSIONS: Both nurses and physicians avoid disclosing errors to patients. Nurses' use of partial disclosure reflects a compromise between the duty to their patient and their perceived position of modest power within the institution and the healthcare team. Barriers identified by nurses to disclosing medical errors – more than those identified by physicians – are amenable to intervention.

WHO IS THE PATIENT'S DOCTOR? PRIMARY CARE RESPONSIBILITY AND CO-MANAGEMENT RELATIONSHIPS AMONG GENERALIST AND NONGENERALIST PHYSICIANS IN THE NATIONAL AMBULATORY CARE SURVEY, 2002. J.L. Wofford[1]; W.Y. Rice[1]; S. Singh[1]. [1]Wake Forest University, Winston-Salem, NC. *(Tracking ID # 151494)*

BACKGROUND: Newer health care delivery models suggest a movement away from continuity/primary care with a generalist physician toward continuity/primary care with a specialist physician or with a team of providers. In order to assess future health care manpower needs and plan policy, a better understanding of current physician perceptions of primary care responsibility, and co-management relationships would be useful.
METHODS: We used the National Ambulatory Medical Care Survey to explore physician-reported relationships of primary care ownership and co-management for 14,265 office visits by adults aged 18 and older to generalist and specialty physicians during year 2002.
RESULTS: For the 7,713 visits to 285 generalist physicians (family practitioners, pediatricians, general internists, or general practitioners), a primary care relationship was reported in 84% of encounters (range 79%–85%). For office visits to generalists, the report of a primary care relationship was associated with older, female, urban dwelling, and privately insured patients (all significant chi square $<.0001$). Of the 6,552 visits to nongeneralists, specialists in nephrology, cardiology, infectious disease, rheumatology reported primary care relationships in over 10% of visits, with nephrologists claiming the most at 22%%, while neither dermatologists, nor oncologists endorsed a primary care relationship in any encounter. Generalist physicians reported a co-management role for 20% of office visits (range 17%–24%), while the rate of co-management for nongeneralists was 42% (range 10–92%). The frequency distribution of office visits in the previous year was remarkably similar for the four primary care disciplines (5%–no visits in the previous year, 25% 1–2 visits, 28% 3–5 visits, 20% >5 visits). As the number of visits in the preceding year increased, generalist physicians more often reported a primary care relationship (90% with >5 visits in the previous year). In contrast, the report of a primary care relationship was not associated with an increasing number of previous visits to nongeneralist physicians.
CONCLUSIONS: A substantial proportion of nongeneralist physicians consider themselves to have primary care relationships in office encounters. Co-management relationships are common and reported more often for generalist than nongeneralist office visits. The greater the number of office visits in the previous year, the more likely a primary care relationship was reported by generalist physcians, but not by nongeneralist physicians. These findings suggest that more specific definition of primary care activities and their assignment to designated physicians will be necessary in addressing future health care manpower needs.

WOMEN VETERANS AND OUTCOMES AFTER ACUTE MYOCARDIAL INFARCTION. S. Wheeler[1]; C. Maynard[2]; J. Bowen[1]. [1]Department of Veterans Affairs, Seattle, WA; [2]VA Puget Sound Health Care System, Seattle, WA. *(Tracking ID # 157055)*

BACKGROUND: Previous studies have shown that women have lower survival after acute myocardial infarction compared to men. There is also evidence that women receive less aggressive treatment in the management of acute myocardial infarction. No studies have evaluated outcomes in women veterans after acute myocardial infarction. The objective of this study is to describe clinical characteristics and survival in women veterans compared to men after admission to VA hospitals for acute myocardial infarction.
METHODS: This is a retrospective observational study using data drawn from the VA Cardiac Care Follow-up Clinical Study, describing patients admitted for

acute myocardial infarction to VA hospitals from October 1, 2003 to March 31st, 2005. Only a patient's initial hospitalization in this time period was included. Patients transferred to other hospitals, and those transferred in to the VA from other hospitals, were excluded.
RESULTS: There were 266 women admitted during the study period to VA hospitals with acute myocardial infarction and 13,068 men. The women were slightly younger, with an average age of 64.8 years, compared to the men who had an average age of 67.9 years. Women veterans with MI were more likely to be of low socioeconomic status, 65.0 % compared to 54.0% of the men ($p=0.001$). Among elderly women over the age of 80, 70.8% were of low socioeconomic status, compared to 50.3% of the elderly men ($p=0.002$). Diabetes was common, occurring in 29.3% of the women and 34.5% of the men ($p=0.078$). Men were more likely to have a history of CHF compared to women (26.7% versus 19.6%, $p=0.008$) and previous coronary artery bypass grafting (20.7% versus 12.8%, $p=0.002$). On presentation, men were more likely to have a high TIMI score, with 36.1% having a score of 4 or higher compared to 27.8% of the women ($p=0.006$). ST-elevation MI occurred in 15.4% of the women and 13.2% of the men ($p=0.283$). Treatment with platelet inhibitors (31.9% of women, 32.8% of men, $p=0.107$), heparin (72.6% of women, 74.1% of men, $p=0.098$), and beta-blockers (73.7% of women, 78.1% of men, $p=0.232$) was approximately equal between men and women. At discharge, women were more likely to receive beta-blockers (67.3% of women, 61.1% of men, $p=0.015$) but women and men were equally likely to be prescribed angiotensin-converting enzyme inhibitors (50.7% of women, 46.6% of men, $p=0.071$) and statins (47.0% of women, 51.1% of men, $p=0.366$). In-hospital mortality was 3.4% for women and 6.1% for men ($p=0.066$). After discharge from the hospital, 30-day mortality was 1.1% for the women and 2.5% for the men ($p=0.147$).
CONCLUSIONS: Women veterans admitted to VA hospitals with myocardial infarction have in-hospital and 30-day mortality comparable to men. Medical treatment in the hospital and at discharge is also comparable.

INTERACTIVE RESOURCES IN MEDICAL EDUCATION

A SIMPLE TOOL TO BUILD ONLINE INTERACTIVE CASES. C.L. Knight[1]; C. Benson[1]; J. Hutchison-Quillian[1]; B. Luk[1]. [1]University of Washington, Seattle, WA. *(Tracking ID # 157192)*

BACKGROUND: Building and maintaining online interactive cases can be a labor and time intensive process. Content authors, often physicians, may not have the skills to directly maintain a web site, requiring a third party developer to update content. Some commercial authoring tools are available but are expensive and often laden with unneccesary functions. Our goal with this project was to develop a tool which could be used to easily create and maintain simple online interactive cases.
CONTENT: The casebuilder system consists of an authoring tool, written in Java for multiplatform use, and a set of XSLT (XML stylesheets) and CSS (Cascading stylesheets) scripts which reside on the web server and allow the user's web browser to translate the authoring tool's XML output into interactive web pages. The current version of the authoring tool can create multi-case modules with an unlimited number of cases. Each case can have an unlimited number of multiple-choice or free-response questions, each with an associated image if desired. When the student selects a choice or submits his or her response, the site responds with specific feedback: for free-response questions it provides a pre-specified answer, and with multiple-choice questions it provides specific feedback based on the choice selected.
DESIGN: The use of XML to store case content allows for the ready exchange of case materials between authors, and stores data in a searchable, human-readable format. The "look and feel" of the site is governed largely by the CSS and XSLT scripts, which allows cases to be transferred from one site to another without requiring modification to match the appearance of the receiving site. Individual cases have fields for keywords and authorship to facilitate building a searchable database of cases and to ensure appropriate attribution of case authors' work.
EVALUATION: The project is still early in development; no formal testing of the system has taken place.
SUMMARY: The casebuilder tool provides a simple way to develop and maintain interactive online cases that is accessible to clinicians with little expertise in web development. It is specifically intended to be separate content from the appearance of a site, in order to facilitate collaboration between authors in diverse locations.

A WEB-BASED AMBULATORY DERMATOLOGY TEACHING PROGRAM. G.H. Tabas[1]; J. McSorley[1]; J. McGee[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 151370)*

BACKGROUND: Internal medicine resident education in dermatology is compromised by limited clinical resources, insufficient number and content of didactic sessions, and competing curricular requirements. To address these problems, we developed a web-based program that teaches residents to recognize and manage dermatologic diseases commonly seen in internal medicine residency clinic.
CONTENT: Two dermatology modules are contained within a web-based system of 20 ambulatory modules used by internal medicine residents to supplement their pre-clinic conferences. The first dermatology module focuses on papulosquamous diseases, infections, and infestations. The second module focuses on benign and malignant skin lesions. Topics were chosen for relevance to internal medicine practice by the authors, who are board-certified in internal medicine and dermatology and are actively involved in patient care and teaching.
DESIGN: Each section of the module begins with a clinical case that includes a link to an image of the dermatologic lesion highlighted in the case. The case is followed by a multiple-choice question (MCQ). Choosing an answer triggers a brief explanation of why the answer is correct or incorrect. After each MCQ there is a brief text page of bulleted statements that reinforce the teaching points from the case and display links to supporting literature and supplementary images. Then another case is introduced. Together, the two modules review 30 common skin lesions and contain links to 90 images. Each module ends with a brief user satisfaction survey and a scored post-test consisting of 5 MCQs randomly chosen from a bank of 10 MCQs. Each user has 3 attempts to score 80% correct and receive credit for the module. The modules are electronically indexed for easy reference.
EVALUATION: Our ambulatory web-based module system has been in existence since the fall of 2003, and evaluations have indicated high satisfaction levels, with users citing ease of use and indicating a preference for the web-based format over the lecture format. The two dermatology modules were released in the fall of 2005, and thus far residents have felt that the material was clearly presented (agree or strongly agree, 100%), that the module format is better than the lecture format (agree or strongly agree, 86%), and that learning efficiency was strong (agree or strongly agree, 100%). Most residents (71%) worked on the modules at the hospital, rather than at home, and spent between 30 and 60 minutes working on the modules.
SUMMARY: The web-based ambulatory dermatology modules help fill a relative void within our busy curriculum by addressing commonly seen dermatologic problems using active web-based learning. Residents can review the modules at any time and use the indexed web site for "just in time" information as they are seeing patients.

A WEB-BASED OBSTETRICAL MEDICINE CURRICULUM: TEACHING INTERNAL MEDICINE RESIDENTS HOW TO CARE FOR REPRODUCTIVE-AGE AND PREGNANT WOMEN. C.L. Spagnoletti[1]; A.M. Sanders[1]; J.B. McGee[1]; J.E. Bost[1]; M.A. McNeil[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 153021)*

BACKGROUND: Although the topics of preconception counseling, infertility, and medical conditions during pregnancy are internal medicine (IM) competency requirements, prior research has shown that both IM residents and faculty members feel inadequately trained in these areas. With consideration of competing educational requirements, limited faculty time/expertise, residency work-hour restrictions, and residents' limited opportunities to manage patients with such issues, our goal was to develop a web-based obstetrical medicine curriculum that improves knowledge, comfort, and preparedness to care for reproductive-age and pregnant women. All 2nd and 3rd year IM residents at the University of Pittsburgh were invited to participate.
CONTENT: Three 30-minute web-based modules were developed in the following areas: cardiovascular disease in pregnant women (CV), endocrine disease in pregnant women (END), and preconception care and infertility (PCI). Content was based on the American College of Physicians IM competency requirements and topics covered by the IM board exam. The modules were made accessible over an established institutional website that contains modules on other topics.
DESIGN: Each module consisted of a series of case-based quiz questions with immediate feedback provided, followed by a brief bulleted discussion that directed the user's attention to salient learning points for each topic. Links to published guidelines, tables/figures, and select references were included for additional learning. Pre/post-intervention 4-point Likert-type paper surveys assessed perceived preparedness to manage issues covered by the curriculum (1 = unprepared, 4 = well prepared). Web-based pre/post multiple choice tests to assess knowledge and a survey to assess resident satisfaction were administered in conjunction with each module.
EVALUATION: A total of 96% of residents (67/70) completed both paper surveys and 59% completed 1or more modules. While perceived preparedness to manage the issues covered by the curriculum improved for all survey respondents at the end of the study period, it was significantly higher for those who completed the CV, END, and PCI modules compared to non-completers (mean composite scores: cardiovascular issues: 2.94 vs. 2.35, $p<.001$, endocrine issues: 2.87 vs. 2.49, $p=.01$, preconception/infertility issues: 2.90 vs. 2.68, $p=.05$). The likelihood of reporting improved comfort to care for reproductive-age and pregnant women was positively associated with the number of modules completed ($p<.001$). Multiple choice test scores improved significantly with module completion (CV: pre: 66% vs. post: 91%, $p<.001$, END: 64% vs. 88%, $p<.001$, PCI: 62% vs. 80%, $p=.01$). The majority (68%) of module-takers stated they prefer learning these topics via a web-module format over a lecture-based format.
SUMMARY: We developed a series of web-based modules to teach obstetrical medicine to IM residents who have limited clinical exposure to reproductive-age and pregnant women. This well-received curriculum was effective at improving their levels of knowledge, comfort, and preparedness, has required minimal faculty and resident time, and has not supplanted other educational requirements. Such a curriculum may be a valuable addition to many training programs, especially to those in which clinical exposure to this patient population is minimal, and those that already utilize web-based technology to instruct their trainees in other areas.

AN INTERACTIVE, WEB TOOL TO ENHANCE CARDIOPULMONARY CLINICAL SKILLS OF MEDICAL STUDENTS IN INTRODUCTION TO PHYSICAL EXAM COURSE. J. Jevtic[1]; J. Mitchell[1]; J.L. Sebastian[1]. [1]Medical College of Wisconsin, Milwaukee, WI. *(Tracking ID # 154604)*

BACKGROUND: Teaching physical exam skills to medical students is increasingly difficult as teachers face multiple barriers including increasing clinical demands, patient recruitment issues, changing physical exam findings and subjective assessments by different raters. Our goal is to improve the knowledge and skills of medical students in cardiopulmonary physical exam, and assess their ability to accurately identify cardiac and pulmonary auscultory sounds by using an interactive, multimedia e-learning module in the setting of limited teacher and patient resources.
CONTENT: We piloted an asynchronous, interactive web based module on M2 students during their Introduction to Clinical Exam course over one month. Initially, a tutorial teaches cardiopulmonary physical exam psychomotor skills, physical exam findings and relation to pathophysiology. Then a lesson plan introduces five common diseases (i.e. asthma, pneumonia, emphysema, congestive heart failure, and acute coronary syndrome) through the use of "virtual patients." Students identify various physical exam findings and interpret abnormal sounds, as well as make a diagnosis during the case based portion of the tutorial. An eight question pre/post knowledge quiz testing M2 students ability to identify abnormal heart and lung sounds is embedded within the module. Students also completed a on-line survey rating their confidence to identify abnormal cardiopulmonary auscultory findings after the intervention, as well as for satisfaction with course content, navigability and engagement techniques.
DESIGN: The module is accessible via internet using the web based course management and collaboration portal called ANGEL. Tutorials feature hyperlinks to physical exam skills videos reviewing psychomotor skills necessary to perform a chest and heart exam and to clinical skills websites detailing pathophysiology of physical exam findings. The case-based lesson promotes active learning through the use of video interviews, interactive window pop-ups of pictures of abnormal physical exam findings, audio files of cardiac and pulmonary auscultory sounds, as well as Xray findings for each case. Cases become increasingly difficult and blended, designed to challenge and engage the student. The pre/post case-based quiz uses audiofiles to assess their cardiopulmonary auscultory fund of knowledge.
EVALUATION: Medical student's (n=184) mean score on the knowledge quiz was 67% (+/−21.6%) prior to the intervention, rising to 93.4% (+/−14.1%) afterward the module. Program evaluation rating averaged >4 (1=Strongly Disagree to 5=Strongly Agree) for satisfaction with the curriculum in helping identify abnormal cardiac and pulmonary auscultory sounds. Sixty percent of students rated the web-based module as very good or excellent. M2 students felt that the "virtual patient" cases, web hyperlinks, graphics, video and audio files enhanced their learning experience; accessibility from home and a self paced format were key features.
SUMMARY: Our results suggest that it is possible to learn cardiopulmonary physical exam skills, specifically cardiopulmonary auscultation, from an interactive, web based module. Medical students perceive their exposure to the multimedia, web based curriculum to be a positive experience despite the lack of face-to-face patient or teacher contact. Asynchronous use of e-learning tools can be used to augment the classic lecture-discussion and small group methods of teaching clinical skills.

CLINICAL PATHOPHYSIOLOGY, THERAPEUTICS AND CLINICAL REASONING: A WEB BASED, CASE BASED LEARNING TOOL. S.D. Stern[1]; A. Husain[1]; W. Van Cleve[1]. [1]University of Chicago, Chicago, IL. *(Tracking ID # 156319)*

BACKGROUND: Project goals include: 1. Integration of (A) Introduction to Clinical Medicine (B) Pathology (C) Therapeutics (D) Clinical Reasoning 2. Provide a cased based approach 3. Introduce clinical reasoning by incorporating problem lists, differential diagnoses and lab testing within each case 4. Integrate a comprehensive Hx and PE within each case to reinforce the importance of a thorough evaluation 5. Integrate clinical images and auscultatory findings in order to improve clinical competence and emphasize the importance of physical findings
CONTENT: 1. 193 electronic cases are available on line and reviewed during the course laboratory sessions. Each case includes: a. The Hx & PE b. Electronic links to clinical images, auscultatory findings and radiological images c. Questions and answers which focus on the problem list, differential diagnosis, and lab testing (Hematology and Pulmonary sections only) d. Pathological findings e. Questions and answer which focus on the appropriate disease f. Therapy 2. This material is presented in the context of a 4 month long course which meets 3 times weekly from 8:30 am till 5 pm in the second year of the medical school curriculum 3. Each session (am or pm) focuses on one particular disease topic and begins with a clinical lecture and pathological lecture on the topic of the day. 4. Students then adjourn to the lab (for approximately 1.5 hours in the am and pm) to review the electronic cases 5. Tests are given three times throughout the course (4 months)
DESIGN: The case based format facilitates small group sessions in which students work together to puzzle through the questions and answers presented within each case. Faculty circulate throughout the lab to answer questions. The electronic media is an excellent way to engage students to thing about important questions which the students can answer on their own, and then review the correct answer. Furthermore, it allows them to see clinical findings, hear auscultatory findings, and review radiological and histological images with faculty present in real time for help as needed. The recent addition of problem lists and differential diagnoses is an important strategy for teaching clinical reasoning.
EVALUATION: Clinical Pathophysiology and Therapeutics (the course which utilizes CPPWeb) has been the most well received preclinical course at the Pritzker School of Medicine. The course has received a rating of 4.7 (out of 5) for value of the material, 4.8 for clinical relevance, 4.7 for being constructively challenging and 4.7 for being at an appropriate level.
SUMMARY: CPPT was designed to integrate an introduction to clinical medicine, pathology and therapeutics into a unified whole. Recently we have also worked to introduce students to clinical reasoning. (Completed for the hematology and pulmonary section) The electronic cases emphasize the importance of the history and physical, demonstrate abnormal physical findings, radiological images and pathological images and discuss in an interactive fashion the problem list, differential diagnosis and disease specific information. This course has been perceived by students as an effective way to integrate learning in these areas.

THE HEART TRUTH: AN EDUCATION WEBSITE FOR HEALTH PROFESSIONALS. M.K. Kleinman[1]; C.J. Lazarus[2]; R. Ahmadi[3]; K. Freund[4]; J.P. Pregler[5]; M.R. Seaver[6]. [1]University of Illinois at Chicago, Chicago, IL; [2]Chicago Medical School, North Chicago, IL; [3]Yale University, Derby, CT; [4]Boston University, Boston, MA; [5]University of California, Los Angeles, Los Angeles, CA; [6]VA Boston Healthcare System, Jamaica Plain, MA. *(Tracking ID # 154373)*

BACKGROUND: The Office on Women's Health within the US Department of Health and Human Services and the National Heart Lung and Blood Institute (NHLBI) initiated a national program to educate physicians, other health care providers and the public about cardiovascular disease in women as part of The Heart Truth Campaign. The Campaign is a response to a significant public health problem, and the related needs of clinicians and educators. The professional education portion of the Campaign includes developing a website with evidence based curricular materials previously created by a national panel of experts from the National Centers of Excellence in Women's Health (CoEs) and the National Community Centers of Excellence in Women's Health (CCOEs). These materials have been pilot tested, reviewed, and revised several times. The website provides clinicians and educators with one site where they can access readily usable, comprehensive, and organized materials which are adapted for different levels of learners, including physicians, medical students, residents, nurses, nurse practitioners, and physician assistants.
CONTENT: The educational materials focus on cardiovascular disease prevention in women and are evidence based. They include over 300 powerpoint slides as overview/lecture materials and a set of 9 in-depth modules on selected topics. There are also problem-based learning case materials, evaluation tools, a standardized patient case and accompanying DVD, bibliography, links to web-based case based CME/CEU modules developed by the CoEs/CCOEs, other resource materials, and links to national sites. On-line clinical and educational tools are also available for health professionals and patients at this site.
DESIGN: The web user is perceived from a sociological perspective as geared toward practical action and solving a specific problem. The website is designed to meet the practical needs of clinicians and educators. The structure of the navigation pane enables users to easily locate the desired information. The content within these primary categories is further organized based on the user's primary needs. Clinicians have access to downloadable content such as clinical tools (including risk assessment tools), clinical guidelines and updates, fact-sheets, links to patient support organizations, and CME opportunities utilizing case based modules. Educators have access to prepared curricular materials for various educational methods and activities. The curricular materials webpage permits educators to quickly ascertain the types of educational materials that are available, the types of educational tools and resources that are downloadable, and the primary educational/learning objectives for the associated materials and activities. Online materials include text, links to relevant websites and to downloadable content for Palm OS, Pocket PC devices, and downloadable files in pdf, powerpoint, and wav formats.
EVALUATION: To evaluate the usability and accessibility of this website, a total of 5 focus groups composed of educators and clinicians from a range of health professions are being conducted in Chicago, Los Angeles, and Nogales AZ through the CoEs and CCOEs. Focus group responses will result in final website revisions.
SUMMARY: The website is a tool to make evidence based quality curricular materials and clinical resources that address a large public health problem, cardiovascular disease in women, available to as broad a constituency as possible.

THE USE OF ONLINE COMPUTER-BASED LEARNING TO REPLACE REQUIRED CONFERENCES IN IM TRAINING PROGRAMS. C.K. Milne[1]; L. Benson[2]; G. Stoddard[2]; B. Stults[1]; G. Thompson[3]; M. Samore[1]. [1]University of Utah/VA Medical Center Salt Lake City, Salt Lake City, UT; [2]University of Utah, Salt Lake City, UT; [3]none, Salt Lake City, UT. *(Tracking ID # 157033)*

BACKGROUND: The implementation of the 80 hour work week has caused training programs to struggle to balance education provided by patient care and required curriculum traditionally delivered in conference format. The literature supports a decline in conference attendance in training programs around the country. Program directors have been required to use novel approaches to ensure conference attendance and learning. Self-directed online learning formats have been shown to be an effective education tool.
CONTENT: The clinical focus of our study was the diagnosis and management of acute sinusitis and acute bronchitis. Traditional lecture formats, internet lectures, interactive case-based problems, paper pretest quizzes, online case-based post tests and written surveys were utilized in this project.

DESIGN: We preformed a randomized trial of IM trainees to compare two instructional methods: traditional classroom lectures and a on-line teaching system. Lecture transcripts and slide presentations on acute sinusitis and acute bronchitis were developed by 3 IM faculty. 129/139 IM trainees completed either online or traditional classroom lectures on the topics. Both groups received the same didactic lectures either live or online. The online group was also given 2 interactive study cases. Both groups were required to complete a paper-based pretest on the material along with an online case-based post test which included 3 interactive virtual patients and a 10-question online multiple choice exam. The post test was completed at least 10 days after the initial teaching encounter. 94/139 subjects completed a satisfaction survey at the end of the educational encounter.
EVALUATION: Comparisons between the online and traditional groups were analyzed using a number of variables including performance (pre- and post-test scores), time-on-task, and satisfaction. Adjusted for pre-test scores, post-test performance was better in the online group. They required less treatment attempts to achieve a positive patient outcome ($p=.002$), selected more correct treatment options ($p<.001$), and scored higher on the post test quiz than the classroom group ($p=.044$). The average total time-on-task for the teaching component was similar (50 minutes online vs. 45–50 minutes traditional). The online group took less time to complete each test case ($p<.001$) during the post-test. There was no significant difference for other dependent variables including incorrect treatments, correct and incorrect diagnoses, number of test ordered, or test costs. Satisfaction was similar in both groups. The convenience of completing the online format from home and at a time more convenient to the trainee were often cited as reasons why they liked the program and would recommend it to other trainees. 97% of residents would like to see computer-based individual learning programs incorporated into the required lecture series in some way.
SUMMARY: Work hour rules have forced novel approaches to resident education. Computer-based individual learning programs allow time flexibility and also ease in evaluation, which may improve compliance with required conferences. The actual learning by the trainee is at least equal to a more traditional approach. Trainee compliance remains an issue in compliance.

INNOVATIONS IN MEDICAL EDUCATION

A DEVELOPMENTALLY PROGRESSIVE CLINICAL CURRICULUM FOR MEDICAL STUDENTS IN THE PRINCIPAL CLINICAL YEAR. B. Ogur[1]; D. Hirsh[1]; M. Batalden[1]; N. Baumer[2]; C. Casey[2]; P.A. Cohen[3]. [1]Harvard Medical School and Cambridge Health Alliance, Cambridge, MA; [2]Harvard Medical School, Cambridge, MA; [3]Harvard Medical School land Cambridge Health Alliance, Cambridge, MA. *(Tracking ID # 153484)*

STATEMENT OF PROBLEM OR QUESTION: Can a curriculum be designed for the principal clinical year of medical school that defines a developmentally-progressive acquisition of core competencies?
OBJECTIVES OF PROGRAM/INTERVENTION: To define the core competencies of the principal clinical year of medical school by adapting the ACGME competencies for residency education. To characterize the phases in which students acquire these competencies, describing benchmarks for each phase. To create a developmental pedagogy that parallels these phases.
DESCRIPTION OF PROGRAM/INTERVENTION: The Harvard Medical School-Cambridge Integrated Clerkship, a complete redesign of third year training, is an innovative, year-long, multi-disciplinary, ambulatory-based program based upon students' learning from close and serial contact with a cohort of continuity patients in all venues of care over a year-long rotation, with year-long mentoring. The structure thus allows for the provision of a deliberate, progressively intensifying instruction of such basic skills as the focused history and physical, problem formulation, diagnostic reasoning, and the use of the laboratory and radiology. Core skills can be consciously taught, allowing students to build more discipline-specific skills on a solid foundation, and discipline-specific skills can be taught in a progressive fashion. The curriculum development committee, comprised of the course directors, interested faculty members and students participating in the pilot used faculty and student feedback from the first pilot year, along with relevant expert opinion, to create a model developmentally-progressive curriculum. We adapted the ACGME competencies to a level appropriate for undergraduate medical education in the principal clinical year, and then created a series of developmental stages that match the progression in learning that occurred in our initial group of students. We believe this progression is generalizable to many students in their principal clinical year. A developmentally-appropriate pedagogy arises naturally from these stages, as preceptors can focus their teaching on the areas where and at a time when the student is most developmentally prepared to learn. Faculty preceptors received training in the model and in the pedagogy in faculty development sessions using a combination of didactic and experiential methodology.
FINDINGS TO DATE: We will present a model developmental curriculum, adapted from the ACGME competencies to a level appropriate for medical students, with benchmarks reflecting the phased acquisition of the competencies. We will also present examples of pedagogy appropriate to the stages we have defined, and examples of faculty development exercises to train faculty in the model. Results of faculty and student surveys demonstrate their satisfaction with the utility of the model.
KEY LESSONS LEARNED: It is possible to create a developmentally progressive curriculum appropriate to the principal clinical year based on ACGME competencies that is perceived by students and faculty to be useful in guiding a developmentally-appropriate pedagogy.

A NEW PATIENT-BASED PRIMARY CARE MENTAL HEALTH CURRICULUM FOR INTERNAL MEDICINE RESIDENTS. I.M. Kronish[1]; E.A. Halm[1]; D.C. Thomas[1]; D.R. Korenstein[1]. [1]Mount Sinai School of Medicine, New York, NY. *(Tracking ID # 151572)*

STATEMENT OF PROBLEM OR QUESTION: Affective disorders, which include anxiety and depression, are among the most common problems encountered in primary care. Primary care physicians are often poor at identifying and treating affective disorders, partly due to inadequate training during residency.
OBJECTIVES OF PROGRAM/INTERVENTION: Our objective was to create a mental health clinic in the primary care setting as a venue to train internal medicine (IM) residents in the diagnosis and management of common affective disorders.
DESCRIPTION OF PROGRAM/INTERVENTION: Third year IM residents participate in the mental health clinic during their outpatient block. Three residents attend four 3-hour sessions each month. The primary care based clinic is supervised by one IM faculty member and one 4th year psychiatry resident. In the first 30 minutes of each session, preceptors lead a discussion of case vignettes related to: 1) diagnosis of affective disorders; 2) inititiating and titrating psychotropic medications for depression, generalized anxiety disorder, and panic disorder; and 3)indications for referral to specialists. For the remainder of the session, residents evaluate patients who have been referred from within the continuity practice for help with diagnosis or management of depression or anxiety. Patient evaluations are limited to 20–40 minutes to simulate a typical primary care visit. To assess the effectiveness of this educational project, we developed a survey to measure IM residents' knowledge of and attitudes toward the diagnosis and management of affective disorders in primary care. Responses of residents who complete the intervention are compared to those of residents who have not received additional training.
FINDINGS TO DATE: 30 IM residents have evaluated 129 new consults and 68 follow-up visits. The most common diagnoses were major depression (38%), panic disorder (13%), depression NOS (10%), and anxiety NOS (9%). Patient demographics were as follows: mean age 49 yrs (range 20–83); 76% female; 89% Medicaid insurance. Psychiatric medications were adjusted in 49% of visits. Patients were referred for adjunctive counseling at 14% of visits and transferred to psychiatric care at 16% of visits. Surveys have been completed by 12 residents who received the intervention and 19 residents who did not, with a median of 9 weeks (range 4–20) between the intervention and completion of the survey. There were no differences between residents who did and did not receive the intervention in terms of age, gender, or psychiatry training in medical school. As compared to residents who did not complete the intervention, residents who did complete it had a higher mean percent score for knowledge on affective disorders (76% vs. 64%, $p=.02$); and were more confident on a 5-point Likert scale in their ability to treat depression (3.8 vs. 3.3, $p=.03$) and generalized anxiety disorder (GAD) (2.8 vs. 2.2, $p=0.02$). There were no differences between groups in their confidence in treating the control conditions of lupus or hypertension.
KEY LESSONS LEARNED: Adult education theory emphasizes relevance to the learner's usual practice. IM residents may effectively learn psychiatric skills by participating in a mental health patient-based curriculum in the primary care clinic. The preliminary results of our survey suggest that such a curriculum successfully increases residents' confidence in treating depression and GAD and increases knowledge of the management of affective disorders.

A NOVEL INTERNAL MEDICINE RESIDENCY HOSPITALIST TRAINING PROGRAM. J.J. Glasheen[1]; A. Trosterman[1]; M. Harris[1]; J.M. Youngwerth[1]; E.C. Chu[1]; M. Reid[1]. [1]University of Colorado Health Sciences Center, Denver, CO. *(Tracking ID # 152817)*

STATEMENT OF PROBLEM OR QUESTION: Data supports that Internal Medicine trained hospitalists enter practice with an inadequate understanding of healthcare systems, continuums of care and ethics. Additionally there is an underpreparation in clinical areas such as neurology, geriatrics, palliative care and perioperative and consultative medicine.
OBJECTIVES OF PROGRAM/INTERVENTION: To develop a training program to address the clinical and non-clinical needs of future hospitalists.
DESCRIPTION OF PROGRAM/INTERVENTION: In July 2004, the University of Colorado Internal Medicine (IM) Training Program launched a program to better prepare residents for hospitalist careers. Trainees enroll in the two-year program at the start of their second year of residency. Clinical experiences include a month-long perioperative/consultative medicine rotation that includes inpatient palliative care consultation and a month-long preceptorship in a community-based hospitalist model in both years. Specialized didactic sessions were developed for the consultative (10 perioperative, 2 medical consultation, 4 palliative care sessions) and preceptorship (15 sessions) rotations. Perioperative topics include preoperative cardiac and pulmonary evaluation, perioperative steroid and glycemic management, prevention of thrombosis and delirium, and pain management. Palliative care themes include end-of-life decision making and symptom control. Preceptorship topics include protocol utilization, hospital throughput, inpatient billing and coding, and hospital models of care. Other non-clinical issues such as healthcare finance, resource utilization, quality improvement and hospital systems are covered in detail in the longitudinal (2 sessions/month) and career development (2 sessions/year) curriculum. Additionally, an annual two-day palliative care retreat overviews the key tenets of end-of-life care, ethics and pain and symptom management.
FINDINGS TO DATE: Five second-year (R2) and six third-year (R3) residents started the program in 2004, representing 16% of the R2/R3 categorical IM residents. In 2005, five new R2s joined the 5 R3s. Nineteen hospitalist faculty play an educational role in the program. Preliminary evaluation of the consult rotation shows that mean scores on a 37-point test increased 10% (55% to 65% correct, $N=9$, $p<0.05$) after the consult month. Prior to the rotation, 0/4 (0%) trainees felt well prepared to care for hospital orthopedic issues, act as a medical

consultant or care for patients perioperatively and 2/4 (50%) residents believed hospitalists required specialized training. After the rotation, 4/4 (100%) felt well prepared to carry out these functions and believed that hospitalists should have specialized training. Post rotation, 6/7 (86%) residents reported more confidence with inpatient palliative care, perioperative and consultative medicine. Additionally, 6/7 (86%) believed that the material covered had not previously been well covered in their residency. Mean scores on a 50-point palliative care test increased 33% (52% to 85% correct, $N=4$) after participation in the palliative care retreat.
KEY LESSONS LEARNED: A novel hospitalist training program consisting of clinical and curricular components appears to improve resident confidence, knowledge and skills with the key components of a hospitalist career.

A NUTRITIONAL COUNSELING TRAINING PROGRAM FOR RESIDENTS. R.G. Pinckney[1]; M.A. Levine[2]. [1]University of Vermont, Burlington, VT; [2]University of Vermont - Fletcher Allen Health Care, Burlington, VT. *(Tracking ID # 154349)*

STATEMENT OF PROBLEM OR QUESTION: Teaching nutritional counseling to residents presents several challenges: most residents received very little nutrition training in medical school; residents must learn to navigate through a tremendous amount of misinformation about different diets; it is unclear if improving resident nutrition knowledge is an effective means to encourage lifestyle changes in patients; and due to prior unsuccessful experiences helping patients change behavior, residents may be reluctant to learn new counseling skills.
OBJECTIVES OF PROGRAM/INTERVENTION: 1) Provide unbiased and current information about the role of nutrition in disease and health; 2) Train residents to critically review nutrition literature; 3) Train residents in health behavior change skills; 4) Find or develop a tool to evaluate the impact of the program on resident knowledge, attitudes, and skills.
DESCRIPTION OF PROGRAM/INTERVENTION: A nutrition curriculum was developed that included training in motivational interviewing, nutrition information, and critical appraisal of the nutrition literature. Each of the sessions either focused on the nutrition literature or motivational interviewing. Nutrition literature sessions covered important topics such as obesity, hypertension, and hyperlipidemia. Cases, articles for review, content, and questions were prepared for discussion in a 30-minute session that preceded the weekly resident continuity clinic. Faculty development for these knowledge content and critical appraisal sessions was provided by scripted answers to the discussion questions. Motivational interviewing sessions focused on the review and practice of specific skills to enhance patient change. Faculty development for these skill development sessions was a voluntary motivational interviewing workshop. An evaluation tool was developed and administered to interns to establish a baseline. This survey included items to evaluate personal health habits and nutrition knowledge. In addition, it included a new scale, to measure residents' improvement in motivational interviewing. The new scale, the Health Behavior Change–7 Item (HBC-7), used 7 items to capture skill and knowledge in healthy behavior change. In addition to piloting this scale with the residents, we validated its responsiveness to training in a convenience sample of motivational interviewing workshop attendees.
FINDINGS TO DATE: • 2 years of material have been developed and piloted • Resident and faculty feedback has been very positive • Faculty have attended voluntary workshops on motivational interviewing • Interns answered only 48% (mean) of baseline nutrition knowledge questions correctly • Average scores on the HBC-7 scale improved by .9 in a convenience sample of workshop attendees, $P<.01$.
KEY LESSONS LEARNED: We confirmed that even our most recent medical school graduates are lacking in nutrition knowledge and counseling skill, demonstrating the importance of training in nutritional counseling during residency. Residents are receptive to a multifaceted program in nutritional counseling. Faculty and residents are willing to learn motivational interviewing as part of this training. Survey methods appear to be useful for measuring the impact of this training on resident nutrition knowledge and could be used to reveal changes in counseling skills. A controlled study to evaluate the impact of this program on resident skills and practices and patient behavior change is planned.

A UNIQUE, SUCCESSFUL AMBULATORY INTERNAL MEDICINE CLERKSHIP. A.N. Amin[1]. [1]University of California, Irvine, Orange, CA. *(Tracking ID # 157123)*

STATEMENT OF PROBLEM OR QUESTION: The Ambulatory Medicine Clerkship (AMC) is a required rotation for every third-year medical student at the University of California, Irvine (UCI).
OBJECTIVES OF PROGRAM/INTERVENTION: Unlike family medicine, internal medicine has struggled with developing comprehensive ambulatory experiences for students over the years. These experiences have existed in various forms. Designing a comprehensive ambulatory internal medicine learning experience allowing for individual mentorship, dedicated teaching time, continuity, and real-life experience is challenging given the lack of resources (preceptor time, funding) and the need to see patients every 15 minutes. Yet it is important that students get an exposure to ambulatory medicine for their educational training and career choices.
DESCRIPTION OF PROGRAM/INTERVENTION: A distinct 4-week AMC rotation was created in the third-year medical school curriculum (separate from the 8-week inpatient medicine clerkship), with a dedicated faculty clerkship director. Eight students rotate every 4 weeks. A comprehensive standardized 4-week curriculum was developed with dedicated outpatient faculty. All preceptors receive an orientation from the AMC director, get a university appointment, and are invited to faculty development. The AMC student orientation includes career paths in ambulatory medicine, professionalism, evidence-based medicine (EBM), home-hospice, and common ambulatory examination techniques. Students are assigned 1 faculty for 4 weeks, and spend about 8 half-days per week in the preceptor's private office. This is not a tag-a-long experience. Students are required to see patients on their own. Students are required to follow-up on laboratory and diagnostic studies, complete patient charting, make follow-up phone calls, and ask the patients to return for follow-up appointments with the student for continuity. When students are not in the preceptor's office, they have curriculum that includes hypertension clinic and ambulatory blood pressure monitoring, home-hospice visit, longitudinal palliative-care curriculum, and ambulatory clinical research. Students also have small group learning sessions on ambulatory documentation and billing, patient safety and quality, ethics, values, EBM project, patient learning issues, "starting a practice," and palliative-care case discussions. Students are given 1-on-1 feedback by their preceptor and patients. The preceptor is required to evaluate at least 10 evidence-based patient learning issues, perform midcourse and final evaluations, and complete professionalism and organizational skills evaluation. Three patient evaluations are collected on each student with summative comments put into the student's Deans letter.
FINDINGS TO DATE: Student narrative and written comments found the AMC to be a valuable learning experience. When polled, students unanimously stated the AMC was hands on, not a tag-a-long experience. Despite the lack of funding for the preceptor's time, the AMC has been sustainable by offering preceptors flexibility in choosing 4-week period(s).
KEY LESSONS LEARNED: The AMC is a unique, successful and highly regarded educational experience for medical students at UCI because: (1) allows students to experience a career choice in primary-care internal medicine, (2) allows 1-on-1 mentorship, ambulatory teaching and evaluation, (3) allows continuity experience, (4) integrates topics such as business of medicine, safety, quality, end-of-life, ethics, values, EBM, clinical ambulatory research, and (5) gives students an experience of real-life private ambulatory practice.

AN INTEGRATED APPROACH TO TEACHING CLINICAL REASONING IN THE THIRD YEAR. S.D. Stern[1]; A.S. Cifu[1]; D.L. Altkorn[1]. [1]University of Chicago, Chicago, IL. *(Tracking ID # 156511)*

STATEMENT OF PROBLEM OR QUESTION: Students often approach clinical reasoning in a haphazard manner that is fraught with error.
OBJECTIVES OF PROGRAM/INTERVENTION: To improve clinical reasoning and avoid premature closure among third year medical students through the use of a problem oriented curriculum which 1. Teaches a framework for the differential diagnosis of common medical complaints and a structured approach to organizing and prioritizing the differential 2. Emphasizes the high specificity and diagnostic value of key signs and symptoms (fingerprints) and the limited sensitivity of most signs and symptoms
DESCRIPTION OF PROGRAM/INTERVENTION: We have designed a clerkship that teaches clinical reasoning in multiple settings. 1. We start with a medical textbook that is problem based, case based and evidence based rather than disease based. Such a book stresses the importance clinical reasoning at the same time that we teach clinical reasoning in other venues. Specifically, we use Symptom to Diagnosis, a text that we published in 2005. Chapters address a single problem (e.g. chest pain), provide a framework for differential diagnosis, demonstrate the clinical reasoning process through the step by step discussion of several cases, present the test characteristics of signs, symptoms and diagnostic tests, and review the common diseases. Most chapters conclude with a diagnostic algorithm. 2. Twice weekly group clinical reasoning sessions have replaced the traditional lecture format. Students are instructed to read the appropriate chapter prior to the session. During the session a brief overview of the problem (including a framework for the differential diagnosis) is presented. Unknown cases are then presented to the group, who suggest diagnostic tests and propose a diagnosis. Several of these sessions are structured in a game format, pitting one half of the class against the other half. Students are charged for unnecessary tests and rewarded for the correct diagnosis. At the end of each case, the sensitivity, specificity and likelihood ratios of findings for that particular disease are reviewed. 3. Twice weekly preceptor sessions allow 4–5 students to meet with their preceptor throughout the clerkship. One student presents a patient unknown to the other students who prepare by reading the appropriate chapter prior to these sessions. This allows students to practice their diagnostic reasoning. 4. Preceptors may observe students perform an appropriate problem focused history and physical exam in the urgent care clinic. Students are allowed 20 minutes after the history and physical to organize their assessment and plan and then review this with the preceptor and patient.
FINDINGS TO DATE: Students have been very enthusiastic about the clinical reasoning sessions and preceptor groups. Comments during Directors' lunches have been uniformly supportive. They have enjoyed the challenge that the critical case analysis provides and the competition of the game format. The readings have served to prime them for these sessions and increase their sense of competency. Very preliminary data suggests the shelf exam results improved. Additionally, Symptom to Diagnosis has been very well received.
KEY LESSONS LEARNED: A multifaceted approach to critical reasoning provides the framework for students to learn key information and then apply that information in active modalities. This is an exciting way to teach and learn critical reasoning.

BETTER BEDSIDE TEACHING: SUCCESS WITH FACULTY DEVELOPMENT USING OBSERVED STRUCTURED TEACHING EXERCIZES AND PEER TEACHING. J. Rabatin[1]; R. Janicik[1]; A. Hsieh[1]; E. Pearlman[1]; A.L. Kalet[1]. [1]New York University, New York, NY. *(Tracking ID # 153806)*

STATEMENT OF PROBLEM OR QUESTION: The deterioration of bedside teaching is a well-known national problem. In 2004, with the help of a private grant, we sought to improve bedside teaching by creating a program for our teaching faculty.
OBJECTIVES OF PROGRAM/INTERVENTION: Our main objective is to improve the bedside teaching skills of our faculty. We help participants overcome common barriers to effective bedside teaching. They build a repertoire of bedside teaching topics such as, physical exam, end of life issues, communication challenges, substance abuse and cross-cultural issues. There is opportunity for peer-coaching and self-directed improvement of bedside teaching.
DESCRIPTION OF PROGRAM/INTERVENTION: After conducting a needs-assessment, we developed a flexible program composed of the following components: A. Objective Structured Teaching Exercises (OSTE)–Participants partake in a mock attending rounds case involving medical students, residents and actors who are trained to portray particular patient, resident, and student roles. The exercise is filmed. Then, participants receive immediate and facilitated videotape review of their performance. B. Learning Plan–Because our approach is learner-centered, participants complete a learning plan that outlines personal goals during this program, means to achieve them, methods of determining whether they are achieved, and used to guide their learning in this program. C. Small Groups - These 1–2 hour sessions are held in groups of 3–4 including a program facilitator. Rooted in personal experiences, the sessions act as forums to discuss topics including strategies for teaching difficult residents and patients, learning and teaching styles, avoiding distractions and interruptions during teaching rounds, keeping learners engaged, and making observations and giving feedback. D. Observed Rounds–With the supervision of a program facilitator, participants mutually observe each other conduct attending rounds and provide feedback. These experiences are also referred to during the small group discussions. E. Faculty Development Workshops–Quarterly workshops provide a protected time for a larger group reflection and environment to generate solutions on particular challenge areas within bedside teaching. The workshops are on topics such as improving feedback and observation, top ten admitting diagnoses and teaching physical diagnosis. F. Web-based Interaction–We are developing a website and learning module to better accommodate virtual participants.
FINDINGS TO DATE: To date, nineteen faculty members have participated. While most were initially skeptical and worried about "performing" both in the OSTE and on observed rounds, in the end, they greatly appreciated the opportunity to observe others (an experience few have had since residency), receive feedback, and reflect on their own performance. Analysis of the videotapes of the OSTEs suggest faculty have learned important time management skills, become more comfortable with assessing learners needs, and giving (rather than avoiding) feedback in the moment.
KEY LESSONS LEARNED: Support from senior department leaders and great flexibility in scheduling have been critical to being able to recruit busy clinical teachers for an intensive experiential faculty development program. Once enrolled, faculty participants become enthusiastic proponents of the "peer observation with a debriefing" model of faculty development which they experience as respectful and worthwhile.

CALL FOR SUBMISSIONS! PREPARING MEDICAL STUDENTS FOR THE SCHOLARLY ACTIVITY REQUIREMENT OF RESIDENCY. M. Ziebert[1]. [1]Medical College of Wisconsin, Milwaukee, WI. *(Tracking ID # 152547)*

STATEMENT OF PROBLEM OR QUESTION: Pursuing excellence in patient care requires a life-long commitment to learning by internists. As a result, the Residency Review Committee (RRC) for Internal Medicine requires all residents to complete a scholarly activity as a way of participating in the generation and dissemination of new knowledge. This scholarly requirement often takes the form of a clinical vignette oral or poster presentation at regional and national professional meetings. Unfortunately, many residents are ill prepared for this scholarly requirement as they receive little formal training in writing, submitting, and presenting a clinical vignette abstract during their medical school career.
OBJECTIVES OF PROGRAM/INTERVENTION: To prepare fourth year medical students for the scholarly activity requirement of residency by participating in a mock clinical abstract submission and poster or oral presentation as a required component of a medicine elective course.
DESCRIPTION OF PROGRAM/INTERVENTION: The "Apprenticeship with a Master Clinician" is a fourth year medical student elective course that focuses on preparation for residency, professionalism and adult learning skills. During this course, we now require students to participate in a scholarly activity in anticipation of this requirement during their residency. The students receive formal instruction on how to write a clinical vignette abstract for submission to a professional meeting. They then submit "online" using our institution's web-based course management portal (ANGEL) in order reflect an actual abstract submission process. All abstracts are published in a course booklet and distributed to the course participants. The students then prepare a poster from the abstract and present it at a formal poster session held at the end of the course. The poster presentations are judged according to the following criteria: significance, visual impact, presentation and the interview. An award is given to the best presentation.
FINDINGS TO DATE: Twenty eight medical students have participated in the "Apprenticeship with a Master Clinician" course since the scholarly activity requirement was introduced. All twenty eight submitted an abstract on-line. Twenty seven medical students prepared posters and one student elected to give an oral presentation. In the post-course evaluations, the students responded favorably to the statement: "I am now more likely to submit a clinic abstract during my residency because of the scholarly activity requirement." The average score was 4.85 on five-point Likert scale (1 =strongly disagree and 5 =strongly agree). Comments included: "I can think of no other opportunity in medical school where we have this kind of experience in preparing and presenting a poster," "Demystified scholarly activity—very doable", "...really gave me confidence I could submit an abstract," and "New and good experience . . . I look forward to doing this as a resident."
KEY LESSONS LEARNED: The medical students valued the scholarly activity requirement as an opportunity to enhance their overall professional development and prepare for residency training. Future poster sessions will be highly publicized events as the medical students expressed a desire to invite their fellow students from other rotations as well as faculty mentors to attend the poster session.

CAN WE GO HOME AGAIN? AN INNOVATIVE HOME VISIT PROGRAM FOR RESIDENTS. S. Zabar[1]; K. Hanley[1]; A. Karne[1]; D.L. Stevens[1]. [1]New York University, New York, NY. *(Tracking ID # 151581)*

STATEMENT OF PROBLEM OR QUESTION: The house call, once a mainstay of medical care, now falls outside of usual training and practice. Can a home visit curriculum help residents embrace this invaluable and rewarding aspect of practice?
OBJECTIVES OF PROGRAM/INTERVENTION: We developed an innovative home visit curriculum and evaluation for Internal Medicine (IM) residents. Program objectives are to: 1) Understand and improve residents' attitudes toward the value of the home visit 2) Assess core skills and knowledge needed to carry out home visits 3) Evaluate patients' reactions to having a faculty facilitated group home visit.
DESCRIPTION OF PROGRAM/INTERVENTION: As a pre- and post-program evaluation, we designed a 5-station observed structure clinical experience (OSCE) testing the essential skills needed to plan and conduct a successful home visit. Tasks for each station were: 1) Determine indications and goals for a home visit (paper scenario), 2) Ask the patient permission to visit (10 minute interview with standardized patient portraying 70 year old woman who has recently fallen), 3) Assess the patient's home for safety risks (Photographic tour of home with questions), 4) Discuss and negotiate safety plan with patient based on home visit findings (10 minute interview with standardized patient), 5) Write summary note documenting findings and plan. A new 11 item attitude survey, to be administered before and after our educational program, assessed residents' attitudes, comfort and confidence regarding home visits. Using a structured chart review, residents identified patients from their panel who would benefit from a home visit. Faculty supervised Group Home visits (4 to 6 residents) were conducted followed by hour-long debriefing. A post-visit patient telephone survey of reactions to the visit was administered.
FINDINGS TO DATE: 29 IM residents participated in the pre-program OSCE. Most resident were able to identify reasons the patient would benefit from a home visit but there was a wide range in their ability to delineate the specific issues to be addressed during the visit and their ability to document their findings. Residents' skills demonstrated during the simulation were uniformly rated by trained SP as good to excellent.18 residents completed the pre-program attitude survey. All (100%) residents agreed that home visits strengthen the doctor-patient relationship and reveal important clinical information. Nearly all agreed it should be part of residency training and would add to quality of care (88% and 94% respectively). However, 80% did not feel comfortable conducting a home visit and less than 10% reported comfort in assessing home safety. One third reported that they were uncomfortable asking a patient to make a home visit and only one third planned to incorporate home visits into their future practice. Thus far, eight group (4 to 6 residents) home visits have been conducted; in all previously unknown important clinical information was uncovered. All patients surveyed reported high satisfaction with the visit.
KEY LESSONS LEARNED: Residents believe in performing home visits but lack self-efficacy. Despite their low confidence, residents demonstrated on the OSCE the knowledge and skills necessary to perform home visit successfully but their documentation needed improvement. At post visit group discussion residents uniformly agreed that important clinical information was uncovered, their relationship with the patient was strengthened and they felt motivated to conduct more visits. All patients responded positively to the group visit. A post program assessment is pending.

DEVELOPING AMBULIST COMPETENCE: A QUALITY IMPROVEMENT (QI) CURRICULUM. M.J. Rosenblum[1]; K.T. Hinchey[1]; M. Picchioni[1]; L.B. Meade[1]; C.M. Sydorak[1]. [1]Baystate Medical Center/Tufts University School of Medicine, Springfield, MA. *(Tracking ID # 156537)*

STATEMENT OF PROBLEM OR QUESTION: The successful internist of the future will function as a multi-disciplinary team leader with a new set of skills and a mature understanding of the QI process. How do we educate and develop adult learners to flourish as team leaders with a goal of delivering exemplary patient care?
OBJECTIVES OF PROGRAM/INTERVENTION: Our objective is to improve patient care through the QI process by nurturing an environment that holds the healthcare team accountable for patient outcomes. Our curriculum formalizes the QI process by focusing on the PDSA (plan, do, study, and act) model

ensuring that each resident will have the skills to succeed as the use of clinical benchmarks for patient care and reimbursement increase.
DESCRIPTION OF PROGRAM/INTERVENTION: At High Street Health Center; the primary outpatient resident clinic for our internal medicine residency program we have developed and implemented a robust QI educational curriculum and process. We have focused on Hypertension, Mammography, Diabetes and Asthma to date. We utilize chart review during ambulatory blocks to maximize the experience for our residents. The residents review their OWN charts for nationally accepted standards of quality, discussion of ancillary resources and proposals for improved systems/approaches to care. Each ambulatory block has four 1/2 hour conferences on QI, there is an additional hour long clinic-wide QI review involving our medical assistants, front office staff, nursing staff, residents and clinic director. Teamwork is a clear and consistent focus of each conference. We introduce our interns to QI and the teams based approach to medicine within the first month of residency and continue to highlight these concepts throughout training. Each resident learns the principles of QI design/development, implementation, review and response to results.
FINDINGS TO DATE: Analyzing your continuity patients and reflecting on your approach to care fosters a unique educational tool for a resident. Recognition of patterns of care through practice-based learning and improvement affords an opportunity to enhance their self-evaluation as primary care providers. Our diabetics have seen their average A1C decrease from 8.2 to 7.9 since 2003, LDL <100 increase from 52% to 65%, pneumococcal vaccine increase from 38% to 57%. For asthma we have seen the use of controller medications increase from under 70% in 2003 to over 85% in 2005. By recognizing our 'weaknesses' and those of our system, we have designed processes to correct and enhance our delivery of care. Implementation of a new progress note, chart review tools, patient flow and new visit types have all been offspring of this complex QI process.
KEY LESSONS LEARNED: This unique approach cultivates a systems based approach to medical care and its efficient delivery. We understand that by improving the delivery of healthcare through a team and highly organized systems of care we can improve the outcomes for our individual patients. Our residents learn of the systems of care that are available and develop the skills to interface appropriately with the other members of the care team to enhance and maximize patient care outcome metrics.

DEVELOPMENT AND USE OF A POCKET PC PATIENT CASE LOG. W. Adam[1]; D.E. Dewitt[1]; L. Burkholder[1]. [1]University of Melbourne, Shepparton, Victoria. *(Tracking ID # 156431)*

STATEMENT OF PROBLEM OR QUESTION: The University of Melbourne School of Rural Health delivers its curriculum across several rural sites. Students and faculty want students to have equivalent, excellent teaching and learning experiences. Changes is work hours are also changing educational opportunities for housestaff and students. Furthermore, accrediting organizations increasingly require tracking of cases and procedures for medical school and trainee assessment and accreditation. Case logs using paper and/or web entry are inconvenient and require dual recording if programs wish to analyze the results. The problem is how to efficiently and effectively document and analyze learners' clinical experiences. Since medical students and residents commonly use handheld computers (PDAs) to access educational resources, PDA entry at point of care should improve case log compliance and accuracy.
OBJECTIVES OF PROGRAM/INTERVENTION: The project aims to develop and implement PDA-based patient log software to track student clinical experiences, perceived educational value, and teaching contacts. The goal is to improve learner compliance with case logs by allowing them to enter case records at point of contact, and to facilitate transfer of records to educators through PDA synchronization without the need for students to re-enter data onto the web, or for administrators to transfer case log data from paper records. A further objective was to allow direct download of data into a database for comparison of student experiences at different sites; monitoring of performance and feedback to the students on their needs for further clinical exposure; and analysis of teaching encounters (who is involved in teaching and the perceived value).
DESCRIPTION OF PROGRAM/INTERVENTION: Software has been developed and tested for the Pocket PC platform. This platform was chosen so that learners could also access UpToDate (not available for Palm). The software records patient demographics (patient identifiers were not used for confidentiality reasons), presenting problems, diagnoses, procedures, site of encounter, level of student and teacher involvement, and perceived learning value from preselected options and drop down menus. The software allows easy adaptation of log data collection to specific needs (e.g. different levels of learner or specialty requirements). Synchronization allows analysis of individual and group characteristics. To date, 72 students at 3 sites have participated in software trials and pilot data collection. An additional 24 students will participate in the first 6 months of 2006.
FINDINGS TO DATE: Students found the case log easy and quick to use. For a simple patient, data entry takes less than a minute. Some hardware and software issues have been identified, particularly when other large programs are run on the PDA. The lack of patient identifiers precludes verification of data.
KEY LESSONS LEARNED: 1. A simple patient log with entry at point of care has been developed and implemented for the Pocket PC. 2. Case entry is quickly and easily done at point of care. 3. Synchronization of case log data avoids the need for learners or administrative staff to re-enter data into statistical programs for analysis. 4. Student compliance and verification of data remain challenging and will do so when patient confidentiality is a priority.

DEVELOPMENT OF A GLOBAL HEALTH EXPERIENCE THAT BENEFITS BOTH US-BASED RESIDENCY PROGRAM AND THE HOST INSTITUTION. T. Minichiello[1]; H. Ddungu[2]; S. Jain[1]; H. Hollander[1]. [1]University of California, San Francisco, San Francisco, CA; [2]Makerere University, Kampala. *(Tracking ID # 153143)*

STATEMENT OF PROBLEM OR QUESTION: Previous literature has shown that experiences in global health during residency increase cross cultural competency, confidence in physical exam, and interest in and commitment to public health. U.S. based residency programs stand to gain much from developing clinical elective programs internationally, but it is less clear what host institutions gain from this arrangement.
OBJECTIVES OF PROGRAM/INTERVENTION: We set out to create a mutually beneficial, longitudinal global health program between UCSF and Makerere University's Mulago Hospital and the ReachOut clinic in Kampala Uganda. To determine objectives of the host institution, we surveyed the dean, department chair, division chiefs, residents, and clinic directors at Mulago and Reachout.
DESCRIPTION OF PROGRAM/INTERVENTION: Surveys revealed a number components necessary to build a mutually beneficial experience: 1) Provide support locally to run the program; 2) Prepare visiting residents to educate local providers on the use of antiretroviral therapy and the evaluation and management of opportunistic infections in HIV patients; 3) Create collaborative scholarly opportunities between institutions; 4) Host residents and faculty from Mulago at UCSF. We have since hired a local faculty member from Makerere University to oversee this program and have provided financial support for his administrative duties. Our residents prepare talks on HIV care prior to departure and topics are tailored to match requests of local providers. We are developing a program for publication of case studies on the HIV Insite website which will be open to collaborative efforts between UCSF and Mulago residents. Finally, we will be hosting our first faculty member through this program in summer 2006.
FINDINGS TO DATE: The support we provide for our faculty advisor in Kampala has allowed him time to oversee this rotation and to hire local administrative help to run the program. our resident teaching sessions have uniformly been rated as excellent. On a scale of 1–5 (5 being the best score) the clinical impact and quality of these sessions were rated 4.5 according to the direct feedback the residents received. The resident's clinical performance evaluations have been uniformly outstanding. The first case study submissions are currently being submitted, and we continue to pursue funding to expand our exchange program with the hopes of funding more residents and faculty from Uganda. This is one of the most highly rated clinical experiences in our residency program; this year 40% of our senior class has signed up to participate.
KEY LESSONS LEARNED: Programs must explore ways to guarantee that host institutions benefit from global health electives. Although visiting residents can help with patient care and provision of education, their prescence can be a burden if adequate administrative support is not provided for oversight and administration. Many host insitutions hope for true exchange programs with the opportunity to visit the US based program. The needs and desires of host insitutions must be considered in the early stages of developing a global health elective program so that resources can be allocated appropriately and fund raising efforts can be targeted.

EDUCATING THE PHYSICIAN LEADERS OF TOMORROW: THE BOONSHOFT PHYSICIAN LEADERSHIP DEVELOPMENT PROGRAM. G. Crites[1]. [1]Wright State University, Dayton, OH. *(Tracking ID # 154242)*

STATEMENT OF PROBLEM OR QUESTION: Many scholars contend that developing physician leadership roles in health service organizations can contribute to resolving the current health care crisis in the United States. Most physician leadership training programs are designed for mid-career physicians, thus missing opportunities to educate and engage physician leaders earlier in their career.
OBJECTIVES OF PROGRAM/INTERVENTION: The objectives of the BPLDP are: 1) To provide medical students a unique educational opportunity through degree programs in clinical care, either public health or business, and a certificate equivalent in leadership. 2) To develop knowledge, attitude, and skills of medical students as leaders to provide scaffolding for accelerated advancement in management and executive careers.
DESCRIPTION OF PROGRAM/INTERVENTION: The Boonshoft Physician Leadership Development Program (BPLDP) is a five-year, coordinated leadership program for medical students at the Wright State University Boonshoft School of Medicine. Its three program components consist of a traditional MD curriculum, either an MPH of MBA degree program, and an integrated leadership curriculum. The leadership curriculum consists of courses in health systems management, health systems communications, strategic health care leadership, and a formal mentor program with involvement of local community leaders. The leadership curriculum was designed using a competency-based model. The author identified health care leadership competencies from a literature review and adapted it to local needs though a reviews by key faculty, local health care leaders, and key students. The leadership curriculum was integrated horizontally by allowing all three program components to occur simultaneously (and without overlap) rather than sequentially for the five years; this provided an opportunity to integrate concepts across program elements. The leadership curriculum was also vertically integrated, allowing for more basic conceptual knowledge to be built earlier in the curriculum and demonstration of more complex tasks later.
FINDINGS TO DATE: To date, all components of the BPLDP, except for the last phase of strategic health care leadership course, have been designed. We have matriculated 23 students in the program, and the first cohort ($n=2$) have completed 50% of their program requirements. The informal feedback from the faculty, students, and mentors is that the program is well-organized and

the design does seem to fit the competency model. One critique of the program from several sources is that the program was not fully developed at the time of matriculation of the first cohort, so some of their program elements had to be designed on the spot.
KEY LESSONS LEARNED: From this experience, we have learned a few key valuable lessons: 1) The collaborative design process was useful in adapting national recommendations from the literature to meet the needs of our university, students, and community, 2) The horizontal and vertical design, uncommon in traditional dual-degree programs, allows for integration across program elements and opportunities to build upon prior knowledge, 3) A sequential, integrated program design such as this does require significant resources; at of time of submission, the program employed of one full time program director, a part-time educational consultant, and several support staff, and, 4) a complicated program such as this would best need 1–2 years of planning prior to matriculating the first class.

EDUCATIONAL HALF DAY: AN INNOVATIVE WAY TO INCORPORATE SUBSTANCE ABUSE CURRICULUM INTO RESIDENCY TRAINING. S.U. Nigwekar[1]; D.S. Morse[2]. [1]Rochester General Hospital, Rochester, NY; [2]University of Rochester, Rochester, NY. *(Tracking ID # 151764)*

STATEMENT OF PROBLEM OR QUESTION: Internal medicine residents often encounter substance abuse disorders (SUD); however not all residency programs have curricula on management of SUD, and not all current curricula utilize evidence based motivational interviewing strategies.
OBJECTIVES OF PROGRAM/INTERVENTION: To educate housestaff about screening, assessment, and use of motivational strategies to manage SUD; to address key concepts related to methadone and buprenorphine; and to assess housestaff response to and effectiveness of the educational intervention.
DESCRIPTION OF PROGRAM/INTERVENTION: An action plan was developed during 2005 Chief Resident Immersion Training (CRIT) program in SUD and was implemented at Rochester General Hospital Internal Medicine residency program. The action plan incorporated an innovative 3-hour Educational Half Day (EHD), which combined didactic and experiential education for residents. Nine facilitators were utilized, with the chief resident and internist who attended the 2005 CRIT program doing the major organizing and training, along with incorporating community experts. Two training sessions (2 hour each) were held for the facilitators prior to the EHD. Our EHD was attended by 48 of our 53 residents. It started with a 30 minute introduction on epidemiology, screening, and brief intervention techniques. Then attendees were divided into 4 small groups and simultaneous sessions were held, allowing all residents to attend two stations. Station one had guided role plays based on motivational interviewing techniques, addressing screening and brief intervention using FRAMES (Feedback, Responsibility, Advice, Menu of options, Empathy and Self-efficacy). Groups of 12 were subdivided so that each had a person playing physician, patient, and observer. Facilitators supervised and debriefed residents during role plays and at the end of the session, teaching skills such as developing discrepancy, avoiding argumentation, and rolling with resistance. Station two was facilitated by addiction specialists who discussed 3 case-based scenarios for management of patients from methadone and buprenorphine maintenance programs, addressing peri-operative periods, acute pain, and chronic pain. We conducted pre-tests (2 weeks prior to the EHD) and post-tests (at the conclusion of the EHD); each test had 10 multiple choice questions. Responses were graded as "poor" (0–4 correct answers), "fair" (5–7 correct answers) and "excellent" (>7 correct answers). Attendees also evaluated the EHD, using a standardized evaluation form.
FINDINGS TO DATE: 36 residents took the pre-test and 34 took the post-test. 36% of residents received "poor" score on the pre-test compared to 29% on the post-test, 61% received "fair" score on the pre-test compared to 38% on the post-test and only 2.7% of the residents received "excellent" score on the pre-test compared to 32% on the post-test ($p=0.002$). Median correct answers were 5 in the pre-test group and 6 in the post-test group ($p=0.03$). A majority of the attendees (65–75%) found our EHD "helpful" and 15–25% thought that that they "will immediately change their clinical management" after attending this EHD.
KEY LESSONS LEARNED: An EHD incorporating didactic and experiential learning of motivation-based interventions and case-based opiate maintenance issues is a novel and effective way of incorporating substance abuse issues into the residency curriculum. Residents perceived it as helpful and it has the potential to change resident management of patients with SUD.

ESTABLISHING A BUSINESS OF MEDICINE CURRICULUM IN A RESIDENCY PROGRAM. A.K. Rahim[1]; R.C. Anderson[1]. [1]Evanston Northwestern Healthcare, Evanston, IL. *(Tracking ID # 152515)*

STATEMENT OF PROBLEM OR QUESTION: Can the core principles of the business of health care be successfully incorporated into the curriculum of an internal medicine residency program?
OBJECTIVES OF PROGRAM/INTERVENTION: 1) To fill a gap in residency education through development of a longitudinal curriculum in the business of medicine. 2) To help ease the transition from residency to real-world practice. 3) To better prepare residents to adapt to and lead the business of health care.
DESCRIPTION OF PROGRAM/INTERVENTION: 1) Focus group sessions with house staff were held early in the academic year to determine needs and interest areas in the business of medicine. 2) Based on this, 8 didactic topics were established (examples include models for practice, contracts and negotiation, strategic planning for a practice, career paths for MDs and the macro environment of health care). 3) Administrative, industry and academic experts were identified and recruited to develop and deliver content. 4) The curriculum was initiated with a Business 101 overview lecture, launching of a business of medicine web site and a monthly journal club discussion focusing on a key article. 5) Didactic presentations were presented on average twice a month for 4 months. All presentations are being archived on video. Ethics is being emphasized in each of these curricular pieces.
FINDINGS TO DATE: 1) Focus groups revealed that interns had broad areas of interest including core business principles and terminology. Resident interest was more directed to practice management, and specifically the intricacies of running a practice. 2) Program events were well attended and sparked significant interest from faculty and house staff, thus facilitating future curricular development. 3) Pre-test results showed a significant knowledge deficit among house staff in the business of medicine (post-test results are pending at this time).
KEY LESSONS LEARNED: 1) Importance of establishing buy-in and assessing interest areas through the use of focus groups. 2) Challenge in carving out time in the overall curriculum. 3) Need for outcome measures (pre and post testing of knowledge) and further refining of topic areas and presentation modalities through feedback (small group versus large group settings). 4) Early planning for institutionalization of the curriculum.

ESTABLISHING A MEDICO-LEGAL AND HEALTH POLICY EDUCATION CURRICULUM FOR MEDICAL RESIDENTS. M.W. Friedberg[1]; A.S. Kesselheim[1]. [1]Brigham and Women's Hospital Division of General Internal Medicine, Boston, MA. *(Tracking ID # 153822)*

STATEMENT OF PROBLEM OR QUESTION: Medico-legal and health policy topics such as medical liability reform and health care financing have important effects on patient care and on the careers of physicians and physician-scientists. During the 2003–2004 academic year, we assessed resident interests and attitudes concerning these topics and found high levels of interest. However, we also found that medical residents felt that neither medical school nor residency provided complete and systematic instruction in these areas.
OBJECTIVES OF PROGRAM/INTERVENTION: To increase medical residents' level of knowledge in medico-legal and health policy fields through a systematic curriculum, focusing on areas most likely to affect their practices and careers in the near future.
DESCRIPTION OF PROGRAM/INTERVENTION: During the 2004–2005 academic year, we developed a curriculum segmented into 3 modules—health politics, legal and ethical issues in health care, and health policy and financing—and we focused on 2–3 subjects within each module that were relevant to physicians in training. We delivered this curriculum through monthly small group sessions and periodic updates on policy developments at the state and national levels. Each module ended with a large panel discussion giving residents broader topic overviews and the ability to interact with experts in each field. To measure the curriculum's effect, we surveyed medical residents before and after each of the 3 modules using subjective assessments of residents' confidence in the subject areas and objective tests of their knowledge.
FINDINGS TO DATE: Our survey response rates ranged from 23–39%. We found that residents expressed higher confidence in their knowledge of some topics after each curriculum module and performed significantly better on objective assessments in a subset of these areas. Some objective improvements were associated with attendance of curriculum elements. Number of medical residency years completed was not associated with improved confidence or measured knowledge in any area of the curriculum. Prior health policy coursework and experience was associated with higher levels of knowledge in health policy and financing, but not in health politics or medico-legal issues. Health policy work outside the classroom was not significantly associated with improved knowledge in any medico-legal or health policy area. Study limitations include low sensitivity of our knowledge measurement instrument, inability to target the same group of residents consistently due to complex clinical rotation schedules, nonrandom sampling, and low survey response rates.
KEY LESSONS LEARNED: A targeted medico-legal and health policy curriculum can improve resident knowledge. The existing "standard" medical resident curriculum does not appear to improve knowledge of medico-legal or health policy issues.

EVIDENCE-BASED MEDICINE IN PRIMARY CARE: A PATIENT-CENTERED CURRICULUM FOR RESIDENT TRAINING. B. Walkey[1]; D.G. Fairchild[1]. [1]Tufts-New England Medical Center, Boston, MA. *(Tracking ID # 152957)*

STATEMENT OF PROBLEM OR QUESTION: Residents face multiple obstacles to utilizing evidence-based medicine (EBM) in the primary care setting. We hypothesized that a curriculum involving a didactic session, a patient encounter, and the opportunity to teach other residents would improve the use of pre-appraised sources of evidence to answer clinical questions.
OBJECTIVES OF PROGRAM/INTERVENTION: Our intervention was established to: 1. provide curriculum to residents on creating clinical questions and using EBM resources, 2. guide residents in developing clinical questions from patient visits in continuity clinic, 3. demonstrate the use of pre-appraised sources of information to make decisions in the primary care setting.
DESCRIPTION OF PROGRAM/INTERVENTION: While on their primary care rotation, residents attend a 1.5 hour-long didactic session on EBM. During this lecture, sample patient encounters are used to create clinical questions in the PICO format–a previously described model using four components (Patient, Intervention, Comparison, and Outcome) to optimally formulate questions for EBM database searches. Multiple EBM resources are reviewed including Medline, the Cochrane Database, and the National Guideline Clearinghouse. The

following week, the residents generate a clinical question based on an actual patient encounter from their continuity clinic. After researching their question, residents solidify their skills by teaching other residents about the search process during a 15 minute-long pre-clinic conference. At this conference, residents discuss the search process, the evidence, and how it applies to clinical decision-making.
FINDINGS TO DATE: Twenty residents (PGY-1, PGY-2, & PGY-3) at Tufts-New England Medical Center have completed the curriculum. We assessed competence in EBM both before and after the intervention using an adapted version of the Fresno test (scale 0–72). Preliminary analysis indicates significant improvement in EBM skills following the intervention. Of the 20 residents who received the intervention, total scores were improved in 17 (85%). When compared to pre-test competence using a t-test, post-test total scores were higher by an average of 55% ($p < 0.0001$). The most significant gain of knowledge was in the identification of the variety of EBM sources available to physicians, along with recognizing the strengths and weaknesses of each source. The mean percentage improvement on this question was 120% with the mean pre-test score being 10.5 ($p < 0.0001$). On the assessment of ability to form clinical questions in the PICO format, residents demonstrated a 36% improvement in scores ($p < 0.03$).
KEY LESSONS LEARNED: Data gathered at our institution suggests that this simple curriculum is a successful method of integrating EBM into an academic medical center ambulatory care setting. A curriculum using patient visits to generate clinical questions adds relevance to learning the role of EBM in decision-making. The resident-as-teacher component of our program augments the learning that resident's gain from performing an EBM search on their own. An added benefit of the curriculum is extended exposure to EBM amongst the residents who have not yet received the intervention but who attend pre-clinic conference on a regular basis. This has encouraged residents to evaluate and discuss the evidence behind decisions that are made in the primary care setting. Further research will help determine if these findings are generalizable to other institutions and other primary care teaching environments.

EXPANDING ACCESS TO CARE THROUGH A RESIDENT-INITIATED HEPATITIS C CLINIC - AN INNOVATIVE METHOD FOR INCORPORATING ACGME CORE COMPETENCIES INTO THE MANAGEMENT OF MEDICALLY UNDERSERVED PATIENTS. J.L. Yozviak[1]; S.J. Templer[1]; E. Vasiliadis[1]; V. Patel[1]; N.M. Agostino[1]; K.N. Ahmed[1]; E.R. Norris[1]; C.M. Brooks[1]; E.J. Gertner[1]. [1]Lehigh Valley Hospital, Allentown, PA. *(Tracking ID # 153618)*

STATEMENT OF PROBLEM OR QUESTION: Uninsured/underinsured status presents many barriers to comprehensive treatment for patients infected with Hepatitis C (HCV), the most common bloodborne infection and reason for liver transplantation in the United States. Additionally, prior studies have shown that primary care residents and attending physicians are poorly trained in the diagnosis, treatment, and chronic management of HCV.
OBJECTIVES OF PROGRAM/INTERVENTION: Establish a resident-initiated HCV Clinic to: 1) Provide access to antiviral treatment through an integrated, comprehensive, medical and psychiatric care program; 2) Offer residents a practice-based learning opportunity in the chronic care of HCV-infected patients, involve residents in the development and management of a system to deliver this care, and incorporate teaching and evaluation of the ACGME core competencies through clinical experience; 3) Collaborate with other residency programs and the community to increase screening, diagnosis, and treatment of HCV.
DESCRIPTION OF PROGRAM/INTERVENTION: The HCV Clinic was established in early 2004 and meets monthly. Residents are precepted by an attending Gastroenterologist and Psychiatrist and are supported by a Registered Nurse coordinator. Treatment is guided by evidence-based protocols within the confines of managed care formularies. Patients receive psychosocial support throughout treatment, as well as education about the disease, prevention of transmission, antiviral medications, and common side effects. We also have collaborated with the local health bureau to obtain epidemiologic data and create a system of referral for newly diagnosed patients. Further, an educational intervention has been conducted beginning with a needs assessment focusing on HCV knowledge and practice patterns among primary care residents (Internal Medicine, Family Practice, and OB/GYN) at our institution. A lecture series followed, aimed at improving knowledge in areas of concern. All Internal Medicine residents, in addition to the core HCV Clinic residents, are scheduled to rotate through the HCV Clinic as part of the Ambulatory Medicine block. We plan to repeat the survey at 6 and 12 months to assess the impact of the intervention on resident knowledge, attitudes, and practice patterns. Additionally, attending physicians will evaluate resident performance using a competency-based evaluation tool on an interval basis.
FINDINGS TO DATE: Approximately twenty sessions have been held with this resident-initiated program, resulting in consistent access to comprehensive care that was not attainable prior to establishment of the HCV Clinic. By guiding the operation of the clinic and collaborating with other disciplines, residents are gaining experience in clinical management and practical exposure to the ACGME core competencies of practice-based learning and improvement, interpersonal and communication skills, professionalism, and systems-based practice, as well as the more traditional competencies of medical knowledge and patient care. We are also gaining valuable information about HCV-related knowledge and practices among our institution's primary care residents.
KEY LESSONS LEARNED: Many barriers to care exist for patients infected with HCV. Residency programs offer a unique opportunity to overcome these barriers and offer care to the underinsured/uninsured, while enhancing resident education and evaluation in each of the ACGME core competencies. A resident-initiated, multidisciplinary, HCV Clinic is one method to incorporate the core competencies into the daily practice of Internal Medicine residents.

GENETIC TOOLS: A WEB-BASED FACULTY DEVELOPMENT RESOURCE FOR PRIMARY CARE PHYSICIANS. K. Fryer-Edwards[1]; S.B. Trinidad[1]; P. Kyler[2]; M.A. Lloyd-Puryear[2]; W. Burke[1]. [1]University of Washington, Seattle, WA; [2]Maternal and Child Health Bureau, Health Resources and Services Administration, Rockville, MD. *(Tracking ID # 151460)*

STATEMENT OF PROBLEM OR QUESTION: Primary care providers (PCPs) need to keep current on emerging genetics issues that will be relevant for patient care.
OBJECTIVES OF PROGRAM/INTERVENTION: (1) Provide a convenient, easily accessible resource for primary care faculty development around genetics; (2) Help PCPs "think genetically" by making genetics content relevant to PCPs by focusing on clinical presentations seen in primary care; (3) Offer tools and suggestions for a variety of teaching contexts, ranging from clinical bedside settings to Grand Rounds-style presentations
DESCRIPTION OF PROGRAM/INTERVENTION: A website, www.genetictools.org, has been developed, based on the findings of the Genetics in Primary Care project and a needs assessment of PCPs. The Genetic Tools website includes a detailed review of genetic concepts and skills, teaching resources, and teaching cases. The site is case-based, with an emphasis on conditions likely to be seen in primary care settings and on genetic tests with the potential to improve patient outcomes. At its core are 41 primary care focused teaching cases that address conditions commonly seen in clinic, such as breast and colon cancer, diabetes, developmental delay, and dementia. Each case identifies key teaching points, family history issues, "red flags" that should prompt consideration of a genetic cause, and a detailed case presentation. Within the cases are contained sections on relevant clinical care issues; risk assessment; genetic counseling and testing; interventions; and ethical, legal, social, and cultural issues. A detailed list of online resources, as well as reference papers, is also provided with each case.
FINDINGS TO DATE: The initial "soft release" of the website took place in July 2005, with deployment of an online exit survey for user feedback. Evaluation is ongoing through March 2006. Based on user feedback, we have already adapted a minor reorganization of the site and added downloadable "At-A-Glance" summaries for use in teaching.
KEY LESSONS LEARNED: • Relevance of genetics to patient outcomes is important in framing genetics content for PCPs • PCPs desire a reliable, "one-stop shopping" resource for genetics information • Flexibility of approach—including such tools as multiple indexing strategies—is critical to the success of such resources • PCPs are also concerned about the ethical and legal implications of genetic information • Cases are an attractive teaching tool for primary care faculty who wish to integrate genetics content into the existing curriculum.

"HELLO,DOC ... TELL ME THIS IS NOT TRUE!" OR HOW TO TEACH DEATH NOTIFICATION OVER THE PHONE. M. Draganescu[1]; J. Kapo[2]; K. Egan[2]; L. Seng[3]; J. Streim[4]. [1]Philadelphia VAMC, Philadelphia, PA; [2]University of Pennsylvania, Philadelphia, PA; [3]University of Pennsylvania Medical School, Philadelphia, PA; [4]University of Pennsylvania/Philadelphia VA Medical Center, Philadelphia, PA. *(Tracking ID # 151733)*

STATEMENT OF PROBLEM OR QUESTION: 25% of interactions between physicians and patients occur over the phone, but only 6% of residency programs teach telephone medicine. Out of the many aspects of telephone medicine, death notification is one of the most challenging tasks to be accomplished by a physician over the phone.
OBJECTIVES OF PROGRAM/INTERVENTION: After completion of the program, participants will be able to 1) report the time and manner of death of the patient 2) express empathy and ask open ended questions to elicit the family member's feelings 3) ask whether the family wants to come in to see the deceased and explain the hospital procedure, and ask about an autopsy.
DESCRIPTION OF PROGRAM/INTERVENTION: The program was designed and implemented within the Geriatrics Division. However, housestaff in any internal medicine, emergency medicine and surgery residency program could use it since they have to use the death notification over the phone skill many times during their training. Small-group role-play with standardized patient (SP) was the method used in this program. The SP was available over the phone only; she was not physically present. The use of the SP was the result of collaboration between the Medical School and the Geriatrics Division of the same institution. The scenario chosen was to announce over the telephone the death of a nursing home resident to his spouse. The patient was a nursing home resident for the past three years, passed away in the middle of the night, and the physician on-call from home had to break the news as soon as he was notified by the nursing home staff. A psychiatrist, a geriatrician who was also trained in palliative medicine, and an internist served as facilitators for a class of five fellows, four of whom were in geriatric medicine and one in oral medicine. An elderly female SP played, from a remote site, the role of the spouse. Each trainee was given the opportunity to speak on the telephone with the SP for up to ten minutes, and each interview was audible to the group via speakerphone. The faculty or the fellow called "Time out" when the conversation seemed to get "stuck" and the interviewer was offered feedback and suggestions for additional communication strategies. The interviewer had the option to restart the conversation from the point where he left off; or to "rewind" to a previous moment when he felt that the connection with the patient's spouse was still present. A short debriefing followed each trainee's interview. Individual feedback was provided by the faculty, peers and SP.
FINDINGS TO DATE: In the post-session written evaluations, all of the fellows evaluated this training as being very useful in making them more comfortable with the task of death notification, and they strongly recommended that this experience be kept in the curriculum for future geriatric fellows.
KEY LESSONS LEARNED: 1. Compared to training SPs for face-to-face encounters, preparing one for phone interviewing was not less costly, nor less labor-intensive. For example, given the lack of visual cues, the SP had to learn how to refine voice tone, pauses, etc. Conversely, an advantage of a phone session is that the SP can refer to her notes during the interviews, which

enhanced SP performance; and the SP can write notes throughout the session, something especially important for the quality of the feedback. 2. Even advanced trainees experienced anxiety when interviewing in front of faculty and peers. 3. Prior communication skills training in medical school and residency vary widely.

IMAGINED VOICES: AN EXERCISE IN EMPATHY. A. Dhurandhar[1]; D.R. Reifler[2]; J. Hauser[2]. [1]Colorado State University, Denver, CO; [2]Northwestern University, Chicago, IL. *(Tracking ID # 150227)*

STATEMENT OF PROBLEM OR QUESTION: Can writing about another's experience of illness and in turn, having one's own story of illness recounted by the other, encourage health care providers and medical educators to understand the experience of being another person?
OBJECTIVES OF PROGRAM/INTERVENTION: 1. Identify how reflective writing enhances empathy and promotes understanding. 2. Appreciate the experience of being both a subject and a writer of a narrative and thus understand the potential benefits and difficulties of this method. 3. Explore the application of this method to teaching medical students and residents and to caring for patients.
DESCRIPTION OF PROGRAM/INTERVENTION: This workshop was offered to physicians, health care professionals and medical educators at three separate sites including the 2004 annual meeting of Society of General Internal Medicine, the 2004 annual meeting of American Academy on Physician and Patient, and at a work-in-progress meeting at Northwestern University Feinberg School of Medicine. During these ninety minute workshops, participants were instructed to form pairs and interview a fellow participant about an illness experience or other significant experience. Then the participants were asked to write a narrative from that individual's perspective. The pairs rejoined a small group to share these narratives on a voluntary basis. At the end of the workshop conducted at the annual meeting of the Society for General Internal Medicine, participants filled out the meeting's standard evaluation form. However at the end of the workshops at the annual meeting of American Academy on Physician and Patient and at the work-in-progress meeting at Northwestern University, participants were consented to submit their stories and to complete a detailed evaluation. This evaluation contained specific questions that were either in a 7-point Likert format or were open-ended. 12 participants consented to complete the evaluation form.
FINDINGS TO DATE: Though most participants did not find it difficult to understand the experiences of others (2.2/7), they definitely felt that writing narratives from the perspectives of others had a purpose (6.0/7) and that it considerably enhanced their feelings of empathy towards the subject (5.5/7). Participants found the experience of writing the first person narrative valuable (5.1/7), and it also helped them to feel more connected to the other person (5.5/7) and have a greater understanding of him or her (5.3/7). Though many participants did not typically write in a journal, they felt very likely to use this technique in their practices of medicine or in their professional lives (5.5/7) and also felt that writing was a very helpful means of reflecting on experiences, particularly difficult ones (6.0/7). Participants were very satisfied with the workshop (6.0/7). In addition, nine participants completed the standard evaluation form at the annual meeting of Society for General Internal medicine and gave the workshop an overall rating of outstanding (4.7/5) and indicated that they were very likely to make a change (4.4/5) in their practices as a result of the workshop.
KEY LESSONS LEARNED: Writing narratives from the perspectives of others encourages physicians, health care professionals and medical educators to imagine the experience of being another and creates a feeling of increased connection to or rapport with the subject of story.

IMMIGRANT AND REFUGEE HEALTH; DIDACTIC EDUCATIONAL CURRICULUM WITH COUNTRY-SPECIFIC PROFILES AND SPECIAL AMBULATORY MORNING REPORTS. G.A. Paccione[1]; R.G. Asgary[2]; L. Smith[1]; B. Sckell[1]; P. Bagheri[3]. [1]Montefiore Medical Center, Bronx, NY; [2]Albert Einstein College of Medicine, Bronx, NY; [3]Brooklyn College, Queens, NY. *(Tracking ID # 154310)*

STATEMENT OF PROBLEM OR QUESTION: Practitioners normally lack formal training in immigrant health and geographic medicine.
OBJECTIVES OF PROGRAM/INTERVENTION: a) To educate residents in health challenges of the recent immigrants and refugees b) To familiarize them with sociopolitical and economical contexts of where immigrant originate, and with the strategies addressing their higher mortality and morbidity globally c) To train residents to provide high quality patient-centered care including pre and post-travel care to these marginalized populations
DESCRIPTION OF PROGRAM/INTERVENTION: Unpredictable political and economical changes directly affect global migration and subsequently global epidemiology of diseases. 70% of immigrants originally from developing countries and the tropics are concentrated in 6 states. Over 10 million plane trips abroad in 2002, excluding to Canada and Mexico, were made largely by the foreign-born U.S. residents visiting relatives. Addressing immigrant health needs not only affects the related morbidity in individuals and the communities they reside but also disrupts the cycle of transmission in and outside the U.S. There are barriers to health care of these populations at system, patient, and provider levels. Primary care physicians, main caregivers to manage the complex clinical problems among immigrants, lack adequate formal training in immigrant health and geographic medicine. Over the past couple of years, at the residency program of Social Medicine and Primary Care, Montefiore Medical Center, we developed a didactic lecture series and a special morning report format to advance residents' knowledge and skills in immigrant health, devoted a separate clinic session per week to these patients, and set up a referral system in collaboration with a network of grass root organizations and NGOs. Before each clinic, skilled preceptors perform didactic sessions with the focus on patients' countries of origin including: 1. Country profile: Society and environment, Historical setting, Ethnicity, Social class, Family Life, Income distribution, Religion, Education, Economy, Political Dynamics, and Human rights profile: 20 min 2. Population-based health: Politics of health, Institutions, National health system/resources, medical NGOs profiles, Epidemiology, Health statistics, and environmental health: 15 min 3. Clinical: management of tropical and travel-related illnesses including infestations, vector-born diseases, unfamiliar diseases related to lack of sanitation and case studies: 20 min 4. Clinical preventive medicine: 10 min 5. Discussion: 10 min Residents document socio-cultural, health belief and system data and personal information in a data entry sheet, and screen for possible human rights abuses. Following history and physical examination, residents are precepted by experienced faculty to develop patient's plan of care. Subsequently, residents fill out a short morning report sheet with some patient-specific clinical questions for preceptor to look up and discuss during the next session with the group. If needed, we further direct patients to other social and medical services through a network of collaborating partners. Using questionnaires we evaluated residents' satisfaction and feedbacks.
FINDINGS TO DATE: 90% of resident-participants found clinical aspect and epidemiology more interesting, and the clinical, health system, and sociopolitical backgrounds most helpful.
KEY LESSONS LEARNED: The usefulness and importance of the novel real case-based and carefully designed didactic curriculum addressing all relevant topics in immigrant health.

IMPLEMENTING A MEDICINE ADMISSION RESIDENT ROTATION TO TEACH AND ASSESS SYSTEMS-BASED PRACTICES. A. Erskine[1]; A. Dow[1]; C. Banas[1]; V. Ramachandran[1]; S. Call[1]. [1]Virginia Commonwealth University, Richmond, VA. *(Tracking ID # 152827)*

STATEMENT OF PROBLEM OR QUESTION: During residency, housestaff need to learn efficient and effective systems-based practices. One example is decision-making during a patient's transition from outpatient to inpatient management. This process requires integrating clinical information as well as health system resources and third-party payor constraints. A limited number of tools exist to teach and assess these skills.
OBJECTIVES OF PROGRAM/INTERVENTION: We developed a Medicine Admission Resident (MAR) rotation in which learning objectives, teaching methods and evaluation tools focused on systems-based practices. We tailored the MAR rotation's objectives to promote understanding of complex, patient-centered triage decisions when admitting patients to a large, urban health system. We hypothesized that by measuring and providing direct feedback of resident performance on the appropriateness of the admitting team and level of care assignments, housestaff would learn and improve real-world skills in systems-based practices.
DESCRIPTION OF PROGRAM/INTERVENTION: We assigned senior residents to one month of MAR duties. The residents staffed the service 24 hours a day and triaged all internal medicine admissions from the Emergency Department, outpatient clinics, transferring facilities, and other non-inpatient settings. We designed a multi-disciplinary curriculum including: 1) Training of admission criteria by a care coordination nurse; 2) Instruction in available outpatient resources by a social worker; 3) Awareness of hospital census pressures, Emergency Department ambulance diversion time and patient acuity on admission teams; 4) Knowledge of national health quality measures and local research protocols; and 5) Mentoring by academically-oriented hospitalist faculty in appropriate and timely patient care assessments. A bi-monthly resident performance report generated by the hospital's Electronic Medical Record system included objective metrics such as Emergency Department length of stay and frequency of post-admission conversion to a different level of care. Additional components of resident evaluations included admission team feedback and hospitalist faculty evaluations. We assessed resident satisfaction via a survey instrument and resident knowledge by a multiple-choice test of systems-based practices topics.
FINDINGS TO DATE: We are currently assessing the impact of the MAR rotation on the core competency of systems-based practices. Specifically, we will present resident self-assessments of system issue awareness and resident satisfaction data. We will also demonstrate the effects of the rotation on the accuracy of level of care decisions and the efficiency of patient flow into an inpatient bed.
KEY LESSONS LEARNED: We exposed senior residents to a system-based practice model via the medicine admitting resident role. We developed an innovative, comprehensive curriculum and applicable assessment methods to gauge performance. We plan to refine this program into a portable curriculum to teach and assess systems-based practices in other institutions.

IMPROVING CARE FOR GERIATRIC PATIENTS: MEETING THE CHALLENGE. E. Eckstrom[1]; C. Tanner[1]; S. Desai[1]; M.R. Ririe[2]; J. Bowen[1]. [1]Oregon Health & Science University, Portland, OR; [2]Legacy Health System, Portland, OR. *(Tracking ID # 153168)*

STATEMENT OF PROBLEM OR QUESTION: General internists commonly provide medical care for older adults and geriatric education to trainees, but lack the necessary knowledge and skills to fulfill these tasks.
OBJECTIVES OF PROGRAM/INTERVENTION: We addressed the following questions: 1) Did geriatric knowledge, self-perception of clinical competence, and attitudes toward elderly patients improve following the intervention? 2) Did

the faculty intervention influence resident attitudes toward elderly patients? Our goal was to "geriatricize" the culture of our institutions to improve faculty confidence in caring for older adults and teaching geriatrics. Measurements: Faculty completed 13 item multiple choice knowledge tests before and after the day-long intervention. A survey given before and 6 months after the intervention asked for self-perceived competence in caring for geriatric patients (for example, "I feel competent to recognize, evaluate, and treat dementia in my older patients") and about attitudes toward caring for older patients (for example, "I welcome elderly patients into my practice"). All answers were based on a 5-point Likert scale, with 1="strongly agree" and 5="strongly disagree." Residents completed identical surveys for attitude questions before and 6 months after the intervention.
DESCRIPTION OF PROGRAM/INTERVENTION: We conducted focus groups with inpatient and outpatient faculty and geriatricians at 4 training sites (University, VA, 2 community); and identified the following knowledge and skill gaps: diagnosis and treatment of cognitive decline, functional assessment, managing care transitions, competency assessment, and treatment of behavioral symptoms. We then developed a one-day workshop that included didactic presentations by geriatric experts followed by interactive small group role-plays where participants had the opportunity to apply newly learned content using pocket cards to trigger their memories from the didactic sessions. 'Standardized learners' presented geriatric-focused clinical cases to participants, simulating teaching scenarios. Forty-two faculty participated in one of 3 workshops given over 6 months.
FINDINGS TO DATE: Forty-two faculty completed the intervention. Faculty showed statistically significant improvements in the knowledge test following the intervention (60% to 72%, $p<0.05$). Faculty also increased their self-perceived competence to care for elderly patients (11 of 14 items statistically significant). Baseline attitudes toward elderly patients for both faculty and residents were high and neither showed improvement in attitudes following the intervention. Faculty strongly disagreed with the statement "The education I received in geriatrics during my residency was adequate to meet the needs of my practice," and strongly agreed with the statement "I would have benefited from additional geriatrics training during my residency."
KEY LESSONS LEARNED: A one-day experiential faculty intervention in geriatrics significantly improved faculty knowledge and self-perceived competence to care for older patients. Modalities to be used to demonstrate innovation at meeting: Workshop power point presentations, evaluation tools, scripted cases for role-plays, pocket cards designed as teaching prompts for faculty.

IMPROVING WOMEN'S HEALTH: THE REPRODUCTIVE HEALTH MODEL CURRICULUM. A.M. Lopez[1]; C.J. Lazarus[2]; J. Hurlburt[3]. [1]University of Arizona, Tucson, AZ; [2]Chicago Medical School, Rosalind Franklin University of Medicine and Science, North Chicago, IL; [3]Association of Reproductive Health Professionals (ARHP), Washington, DC. *(Tracking ID # 154500)*

STATEMENT OF PROBLEM OR QUESTION: Internal medicine physicians care for patients across the lifespan. Studies show that women access health care services at a greater rate than men (51% versus 32%), and that 40–65% of women report using general/family practitioners or internists, in addition to obstetrician/gynecologists, for primary care. For this reason, it is crucial that future internists be educated on topics such as contraception, STD referral and diagnosis, and pregnancy options, and that they develop skills to communicate respectfully with women about these sensitive topics.
OBJECTIVES OF PROGRAM/INTERVENTION: • To help medical schools fill education and training gaps and address underrecognized or ignored areas of reproductive health medical education • To help medical schools improve provider-patient communication by teaching future providers effective communication skills • To help medical schools educate future providers to effectively treat the whole patient, taking into account contextual factors that might affect a patient's health (e.g. culture, ethnicity, gender, language/literacy, socioeconomic class, spirituality/religion, age, sexual orientation, disability)
DESCRIPTION OF PROGRAM/INTERVENTION: The Reproductive Health Model Curriculum, 2nd Edition is a 7-module resource designed to help educators integrate reproductive health topics into their school's curriculum. The 2nd edition Curriculum includes new information as well as updated medical content and links to thousands of resources, including articles, Web sites, educational tools, and organizations. The Curriculum emphasizes improving provider-patient communication skills and cultural competence, with special attention paid to psychosocial, psychological, and demographic factors in relation to health care. Relevant APGO Women's Health Care Competencies for Medical Students (APGO's Competencies will eventually be cross-referenced with the AAMC's undergraduate medical education competencies) are included as Module Learning Objectives. Curriculum Modules include: Implementation Guide, Psychosocial Factors, Communication, Sexually Transmitted Diseases, Primary Care for Infertility, Contraception, and Abortion. The Reproductive Health Model Curriculum has been used at the University of Arizona College of Medicine as a resource for a women's health gender-based medicine thread in their new curriculum and as the basis for a fourth year women's health elective. Future plans include using the Curriculum to create a women's health elective in the internal medicine residency program. Participants will learn how the Curriculum has been used at the University of Arizona and how the Curriculum can be used to improve their teaching of reproductive health topics.
FINDINGS TO DATE: The 1st Edition Curriculum was incorporated into electives and clerkships at least 24 US medical schools (19%), accessed by students and/or faculty at 72 US medical schools (57%), and disseminated in at least 24 countries worldwide. Preliminary data analysis shows the 2nd Edition Curriculum has been accessed by students and/or faculty at 91 US medical schools (73%), by internal medicine residency faculty (including Yale University), and has been disseminated in over 38 different countries.
KEY LESSONS LEARNED: The 2nd Edition Curriculum is a useful tool for improving the reproductive health training of future physicians. ARHP is currently working to make it even more useful by converting the content (currently available in PDF format and on CD-ROM) to web-based customizable Powerpoint slide sets.

INCREASING FEEDBACK TO FACULTY REGARDING TEACHING THROUGH A PEER OBSERVATION AND FEEDBACK PROGRAM. M.M. Wamsley[1]; S. Vinogradov[2]; M.M. Cooke[1]. [1]University of California, San Francisco, San Francisco, CA; [2]San Francisco Veterans Affairs Medical Center, San Francisco, CA. *(Tracking ID # 153593)*

STATEMENT OF PROBLEM OR QUESTION: Although faculty members receive feedback from learners regarding their teaching, this feedback is often delayed and may relate more to a teacher's charisma or communication style rather than actual teaching skills. There are insufficient opportunities for faculty to discuss their teaching in a rigorous supportive way. In addition, while peer review of scholarly activities is routine, peer review of teaching activities is not a part of the culture of medicine.
OBJECTIVES OF PROGRAM/INTERVENTION: 1) Enrich the teaching skills of medical school educators 2) Foster dialogue and to build community among educators from different departments and different levels of experience 3) Promote a culture of peer review among the teaching faculty
DESCRIPTION OF PROGRAM/INTERVENTION: We created a program called TOP (Teaching Observation Program) through the UCSF Academy of Medical Educators. TOP allows any faculty member to request observation and feedback from a trained peer observer. Trained peer observers are available for one-on-one, small group and large group teaching. All peer observers are experienced teachers and undergo a minimum 1.5-hour training utilizing videotapes and feedback role-plays. Faculty participation in TOP is voluntary. We emphasize that the purpose of the program is to provide feedback, not to evaluate the teacher.
FINDINGS TO DATE: Initial faculty participation in TOP was slow despite widespread advertising of the program. We subsequently encouraged TOP participation in several key courses through course director notification of faculty that they would be paired with a TOP mentor unless they declined participation. Since its inception in Spring 2005, 35 faculty mentees have participated in TOP. Feedback from faculty mentees has been very positive (overall rating mean=4.79, 1=poor, 5=excellent). Mentees feel that TOP is collaborative (mean=4.71, 1=strongly disagree, 5=strongly agree), that TOP provided valuable feedback (mean=4.72) and that they were likely to change their teaching based on TOP feedback (mean=4.67). Trained peer observers (mentors) also rated the program highly (overall rating mean=4.76), felt that TOP was a collaborative process (mean=4.55), and that the experience was valuable to the mentee (mean=4.62).
KEY LESSONS LEARNED: Faculty may be initially reluctant to seek out peer observation and feedback. However, when faculty are scheduled to participate, with opt-out available, satisfaction with the program of peer observation and feedback is high. There are perceived benefits to both the observer and the observee in TOP. Making observation and discussion of teaching routine involves a change in culture.

INTEGRATING AN ONLINE CHRONIC PAIN MANAGEMENT MODULE INTO THE CURRICULUM OF BOTH 4TH YEAR MEDICAL STUDENTS AND RESIDENTS. J. Hariharan[1]; J. Rehm[1]. [1]Medical College of Wisconsin, Milwaukee, WI. *(Tracking ID # 154299)*

STATEMENT OF PROBLEM OR QUESTION: Chronic pain is a major health issue worldwide with more than 75 million Americans suffering from some form of persistent or recurrent pain. Management of chronic pain is inherently difficult and challenging. Several barriers exist, including inadequate physician training, concern about side effects and time pressures that negatively impact teaching and learning in ambulatory settings. Web-based (online) learning was chosen as a possible solution.
OBJECTIVES OF PROGRAM/INTERVENTION: An online asynchronous e-learning course was designed to serve as a self-study curriculum to educate both medical students and Internal Medicine residents. The module's primary objective is to provide the essential knowledge, practice guidelines and clinical tools necessary to enable learners to perform a thorough pain assessment and manage chronic pain in the ambulatory setting.
DESCRIPTION OF PROGRAM/INTERVENTION: Module content is presented by topics that include an introduction to chronic pain, pain assessment, pain management, opioid therapy and substance abuse. A folder of clinical resources was added to assist in knowledge reinforcement, skill development and patient care. Content is supported by media and interactivity. Course activities include pre and post test, quizzes, case discussions and module evaluation. The password protected module, allows a student to complete it in one sitting or topic by topic as time permits. It is available 24/7 and is accessible from any computer with internet access. Internal Medicine Residents (PGY1-3) were asked to complete the module during their one-month Ambulatory block rotation. Instructor/resident contact was minimal and managed online. Fourth year medical students were exposed to an adaptation of the module as part of an Internal Medicine Master Clinician elective.
FINDINGS TO DATE: Since March 2005, 25 residents and 26 students have enrolled in this course. Based on learner feedback, it took an average of 2 hours to complete. Overall, scores of the post-test improved, with a median increase of nearly 20%. All but one learner agreed that the module met the stated objectives.

Ninety-two percent of the students agreed that the module helped prepare them to be Master Clinicians. Twenty four out of 25 residents and all students reported that the module "provided new information that they will use". The majority of both residents and students would recommend the course to others and 17 out of 25 residents thought that topics could be covered in more detail.
KEY LESSONS LEARNED: 1) A comprehensive overview of a challenging subject can be implemented online in a format adaptable for both students and residents; 2) Students' and residents' approval of this self-paced learning approach reinforced using this modality to integrate future topics into the curriculum; 3) Improved post-test scores indicated that the module increased learner knowledge of chronic pain; 4) Learner feedback helped improve format, navigation and time to complete module; 5) Learners asked for more case-based learning.

INTEGRATING THE SOCIAL AND BEHAVIORAL SCIENCES IN UNDERGRADUATE MEDICAL EDUCATION. J.M. Satterfield[1]; S. Adler[2]; H. Chen[1]; J. Adler[1]; N. Adler[2]. [1]University of California, San Francisco, San Francisco, CA; [2]University of California, San Francisco, CA. *(Tracking ID # 153481)*

STATEMENT OF PROBLEM OR QUESTION: Dominant models of medical education do not sufficiently prepare physicians to meet the rapidly evolving healthcare needs of a diverse population. Further training to understand and alter the social and behavioral determinants of health could substantially improve the health of patients and the public.
OBJECTIVES OF PROGRAM/INTERVENTION: 1. Identify essential social and behavioral science (SBS) content and optimize its instruction in medical school. 2. Promote culture shifts necessary for continued meaningful integration of SBS into medicine. 3. Provide benchmarks for SBS skill-based competencies of medical trainees to assure delivery of quality care.
DESCRIPTION OF PROGRAM/INTERVENTION: This five year, NIH funded curriculum development project builds on the IOM's 2004 report on SBS in medical education, which suggests inclusion of 6 priority areas: mind-body interactions, patient behavior, physician role and behavior, physician-patient interactions, social and cultural issues, and health policy and economics. Using these categories, SBS "building blocks" will be developed for all years of the curriculum and placed in a developmentally appropriate longitudinal teaching plan to create the "ideal" SBS curriculum. SBS skill-based competencies by learner year will be developed, implemented, and evaluated. To further enhance integration and advance necessary culture shifts, SBS research is being promoted for both students and faculty in coordination with the UCSF Center for Health and Community. Key SBS students and faculty will be supported to generate a "pipeline" of future SBS leaders in research, education, and patient care.
FINDINGS TO DATE: The quality of the current 4 year undergraduate medical curriculum was assessed by comparing "ideal" SBS content per the IOM report with "actual" content using multi-component curriculum mapping. Particular emphasis was given to the analysis of clinical teaching in the MS3 clerkships and longitudinal clinical experiences. Initial new SBS content includes a health policy teaching module (MS3) and training in social science research methods (MS4). Identification of "pipeline" students has begun using existing infrastructure for interdisciplinary student projects. SBS skill-based competencies were created and are currently being revised using a modified Delphi-process with a national expert panel. SBS competency assessments will provide formative feedback and drive individualized learning objectives for student portfolios.
KEY LESSONS LEARNED: The successful integration of SBS content occurs at all levels of the curriculum - as a "basic science" knowledge base, as applied clinical skills, and in addressing faculty and student attitudes. The creation of a collectively owned SBS curriculum based on national standards and integrated across all four years may facilitate adoption and improve the translation of SBS basic concepts into clinical practice. Although capturing what students actually learn (versus what they are taught) in their clinical training has been challenging, making the hidden curriculum more visible will prove invaluable. We are currently working with clerkship directors and clinical sites to directly challenge the "hidden curriculum" and increase SBS adoption. Student and faculty champions paired with explicit testing of SBS competencies may drive further curricular change. Ultimately, we believe our investment in training the medical educators and policy makers of tomorrow will create the cultural shifts required to better meet the medical needs of our diverse society.

INTERN BOOT CAMP: CROSS-COVER SURVIVAL SKILLS FOR THE INTERN. T. Reittinger[1]; J. Janus[1]; E. Williams[1]; S. Saberi[1]; N. Harari[1]; J. Delvalle[1]. [1]University of Michigan, Ann Arbor, MI. *(Tracking ID # 152216)*

STATEMENT OF PROBLEM OR QUESTION: Inappropriate management of common cross-cover problems can result in misdiagnosis and mistreatment of patients. Errors often occur due to: resident inexperience; incorrect patient information; lack of formal instruction on cross-cover management; informal instruction occurring in chaotic, stressful learning environments; and substantial variability in the knowledge base, experience and teaching skills among senior residents. With duty hour restrictions, increasing number of patient handoffs, and high patient complexity, a system for improving cross-cover management is needed.
OBJECTIVES OF PROGRAM/INTERVENTION: 1. Create a resident-driven formal curriculum designed to teach interns how to manage commonly encountered cross-cover problems. 2. Utilize case-based discussion as an educational tool to equip interns with skills necessary for successful management of common cross-cover problems. 3. Provide senior residents with an opportunity to participate in a didactic educational experience.
DESCRIPTION OF PROGRAM/INTERVENTION: The University of Michigan Internal Medicine Education Committee (composed of residents, chief residents and the residency program director) developed a formal curriculum entitled "Intern Boot Camp" (IBC). IBC consists of ten educational topics (i.e., chest pain, dyspnea, hypotension) identified as commonly encountered cross-cover problems. Twenty senior medical residents, who were identified as excellent teachers by their peers, were asked to develop and teach a fifty-minute case-based, interactive discussion on one of the identified topics, focusing on the practical management of that problem. All material was reviewed and approved by the education committee and residency program leadership. IBC was implemented in the second week of internship and continued for 5 weeks (two sessions per week). To maximize conference attendance, sessions were taught at both affiliated teaching hospitals at a dedicated intern conference, interns' pagers were covered by senior residents, and interns' clinics were cancelled during this time period. At the completion of IBC, interns were asked to complete an evaluation which consisted of 23 five-point Likert scale items.
FINDINGS TO DATE: Evaluations, with 69% of interns responding, were very positive. Interns strongly agreed that the case-based discussions helped them feel more confident (mean of 4.7) and efficient (4.0) on the wards, and more competent in managing cross-cover calls (4.5). They felt the discussions were very helpful in their first month of internship (4.7) and will continue to help them through the remainder of their intern year (4.7). Interns felt that having residents (rather than faculty) teach the discussions made the information more relevant and practical (4.5), and made asking questions less intimidating (4.4). Eighty-eight percent of respondents said if they had known about IBC while applying to the University of Michigan it would have positively influenced their application to the residency program. Ninety-seven percent of respondents stated they would volunteer to teach a formal discussion next year.
KEY LESSONS LEARNED: Intern Boot Camp improves interns' self-reported confidence and competence in the management of cross-cover problems. Residents-teaching-residents through formal instruction utilizing case-based discussions is an effective educational tool. Intern Boot Camp is now part of the formal internal medicine residency program curriculum.

IT DOESN'T HAVE TO HURT: A MULTI-MODALITY PAIN MANAGEMENT CURRICULUM FOR MEDICAL STUDENTS. D.L. Stevens[1]; S. Zabar[1]; K. Hanley[1]; C. Tseng[1]; B. Dreyer[1]. [1]New York University, New York, NY. *(Tracking ID # 154358)*

STATEMENT OF PROBLEM OR QUESTION: Physicians are increasingly criticized for falling short on pain management. New approaches are needed to ensure medical students are prepared to meet this challenge.
OBJECTIVES OF PROGRAM/INTERVENTION: We implemented and assessed a multi-modality Pain Assessment and Management curriculum designed to teach advanced communication skills, detailed knowledge and a strong commitment to relieve suffering.
DESCRIPTION OF PROGRAM/INTERVENTION: The curriculum was integrated into the 2nd year neuroscience course and consisted of 4 lectures, 2 small group seminars and a 3-station Objective Structured Clinical Exam (OSCE). Lectures covered pain pathophysiology, assessment, pharmacotherapy and behavioral/alternative treatments. The Introduction to Pain Assessment and Management seminar covered acute (post-surgical) pain and terminal cancer pain. The Chronic Pain seminar included low back pain and knee osteoarthritis. For each case, students watched a videotaped interview with a real patient; analyzed the assessment/interviewing skills; discussed the goals of and barriers to pain control; and proposed a treatment plan. Videotaped patients represented a range of cultural backgrounds and clinical settings. Pain OSCE: All students rotated through 3 stations (acute neck, chronic back and cancer bone pain) requiring specific tasks such as pain assessment (including impact on function), addiction risk assessment, emotion handling and negotiating a pain management plan (including goals of care and pain medication use/side effects). Standardized patients (SPs) assessed students using behaviorally-specific checklists and provided brief feedback.
FINDINGS TO DATE: Student Survey (n=144): Students rated the value of the curriculum on a 3 point scale: 1=did not help; 2=helped a little; 3=helped a lot. Students reported the classroom activities helped them feel more prepared to manage acute pain (mean 2.6+/−0.5), chronic pain (2.7+/−0.6) and cancer pain (2.6+/−0.5). Following the curriculum they felt most competent developing a relationship with a pain patient (2.8+/−0.4) and least competent assessing for risk of addiction (2.0+/−0.6). Students rated the educational impact of the OSCE quite highly, stating that it was an accurate reflection of their clnical skills (2.9+/−0.4) and helped develop their skills (2.9+/−0.4). On a 4 point scalse [1=strongly disagree, 4=strongly agree] students agreed that they had increased their commitment to pain management (3.4+/−0.6) SPs rated student performance on a 3 point scale: 0=not done, 1=partially done, 2=well done. OSCE Performance: SP Ratings correlated very highly with student self-assessments for all 3 cases. ($p<0.001$ for all). Chronic case performance correlated with cancer case performance ($p=0.017$) but neither correlated with acute pain performance, suggesting the acute case required different skills. Performance in addiction assessment was worst (1.1+/−0.8) while data gathering (1.8+/−0.8) and relationship building were best (1.76+/−0.8).
KEY LESSONS LEARNED: A multi-modality Pain Curriculum improved students' self-rated skill and attitudes. The OSCE was a useful educational experience and is a valid as a valid student assessment. Follow-up is needed to assess the impact of the curriculum over time and its effect on patient outcomes.

LEADERSHIP EDUCATION AND ADVOCACY DEVELOPMENT FOR MEDICAL STUDENTS - THE CU-LEADS PROGRAM. M.A. Earnest[1]; L.J. Adams[1]; S. Wong[1]; S. Berman[1]; C.S. Kamin[1]. [1]University of Colorado Health Sciences Center, Denver, CO. *(Tracking ID # 151815)*

STATEMENT OF PROBLEM OR QUESTION: While health and illness primarily arise from social conditions in the community, few physicians are comfortable or effective in acting at a community or policy level to promote health.
OBJECTIVES OF PROGRAM/INTERVENTION: 1) Develop a community of scholars focused on leadership and advocacy in the promotion of health 2) Expand the traditional paradigm of physician professional engagement and education to include the community around them 3) Train a cadre of future health leaders with the skills necessary to effect societal change in the promotion of health.
DESCRIPTION OF PROGRAM/INTERVENTION: CU-LEADS Seminar Program–This monthly seminar series, open to the entire health sciences center, features prominent leaders from a variety of backgrounds. Seminar speakers highlight their own work and discuss their views on leadership and the promotion of a healthy society. CU-LEADS Course–This 16-week elective course, open to first and second medical students, focuses on social, economic and cultural determinants of health, and on community and policy level approaches to improving health. The course highlights four themes each spring (e.g. the uninsured, homelessness, domestic violence, vulnerable mothers and children) and is taught in a small-group, problem-based format that integrates the work and leadership of community leaders and organizations with experience working in the area of interest. Four new themes will be offered the following spring such that the course will offer eight rotating themes every two years. CU-LEADS Summer Program–Students apply competitively for this 8-week program. Students are placed with a community-based organization to complete an advocacy project. One half-day per week is devoted to a formal leadership and advocacy curriculum. Capstone Project–CU-LEADS will offer fourth-year students the opportunity to develop and complete a scholarly project relating to community health or underserved or vulnerable populations.
FINDINGS TO DATE: Students have shown a high level of interest in the program and its goals. The elective filled almost immediately and several students were enrolled from the wait list. In response to the interest level of second year students, we have modified the program to allow them greater opportunities for participation. Meeting the expressed level of interest may involve expanding the capacity of the program.
KEY LESSONS LEARNED: Curricular reform has given the program an opportunity to integrate program goals into the curriculum and the program has help shaped the direction of the school's new curriculum. Collaboration between the primary care departments has strengthened the program and its implementation. Community agencies see this program as a partnership which benefits both them and the students. Funding for educational innovation is critical to success. In addition to a HRSA grant, local foundations have expressed interest, with funding secured from one of them.

LEARNING MEDICAL ETHICS AND ADVOCACY THROUGH LONGITUDINAL PATIENT CARE. A. Herring[1]; B. Ogur[1]; D. Hirsh[1]. [1]Harvard Medical School and Cambridge Health Alliance, Cambridge, MA. *(Tracking ID # 154049)*

STATEMENT OF PROBLEM OR QUESTION: Medical students rarely connect sufficiently with patients to recognize ethical issues arising out of patients' social situations, nor to feel motivation to advocacy.
OBJECTIVES OF PROGRAM/INTERVENTION: 1. To connect students with patients sufficiently to appreciate and empathize with problems arising from their social contexts. 2. To facilitate students to be effective advocates for their patients in complex medical systems. 3. To help faculty assist students in exploring ethical dilemmas, in establishing research projects in support of social justice, and in engaging in advocacy.
DESCRIPTION OF PROGRAM/INTERVENTION: The Harvard Medical School-Cambridge Integrated Clerkship, a complete redesign of third year education, bases students' learning on serial contact with continuity patients in all venues of care over a year-long rotation, with year-long mentoring. Central to the program are the close relationships students form with their patients; providing the context for learning clinical medicine and for professional development. Ethics and advocacy are taught through several methods, including a case-based didactic curriculum emphasizing reflective practice, personal mentorship by senior physicians, and mentored involvement in the real longitudinal care of patients with focus on clinical, social and ethical issues. These methods assist students in deepening their understanding of ethical issues and in empowering them to become involved in advocacy and social justice-related research.
FINDINGS TO DATE: We present an example of a student's involvement in longitudinal care that stimulated learning about ethics and advocacy. A young undocumented man presenting with shortness of breath consented to join the cohort of an Integrated Clerkship student. The student followed him daily through hospitalization at a tertiary care hospital where the patient died from idiopathic dilated cardiomyopathy. With his patient, the student confronted directly the barriers to care faced by undocumented immigrants, most poignantly in the discussions around the patient's lack of eligibility for heart transplant. As the patient was transferred from one ward to another, the student became the most constant member of the care team, in the patient's eyes and in the eyes of other providers. This instilled a profound sense of advocacy. The student worked with staff from social work, medical ethics, nursing, cardiology, cardiac surgery, and the Disparities Solutions Center to attempt to resolve the obstacles to transplant. The Integrated Clerkship supported him with a senior clinician-mentored group teaching session on the relevant ethical issues, and with informal mentoring by faculty knowledgeable about issues of social justice advocacy. With their support, the student acted as interface between an immigration attorney, the New England Organ Donor Bank, and the medical team to clarify legal issues. The student's advocacy activities have continued after the patient's death, including the organization of a film screening on immigrant issues and legislative advocacy for health care access for undocumented immigrants. This experience has stimulated the student's interest in research and education: to examine the allocation of heart transplants and to write a teaching vignette for cultural competency trainings.
KEY LESSONS LEARNED: Close, longitudinal contact with patients, supported by faculty mentoring and programmed time for reflection, provides powerful motivation for exploring ethical issues, develops students' skills in advocacy, and nurtures a sense of duty.

MULTIDISCIPLINARY TEAMWORK TRAINING FOR INTERNAL MEDICINE RESIDENTS. N.L. Sehgal[1]; A. Vidyarthi[1]; B. Sharpe[1]; R.M. Wachter[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 153537)*

STATEMENT OF PROBLEM OR QUESTION: Teaching system-based practice to internal medicine residents, including teamwork and communication, is essential but remains challenging.
OBJECTIVES OF PROGRAM/INTERVENTION: 1. Construct a knowledge base about patient safety and the role systems play in contributing to medical error 2. Introduce participants to situational awareness and principles of crew resource management as a background to improved teamwork and communication 3. Engage residents in small group, scenario-driven, and interdisciplinary discussion about communication and teamwork with skills and techniques that can be incorporated into daily work
DESCRIPTION OF PROGRAM/INTERVENTION: We are leading a collaborative unit-based patient safety project, entitled the Triad for Optimal Patient Safety (TOPS). The three-hospital pilot study features a dynamic and newly developed 4-hour training module to promote teamwork, communication, and collaborative interdisciplinary care. Leveraging the efforts of the TOPS project, all 150 UCSF internal medicine residents will participate in the educational activity. The content will include a brief overview of patient safety and the role communication plays in contributing to medical errors. Participants will then watch the powerful video, Do No Harm, followed by a facilitated discussion regarding how both systems and individuals contribute to error. Prior to breaking into small groups, a nurse-teamwork expert and commercial airline pilot will introduce situational awareness and principles of crew resource management in framing teambuilding behaviors. Finally, residents will rotate around stations, where facilitators will help them work through different patient-related scenarios (e.g., coordinating a safe discharge or communication at critical junctures). These scenarios reflect everyday situations in order to teach the importance of specific communication techniques, teambuilding behaviors, and methods to work effectively in busy and complex patient care environments. All sessions will include a mix of residents, hospitalists, nurses, pharmacists, discharge planners, unit clerks, and therapists.
FINDINGS TO DATE: At the time of submission, a training curriculum and final schedule exist with the first session to occur in February. The local TOPS project champions, represented by a physician-nurse-pharmacist team, have introduced and promoted the training in small group settings. The presentations have been met with enthusiasm and acknowledgement of how teamwork training would foster improved collaborative care.
KEY LESSONS LEARNED: There are several challenges in developing a multidisciplinary training curriculum. The first involves creating content that applies to all disciplines, engages them in a collaborative forum for discussion, and provides them with skills to immediately apply in patient care activities. A critical component of achieving this end must include a planning team represented by the disciplines targeted for training. Second, the scheduling logistics, particularly for residents, can represent a real obstacle, as a training curriculum without mandated participation and scheduled relief from clinical duties will not succeed. Therefore, the training must be strongly supported by residency program leadership and also be treated as equal in educational importance to that of a disease-based lecture or didactic. Finally, as with any quality improvement or educational program, careful evaluation of the resident experience is critical to improving the curriculum for future sessions.

NARCOTIC MANAGEMENT IN CHRONIC NON-MALIGANT PAIN: A SURVEY OF RESIDENTS' KNOWLEDGE AND ATTITUDES. C. Brownlee[1]; S. Singh[1]; C.H. Messick[1]; D.P. Miller[1]; J.L. Wofford[1]. [1]Wake Forest University, Winston-Salem, NC. *(Tracking ID # 152780)*

STATEMENT OF PROBLEM OR QUESTION: Chronic non-malignant pain (CNMP) is a prevalent and vexing problem for most physicians, and most medical training curriculae fail to properly address this topic. To date, few studies have examined resident physicians' knowledge, attitudes, and prescribing habits of narcotics for chronic, non-malignant pain.
OBJECTIVES OF PROGRAM/INTERVENTION: In order to develop residency teaching materials and interventions for the management of CNMP, we performed a baseline survey of resident physicians.
DESCRIPTION OF PROGRAM/INTERVENTION: A standardized, pre-tested 23-item questionnaire was distributed to all internal medicine residents at a single academic medical center. Multiple choice and 5-point Likert scale questions were used to solicit resident opinions. Responses were anonymous.
FINDINGS TO DATE: Of 42 surveys received (response rate 70%), 21% responders were PGY1, 31% PGY2, and 38% PGY3. By self-report, each resident prescribed narcotics for an average 10.4 patients (SD+9.9) with CNMP; however, residents claimed to have initiated chronic narcotic therapy in only an average of 1.9(SD+2.2) patients. The average number of correct responses to the 8 knowl-

edge questions about narcotics/CNMP was 4.9 (SD+1.7). Resident scores on knowledge did not differ significantly by PGY level. Only 7.0% (6/38) of residents were able to correctly identify the six DEA Class II narcotics from a list of ten medications. 24% (10/42) residents felt comfortable in initiating narcotics for chronic, non-malignant pain (4–5 on 5-point Likert scale), while 50% (21/42) felt uncomfortable. There was a non-significant trend in increasing comfort level by training level (PGYI mean - 2.2; PGY2 - 2.8; PGY3–2.9, p=.28). In contrast, 14% (6/42) residents felt satisfied in managing CNMP patients (4–5 on a 5-point Likert scale) while 60% (22/38) felt dissatisfied. Five percent (4/42) residents felt that CNMP enhanced their education, while 55% (21/38) found CNMP to adversely affect their education. Of the potential concerning factors regarding chronic narcotic initiation, residents were most concerned about drug-seeking behavior (mean 1.8) (5-point Likert scale, 1=very concerned, 5=not concerned at all) and least concerned with adverse patient outcomes from over-prescribing (mean 2.8).
KEY LESSONS LEARNED: At this institution, residents are uncomfortable prescribing narcotics for CNMP and are more concerned about drug-seeking behavior as a factor in prescribing than other factors. Significant deficits exist in residents' knowledge of CNMP management. Resident satisfaction and knowledge did not differ by training level. These findings should guide future educational interventions.

OUTCOME OF A HEALTH LITERACY CURRICULUM FOR MEDICAL STUDENTS. W.R. Harper[1]; S. Cook[1]. [1]University of Chicago, Chicago, IL. *(Tracking ID # 153161)*

STATEMENT OF PROBLEM OR QUESTION: Health literacy is an under-emphasized aspect of the clinical encounter. 1 in 2 adults struggles with low literacy, which has been shown to have adverse health outcomes, such as worse diabetes treatment and increased risk of hospitalization. The 2004 Institute of Medicine report on health literacy charged professional schools in the health fields to incorporate health literacy into their curricula. Prior to developing and instituting the curriculum at our medical school, students at all class levels completed a health literacy survey (modified from Shillinger 2004) which asked about attitudes, confidence in using and frequency of use of specific health-literacy behaviors. The results of that survey revealed that students at all class levels felt the issue of health literacy was important. Our goal, then, was to develop a vertically integrated curriculum at each student level that advanced skills in interacting with patients with limited literacy.
OBJECTIVES OF PROGRAM/INTERVENTION: After instituting a curriculum emphasizing health literacy, students will be more confident in using health literacy behaviors, and report higher use of these behaviors in their clinical encounters. The current analysis focuses on the second-year medical student (MS2) aspect of the curriculum.
DESCRIPTION OF PROGRAM/INTERVENTION: The curriculum for the MS2s included a lecture where literacy statistics were outlined and the AMA video on Health Literacy was viewed. In lecture, students were specifically taught the Teach Back method of patient education described in the literature. In this method, patients are instructed to tell back to the provider the key informatoin presented during the viisit. If the paitent's understanding is incomplete, the provider re-educates the patient until comprehension is confirmed. After learning the concept, students practiced the skill in a 12-minute interview with a standardized patient trained to present with a breast complaint while exhibiting low literacy skills. The interviewing student, in a group of three with the other two observing, was instructed to advise the patient on getting a mammogram using the Teach Back method. After the interview, an observing trained faculty member, fellow students, and the patient provided formative feedback. The students filled out the health literacy survey at the end of the quarter (3 months after the curriculum).
FINDINGS TO DATE: On the initial 2004 survey prior to the curriculum, we found no difference between MS1s and MS2s in their self-reported attitude towards health literacy, nor in their confidence in using and frequency of use of health literacy behaviors. After the 2005 MS2 curriculum, we did find an increase in mean confidence scores between the MS1s and MS2s. (3.1/5.0 for 2004 MS1s, 3.7/5.0 for 2005 MS2s, $p<0.05$.) We also found an increase in mean frequency of use scores (2.6/5.0 for 2004 MS1s, 3.0/5.0 for 2005 MS2s, $p<0.05$.) When we compared 2004 to 2005 MS2s, we found a trend toward increased confidence and frequency of use of health literacy behaviors. Notably, there was a statistically significant increase in frequency of use of one key question that directly assessed the Teach Back method: "How often would you estimate that you prevent your patient from feeling confused by using clear explanations." (2004 MS2s 3.1/5.0, 2005 MS2s 3.5/5.0, $p<0.05$).
KEY LESSONS LEARNED: Medical students at all levels feel that health literacy is an important issue. A curriculum directed at MS2s can have an impact on self-reported confidence and frequency of use of certain health literacy behaviors.

OVERCOMING THE CEILING AND HALO EFFECTS IN FACULTY CLINICAL EVALUATIONS. S.J. Cohen[1]; T.K. Houston[1]; S.M. Richard[1]. [1]University of Alabama at Birmingham, Birmingham, AL. *(Tracking ID # 152944)*

STATEMENT OF PROBLEM OR QUESTION: Standard evaluations of faculty teaching are limited by a lack of specificity and the ceiling and halo effects.
OBJECTIVES OF PROGRAM/INTERVENTION: To illustrate the richness of specific feedback generated by trainees using a novel research tool, the Nominal-Group Technique (NGT).
DESCRIPTION OF PROGRAM/INTERVENTION: Medical students and residents rotating on the inpatient medicine service participated in end of rotation NGT's to elicit evaluative feedback on their attending physicians. NGT is a structured process utilized in a group setting to elicit responses to a specific question. The question placed to the team members was: What are the specific teaching behaviors of attending physicians that foster learning by adding to the knowledge, attitudes, or skills that define competency as a physician? Using a "round-robin" nomination strategy to elicit responses from individual participants, a comprehensive list of behaviors was generated. Next, team members independently selected responses from the list that reflected from their perspective their attending's most effective teaching behaviors and those with room for improvement. The data was returned to attendings as feedback. To illustrate the richness of the feedback generated via NGT, we present a qualitative analysis of the team results of a single physician on two consecutive ward months.
FINDINGS TO DATE: A total of 119 students and residents performed 42 NGT evaluations of 23 attending physicians. For our sample attending at baseline, team members identified the most effective teaching behaviors as: asking questions concerning clinical decision making, teaching from past experience and evaluating team members mid month. Areas in which improvement was felt possible included: being more decisive, giving short talks on pertinent patient topics, and teaching how one educates patients. Two months after receiving feedback, the attending's new team indicated that two of the behaviors previously identified as having room for improvement were now considered to be among his three most effective teaching behaviors: having confidence in decision making, setting aside time for group talks, and being approachable and willing to answer questions.
KEY LESSONS LEARNED: In overcoming the ceiling and halo effects, NGT provides faculty with personalized behavioral feedback often missed with current evaluation tools.

PROFESSIONAL DEVELOPMENT COURSE FOR MEDICAL STUDENT LEADERS: A THREE YEAR EXPERIENCE. A.J. Mechaber[1]; C. Zhang[1]; R.G. Tiberius[1]; M. Broome[1]; A.R. Flipse[1]; M. O'Connell[1]. [1]University of Miami, Miami, FL. *(Tracking ID # 152629)*

STATEMENT OF PROBLEM OR QUESTION: Medical educators should continue to place more emphasis on the professional development of students while nurturing them into life-long learners.
OBJECTIVES OF PROGRAM/INTERVENTION: The goals of our program are to: (1) facilitate the promotion of self-directed and collaborative learning, (2) help standardize the learning environment and experience for students, and (3) provide students with life-long professional skills.
DESCRIPTION OF PROGRAM/INTERVENTION: From 2002 to 2005, a total of 137 senior medical student leaders participated in a yearly summer seminar program consisting of four evening sessions and a half-day "Leadership Summit." All seminars were formatted in adult learning style, employing short didactic sessions with individual and group exercises, pre-seminar reading, and reflective exercises. Topics for seminars included "Introduction to Learning Styles," "Effective Teaching Techniques and Venues," "How Teams Function and Succeed," "Effective Role Modeling and Mentoring," and "Effective Feedback." The Leadership Summit was comprised of short didactic sessions coupled with highly interactive group exercises addressing issues of conflict resolution, negotiation skills and practices of exemplary leaders. Each student then had a key role in leading, mentoring, and teaching underclass students in one of the school's student-directed programs.
FINDINGS TO DATE: Each year, a survey was administered pre and post-seminar program addressing students' perceived knowledge, attitudes, and skills in the areas of peer teaching, teams, leadership, role modeling and feedback. Students were re-surveyed 8 months later to assess attitudinal changes over time. Survey responses for all three years were recorded using a 5-point Likert scale and compared by the Friedman test. An 88% response rate was obtained. At the conclusion of the program, students felt more confident in their role as teachers, leaders, role models, and team managers ($p<0.01$). Students also felt more comfortable at adapting their teaching to various learning styles and better at giving feedback when teaching a skill ($p<0.01$). These attitudes persisted and improved over time. Students rated the course favorably each year, indicating it was well organized and highly informative.
KEY LESSONS LEARNED: Helping medical students to develop professional skills through innovative curricula may better prepare them for their future roles as leaders, educators, and mentors.

REAL-TIME EVIDENCE-BASED MEDICINE: A SEARCHING TUTORIAL. R.L. Stark1; I.M. Helenius[1]; I.M. Kronish[1]; L. Schimming[1]; D.R. Korenstein[1]. [1]Mount Sinai School of Medicine, New York, NY. *(Tracking ID # 152199)*

STATEMENT OF PROBLEM OR QUESTION: To practice Evidence-Based Medicine (EBM) in real-time, physicians must quickly retrieve evidence to inform their management decisions. Internal Medicine (IM) residents receive little formal education in electronic database searching, and have identified poor searching skills as a barrier to their evidence-based practice.
OBJECTIVES OF PROGRAM/INTERVENTION: (1) To teach IM residents to ask focused clinical questions about the care of hospitalized patients; 2) to increase IM residents' efficiency in searching PubMed and filtered EBM resources; and (3) to improve IM residents' comfort in searching for primary evidence to guide real-time patient care.
DESCRIPTION OF PROGRAM/INTERVENTION: The EBM Searching Tutorial was integrated into the inpatient ward rotation for IM residents at Mount Sinai Hospital in New York City. All PGY2 and PGY3 (n=88) residents were randomized to either participate in the searching tutorial or to attend control

conferences unrelated to EBM. Residents randomized to the searching tutorial (n=44) meet in groups of 3–6 for one hour weekly for 4 to 8 weeks during the academic year. Each session is supervised jointly by a librarian and 1–3 faculty members from the Division of General Internal Medicine. During the sessions, each resident generates a clinical question about an active patient on the service, focusing on issues of diagnosis, prognosis or treatment. Using 3 computers in the room, participants then search the literature to answer their questions. Faculty directly supervise all searches, guiding strategies for searching PubMed and emphasizing the use of ACP Journal Club and the Cochrane database when appropriate. In the last 5 minutes of the conference, participants orally present their search strategy and the evidence that resulted from their search. Evaluation of the searching tutorial is two-fold. All 88 residents will complete self-assessment surveys before and after participating in the searching or control conference. The survey was developed by the SGIM EBM Task Force and measures EBM searching skills and comfort. In addition, searching skills will be measured with an objective structured clinical evaluation (OSCE). Participants will be asked to search for primary evidence to answer a series of clinical questions. Their ability to quickly find quality evidence, appropriate use of filtered resources, and searching techniques will be measured. Investigators scoring the OSCEs will be blinded to group allocation.
FINDINGS TO DATE: We have surveyed 78 (89%) IM residents prior to the intervention. When provided with a clinical scenario, 95% and 96% report they would utilize PubMed or UpToDate®, respectively, to answer their question. More residents would consult with a peer (64%) or a specialist (50%) than use filtered resources such as Cochrane (26%) or ACP Journal Club (28%). Despite reporting high use of PubMed, only 35% of respondents report feeling very comfortable using it. Few residents report being very comfortable using Cochrane (6.7%) or ACP Journal Club (2.7%). Post-intervention surveys and OSCE evaluations are ongoing.
KEY LESSONS LEARNED: IM residents frequently use online textbooks (UpToDate®) and PubMed to answer clinical questions, but rarely use filtered resources. Their self-reported comfort with PubMed and filtered resources is low. We hypothesize that real-time teaching of searching skills in the context of patient care will improve these skills and promote evidence-based practice.

RECIPES FOR SUCCESS: INGREDIENTS OF A PRACTICAL NUTRITION CURRICULUM FOR INTERNAL MEDICINE INTERNS. M. Vetter[1]; S.J. Herring[2]; M. Sood[2]; A.L. Kalet[2]. [1]New York University School of Medicine, New York, NY; [2]New York University, New York, NY. *(Tracking ID # 155669)*

STATEMENT OF PROBLEM OR QUESTION: Medical education has traditionally emphasized disease management over disease prevention. As a result, nutrition curricula remain lacking in most training programs despite increasing rates of obesity and associated co-morbidities. At NYU, we sought to introduce core nutrition concepts into the intern curriculum, with a focus on motivational interviewing and brief counseling strategies that can be used in the office setting.
OBJECTIVES OF PROGRAM/INTERVENTION: We developed a nutrition curriculum for internal medicine interns, with a patient-centered approach to nutrition assessment and counseling. Topics were introduced with didactic lectures, followed by case studies and role-playing to reinforce principles. Interns attended an average of eight patient care sessions each week during the ambulatory care rotation.
DESCRIPTION OF PROGRAM/INTERVENTION: The curriculum was taught in four sessions during the ambulatory care block, in order to integrate it with common outpatient medicine topics. All sessions were conducted by a physician nutrition specialist (PNS). The first session introduced concepts of basic nutrition assessment, reviewed the epidemiology of obesity, and covered the treatment modalities of dietary modification, pharmacological therapy, and surgical intervention. The second session covered the Stages of Change Model and techniques of motivational interviewing. After a brief didactic session, interns were divided into pairs and practiced these motivational interviewing skills, counseling each other on a desired behavioral change. A facilitator offered suggestions for effectively integrating techniques such as "scaling" and "rolling with resistance." During the third session, the interns were taught exercise guidelines and the components of a successful exercise prescription. This session also included discussion of a pedometer-based walking program. The final session offered ten brief practical strategies for nutrition counseling. These included how to estimate portion size using visual cues, how to offer low calorie alternatives to common foods, and how to recommend healthier methods for food preparation. During each session, interns practiced these skills with case studies, and were encouraged to use them during the patient care sessions that followed.
FINDINGS TO DATE: Thus far, approximately one-half of the categorical intern class has completed the nutrition curriculum. At the beginning of each block, most interns reported previous exposure to principles of medical nutrition during their pre-clinical years, but had not had formal training in the application of these principles to practical techniques for the ambulatory setting. Following this block, interns expressed in written and verbal feedback that this curriculum introduced new concepts in a practical way. Many of the interns reported using these skills in their concurrent patient care sessions.
KEY LESSONS LEARNED: Interns rated nutrition education as very important, but self-reported significant knowledge deficits and concerns about time constraints in the clinic setting. A four-hour curriculum on clinical nutrition taught by a PNS can introduce core knowledge concepts and counseling skills. Interns rated the educational value as very high, perhaps in part secondary to the timing of the curriculum within the ambulatory care block. Further study is needed to determine the efficacy of nutrition education and its impact on patient outcomes.

RE-THINKING NOON CONFERENCE FOR INTERNS: DELIVERING CORE CURRICULUM ONCE PER MONTH IN A BEEPER-FREE ENVIRONMENT. T. Minichiello[1]; E. Harleman[2]; R. Lucatorto[1]; N. Walter[1]; K. Judish[1]. [1]University of California, San Francisco, San Francisco, CA; [2]University of California, San Francisco, CA. *(Tracking ID # 153146)*

STATEMENT OF PROBLEM OR QUESTION: Although noon conference has been an integral part of a core curriculum for internal medicine residents, it suffers from many shortcomings, including poor attendance by housestaff and use of passive learning style.
OBJECTIVES OF PROGRAM/INTERVENTION: The objectives of the "Intern Half Day" (IHD) are 1) to provide truly protected time for interns to learn core curriculum 2) to increase use of interactive small-group case-based teaching, facilitating the teaching of key social medicine and multidisciplinary topics and 3) to provide a supportive environment for interns to learn together and share experiences.
DESCRIPTION OF PROGRAM/INTERVENTION: The noon conference curriculum was extensively reviewed, and key topics for interns were identified. Each month four hours of core curriculum are delivered from 8–12 noon on the first Friday of the month and repeated again on the third Friday. Interns are assigned to attend the session that best fit their schedule based on call schedule, days off and work-hour limitations. Interns are excused from all ward and clinic duties, and beepers are handed off to supervising housestaff. The first three hours of "IHD" are devoted to a single organ system and include one didactic lecture and two case-based discussion sessions. The final hour is devoted to a topic in social medicine and may take the form of small group or didactic presentation. We have also delivered curricular innovations during this block, including an intern humanism retreat, an evidence-based medicine series, and team-work training.
FINDINGS TO DATE: Interns enjoy completely protected time for learning. Attendance was >95% for every session, far greater than previously cited averages of 35%. Participants have found these sessions to be clinically relevant: with respect to their relevance, approximately 83% of the sessions were given scores between 8–9 on a nine-point scale, and 100% fell between the 7–9 interval. The qualitative portion of the evaluations reveal how much the interns enjoyed the small-group formats and felt buoyed by the sense of community and social responsibility. Moreover, for the residency program as a whole, the IHD has helped to refocus the importance of education and the doctor-as-learner.
KEY LESSONS LEARNED: The first year of the IHD curriculum has taught us many lessons about the optimal delivery of curriculum to present day internal medicine residents. With duty hours constraints and a focus on workplace efficiency, it is critical to provide protected didactic time, to establish universal expectations for attendance, and to rely on teamwork and creative strategies for ward coverage during didactics. The success of the IHD also reaffirms the value of active learning methods. Lastly, aside from offering a more effective teaching venue, the IHD has improved morale and the sense of community. It is our hope that the IHD will not only innovate the core didactic experience of the first year of training, but will also provide a mechanism to preserve and foster trainee empathy and well-being.

SAVE A LIMB; SAVE A LIFE. A. Jindeel[1]. [1]Harbor-UCLA Medical Center, Torrance, CA. *(Tracking ID # 154019)*

STATEMENT OF PROBLEM OR QUESTION: Patients with Peripheral Arterial Disease (PAD) have a lower survival rate than patients with breast cancer. Ankle-Brachial Index (ABI) is an easy, inexpensive test with sensitivity and specificity higher than that of mammograms. Despite these facts, only 8% of internists check ABI, even if peripheral pulses are absent.
OBJECTIVES OF PROGRAM/INTERVENTION: 1) Provide our internal medicine residents and interns with the necessary knowledge and skills to detect and manage PAD. 2) To foster a sense of pride, excellence and commitment in improving the quality of our patient care.
DESCRIPTION OF PROGRAM/INTERVENTION: Since May, 2005, we began a PAD training program for residents and interns at Harbor-UCLA during their outpatient rotation blocks. The teaching is primarily related to patients seen and presented by residents or interns. We performed ABI hands-on training on relevant patients or with residents checking ABI on each other. Training was done on an individual basis or in small groups. The focus of the training is to: 1) identify PAD modifiable risk factors like diabetes, smoking, hypertension, hyperlipidemia and hyperhomocystenemia, 2) identify PAD high risk groups that include patients 70 years and older, patients 50–69 with history of smoking or diabetes, patients less than 50 with diabetes and one other risk factor and patients with known coronary, carotid, or renal artery disease, 3) identify the different clinical presentations of PAD and recognize the majority of patients with PAD are asymptomatic or present with atypical leg pain, and only 10–35% have intermittent claudication, 4) emphasize the importance of screening high risk groups with focused vascular history, vascular physical, and ABI exam if the patient has symptoms or signs suggestive of PAD (Normal ABI is 0.9–1.3; <0.9 indicates PAD; >1.3 indicates non-compressible arteries), 5) effectively manage PAD patients. Once the diagnosis is made, risk factor modification is initiated or intensified, antiplatelet therapy, ACEI, B-Blockers and statin are considered in every patient, and a referral to a supervised exercise program is made. A referral to vascular surgery is made if a patient has critical leg ischemia or if further diagnostic testing is needed. The training is ongoing as long as the trainees are in our program.
FINDINGS TO DATE: Sixteen residents and interns, none of whom have checked ABI previously, enthusiastically participated in the training. Follow-up questionnaire and feedback indicated they found the training relevant and enriching. They have incorporated the skills they have learned, especially checking ABI, into their daily practice. The program has been instrumental in engaging trainees and raising awareness about PAD, and improving the quality of our patient care.

KEY LESSONS LEARNED: Adding PAD training, especially checking and interpreting ABI, to internal medicine residency programs is a very effective and essential step in increasing the trainee's knowledge about PAD and improving patient care. Determining ABI should be a required skill to be mastered during primary care training programs. MODALITIES: A poster presentation, or 10-minute power point presentation that include a 2-minute video demonstration on how to check ABI.

SEE ONE, DO ONE, TEACH ONE: A NEW WAY OF IMPLEMENTING A QUALITY IMPROVEMENT CURRICULUM. L.M. Gruen[1]; K. Feiereisel[1]; J. Hartman[1]; D.P. Miller[1]; P. Lichstein[1]. [1]Wake Forest University, Winston-Salem, NC. *(Tracking ID # 155703)*

STATEMENT OF PROBLEM OR QUESTION: The ACGME requires that internal medicine residents achieve basic competency in quality improvement (QI). The challenge for internal medicine residencies is to implement effective QI curricula in the face of increasing time constraints and resident workload. Effective QI curricula must be viewed by residents as meaningful and must lead to achievement of observable skills.
OBJECTIVES OF PROGRAM/INTERVENTION: To design a QI curriculum that allows residents to learn the QI process through active participation, to perform their own QI projects related to patient care, and then to teach other residents and attending physicians the QI process.
DESCRIPTION OF PROGRAM/INTERVENTION: The QI curriculum is based on the traditional three phase "see one, do one, teach one" philosophy of resident education. Phase 1 ("see one") allows residents to participate in a large, residency-wide QI project. Assisted by faculty mentors, residents construct and implement their own QI projects during Phase 2 ("do one"). In Phase 3 ("teach one") residents use their experiences to teach residents and faculty about the QI process. Phase 1 consisted of demonstrating a program-wide QI project conducted during our pre-clinic conference series. Residents completed a faculty-designed chart review of breast cancer screening rates in their own clinical practice followed by a discussion of the principles and techniques of the QI process. In Phase 2, residents participating in our weekly Evidence Based Medicine/QI seminar series will design and implement their own QI projects over a period of several months. In Phase 3 those same residents will teach the QI seminar series (with faculty input and supervision) and serve as mentors to residents entering Phase 2. Coupled with several interactive instructional sessions, QI training is always punctuated and perpetuated by numerous, ongoing QI projects which, in turn, facilitate patient care in our institution.
FINDINGS TO DATE: In the early implementation stages, the residents have readily embraced the QI curriculum, having participated in their personal chart review as directed by the faculty (Phase 1). The residents viewed this self-evaluation exercise as a positive experience. This project facilitated the discussion of barriers to effective care at the level of health systems, healthcare providers, and individual patients. Residents are currently transitioning into Phase 2 and are designing and implementing their own QI projects.
KEY LESSONS LEARNED: Despite busy schedules and multiple competing demands, residents have demonstrated that they are eager and motivated to learn the process of quality improvement with the goal of improving the care of their patients. Peer to peer teaching is an effective tool in implementing the curriculum. The cyclical nature of this curriculum ensures ongoing resident-driven QI initiatives.

SELF-ACCOUNTABILITY IN RESIDENT EDUCATION: A POWERFUL TOOL THAT IMPROVES LEARNER SKILLS. W. Seiden[1]; R.C. Anderson[1]. [1]Evanston Northwestern Healthcare, Evanston, IL. *(Tracking ID # 154498)*

STATEMENT OF PROBLEM OR QUESTION: Can house staff achieve self-directed learning goals during a 4-week inpatient rotation?
OBJECTIVES OF PROGRAM/INTERVENTION: 1) To empower house staff to achieve self-identified learning goals through a self-accountability process. 2) To teach house staff to be lifelong learners.
DESCRIPTION OF PROGRAM/INTERVENTION: Self-accountability fosters lifelong learning and provides a specific means of filling gaps by defining self-directed goals, methods and specific outcomes. 12 house staff (1 resident and 2 interns on each of 4 teams) have an orientation meeting at the beginning of each 4-week inpatient block rotation at our community affiliate hospital. Each resident and intern is asked to identify one or two goals to achieve during the rotation. Each person writes down specific actions necessary to achieve each goal, establishes indicators for progress and lists tangible evidence that will indicate achievement of the goal. The group brainstorms to help individuals with their goals including potential methods and outcomes. In addition, the teaching attending for each team is notified of the specific self-accountability plan of each team member.
FINDINGS TO DATE: 32 residents have completed this intervention over three rotations. Examples of goals included improvement in augmentation of murmurs, recognition of acute presentations of porphyrias and how to evaluate asymptomatic elevation of liver enzymes. The pre- and post-intervention levels of confidence in the individual self-accountability areas were rated retrospectively and showed improved with the average confidence score on a 1 to 6 Likert scale improving from 2.7 to 4.5 (T-test, $p < 0.05$). House staff evaluations of this intervention point out strengths including increased motivation to achieve a goal, increased likelihood of achieving a focused goal, and the benefit of help from colleagues and teaching attendings. Weaknesses identified included need for more prompting and self-discipline to achieve goals and more time for the process.
KEY LESSONS LEARNED: House staff can be successful in completing self-directed learning goals during a 4-week inpatient block rotation. By defining specific methods and outcomes, house staff are more likely to be successful. Prompting and reminding over the course of the rotation facilitates the process. Assistance in refining goals and methods to achieve them can be facilitated by sharing of the projects among the larger group. Providing teaching attendings with knowledge of these areas also provides opportunity for more directed educational experiences that fit the needs of the learner.

SPARC: A WEB-BASED INFORMATION SYSTEM FOR TEACHING COMPETENCE IN PRACTICE-BASED LEARNING AND IMPROVEMENT. J. Lyman[1]; J.D. Voss[1]; K. Scully[1]; N. May[1]; J.B. Schorling[1]. [1]University of Virginia, Charlottesville, VA. *(Tracking ID # 156755)*

STATEMENT OF PROBLEM OR QUESTION: Adequately preparing physicians to effectively care for populations of patients and to conduct practice-based learning and improvement (PBLI) is now at the forefront of medical education. The new ACGME requirements and the ABIM Professionalism Charter both mandate these competencies. A tremendous barrier to both teaching and evaluating these competencies is the general absence of information systems that allow residents easy access to population-based data about their patients. Traditionally residents and faculty have had to rely on manual, time-consuming chart audits to access this information.
OBJECTIVES OF PROGRAM/INTERVENTION: We have developed and implemented a Web-based information system, Systems and Practice Analysis for Resident Competencies (SPARC), which integrates clinical and administrative data about residents' panel patients to facilitate practice-based improvement, self-assessment, and faculty evaluation of resident performance. Residents can view reports that describe demographic and clinical characteristics, disease management profiles, utilization data, and preventive medicine information on their patient panel and compare this data to their peers.
DESCRIPTION OF PROGRAM/INTERVENTION: (1) Create SPARC, an easy-to-use, clinically relevant information system that allows residents to achieve competence in Practice-Based Learning and Improvement (PBLI) activities and that allows faculty to better assess resident competence in these areas. (2) Integrate SPARC into the 2nd year of our existing internal medicine residency curriculum, allowing learners to effectively and efficiently (a) identify areas for improvement within their own practice, (b) create and implement an action plan to modify their practice, and (c) reassess their practice after 1 year to examine the impact of their plans. (3) Evaluate the effectiveness of SPARC in teaching PBLI to residents.
FINDINGS TO DATE: Development of SPARC is now complete and it has been integrated into the curriculum. The first group of 2nd-year residents has received training in PBLI and used SPARC to examine their own patient panel data. This group is currently developing their analysis and improvement plans. All remaining 2nd-year residents will receive this training over the next 6 months. A comprehensive evaluation will occur that includes assessment of pre-post changes in knowledge, attitudes, and beliefs, a usability study, and focus groups to investigate the strengths and weaknesses of the system.
KEY LESSONS LEARNED: Reaction to SPARC has been very positive to date, suggesting that such information systems may represent a valuable resource for teaching and assessing PBLI competencies. The educational value of such systems in the curriculum should be emphasized rather than presenting them as a way of evaluating resident performance.

SPIKES! TEACHING MEDICAL STUDENTS TO DELIVER BAD NEWS. W.R. Harper[1]; S. Hong2; S. Cook[1]. 1University of Chicago, Chicago, IL; University of Chicago Pritzker School of Medicine, Chicago, IL. *(Tracking ID # 153173)*

STATEMENT OF PROBLEM OR QUESTION: The ability to deliver bad news effectively is a vital skill. A successful method of delivering bad news, given the mnemonic SPIKES, has been described in the literature. [1] Teaching physicians and clerkship students using this method has been found to be effective in improving skills. No study yet in the literature has addressed the effectiveness of teaching this particular method to second-year medical students. Gaining some mastery in this skill prior to the clerkships is important, as students may be in situations where they must deliver unfortunate news to patients. Since clinical skills develop and enhance as students move through their training, this framework then will enable students to advance their skills in delivering bad news with their subsequent more complex patient enocunters. For our second-year students, we created a curriculum to teach the SPIKES method and assessed the impact of our intervention on students' self-reported confidence in performing this important clinical skill.
OBJECTIVES OF PROGRAM/INTERVENTION: The purpose of this study was to assess whether a curriculum teaching delivering bad news to second year medical students has an impact on their self-reported confidence in this skill.
DESCRIPTION OF PROGRAM/INTERVENTION: Students were given a one-hour lecture on the structure of delivering bad news, the SPIKES method: S-Setting up the interview. P-Assessing the patient's perception. I-Obtaining the patient's invitation K-Share knowledge and information with the patient. E-Assessing the patients emotions with an empathic response. S-Strategy and Summary. Next students practiced this skill with a standardized patient trained to have a new diagnosis, Alzheimer's Disease. The students were instructed to deliver the news to the patient using the SPIKES framework. After a 12 minute interview with the patient, an observing faculty member, fellow colleagues and the patient gave structured feedback to the interviewing student. A questionnaire was given to the students before and after the curriculum. This

questionnaire asked about students' self-assessed value of certain components of delivering bad news, and their confidence in using them.
FINDINGS TO DATE: There was no change in the students self-reported attitudes toward delivering bad news. (4.0/5.0 pre and 4.1/5.0 post.) Notable, though, was that students were more confident in delivering bad news after participating in the curriculum. The mean confidence score was 3.1 before the intervention and 3.7 after ($p<0.001$). In particular, students noted increased confidence in many of the skills taught in the SPIKES framework. The list of questions with increased confidence included: finding out how much the patient wants to know, assessing patient's understanding before giving bad news, and eliciting patient's worries, fears and concerns when giving bad news.
KEY LESSONS LEARNED: The ability to confidently deliver bad news to patients is a necessary skill of being a competent physician. Having a structure to give the news has been shown to be effective in improving skills in house staff and physicians in practice. We have found that this structure is likewise effective in improving the self-reported skills of medical students prior to entering the clerkships. [1] Baile WF, Buckman R, Lenzi R, Glober G, Beale EA, Kudelka AP. SPIKES-A six-step protocol for delivering bad news: application to the patient with cancer. Oncologist. 2000;5(4):302–11.

TASK-SPECIFIC MINI-CEX'S: A WAY OF DOCUMENTING COMPETENCE AND ENHANCING FEEBACK. M. Picchioni[1]; K.T. Hinchey[1]; M. Rosenblum[1]; L.B. Meade[1]; D. Ling[1]. [1]Baystate Medical Center/Tufts University School of Medicine, Springfield, MA. *(Tracking ID # 154641)*

STATEMENT OF PROBLEM OR QUESTION: With the implementation of the ACGME Outcomes Project, residency programs are now required to demonstrate the achievement of the six core competencies among their trainees. While the ACGME offers suggested methods in its "Toolbox," measuring and documenting these competencies remains a challenge.
OBJECTIVES OF PROGRAM/INTERVENTION: The Baystate Educational Innovations Project Working Group has developed task-specific mini-CEX's to help address two specific objectives. This first is to provide an objective tool to aid faculty and residents in providing useful feedback necessary for achieving competence. The second is to provide a systematic way of documenting competence.
DESCRIPTION OF PROGRAM/INTERVENTION: Building on the concept of the mini-CEX, our working group is developing a list of landmark tasks in which residents must be competent at various points in their training. For each task the group has determined the core elements that define different levels of proficiency within that task by consensus. These are brief lists outlined on pocket sized cards that can easily be accessed when the opportunity arises. Each element is described to make clear to resident and evaluator what is expected. The first set of tasks identified were the most basic and core clinical tasks of an early intern. Ongoing development is proceeding for subsequent phases of training and for other clinical venues. To date we have 18 of mini-CEX's available. As a pilot, all PG-1 residents were charged with responsibility for initiating and completing a set of six basic task-specific mini-CEX's during their first ward month. These included, ward presentation of a new H&P, written H&P, written progress note, sign-out, family meeting, and a discharge summary.
FINDINGS TO DATE: The working group found that once the specific tasks are identified, creating the mini-CEX by consensus is very easy. Involved faculty report that completing them is not difficult and adds only 3–5 minutes to the usual supervision of the clinical task. Residents have been very receptive to the feedback provided in this way. Completion rate by faculty-resident pairs has been about 50%.
KEY LESSONS LEARNED: Task-specific mini-CEX's are a logical and practical way of documenting competence. The forms enhance direct observation of trainees and facilitate structured and timely feedback which is a critical element of professional development. The exercise is very efficient adding only a few minutes because it takes advantage of ongoing clinical tasks which are already being performed and must be supervised. We feel strongly that the provision of feedback should be an integral part of the teaching role in which case the mini-CEX adds less than one minute. This concept is easily generalizable to medical students or fellows. Increasing the frequency with which task-specific mini-CEX's are completed will be an ongoing part of faculty development efforts. It is hoped that with ongoing successful implementation of this method, positive reinforcement will aid this goal.

TEACHING ADOLESCENT MEDICINE SKILLS WITH NARY A TEENAGER IN SIGHT: THE UTILITY OF STANDARDIZED PATIENTS. A.R. Gonzaga[1]; M.A. McNeil[1]; M. Clifton[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 153613)*

STATEMENT OF PROBLEM OR QUESTION: Adolescent medicine is a content area covered in the ABIM certification exam. Patient-based residency training in adolescent medicine is difficult, however, as most academic training programs have difficulty recruiting adolescent patient into their general internal medicine practices. A needs assessment conducted in 2004 at our institution showed that senior residents are willing to care for adolescents, yet feel unprepared to do so by their residency training. We have introduced a curriculum in adolescent medicine.
OBJECTIVES OF PROGRAM/INTERVENTION: 1. Improve intern comfort in caring for adolescents. 2. Develop interns' skills to obtain a complete adolescent history, assure confidentiality, and counsel on risk reduction. 3. Increase the number of interns stating "internists should definitely care for adolescents."
DESCRIPTION OF PROGRAM/INTERVENTION: In July 2006, the monthly intern ambulatory rotation incorporated an adolescent medicine curriculum. Interns' months of ambulatory rotation were randomly assigned, so by the end of December 2005 half the class had experienced the curriculum (intervention group) and half had not (control group). The curriculum consists of 2 components: a 1 hour long lecture and a half day experiential session using standardized patients (SPs). The lecture occurs during the 1st week of the rotation, and introduces key concepts in the adolescent interview. The lecture includes an overview of the adolescent interview, review consent and confidentiality, and counseling on risk reduction. Two weeks later, interns participate in a formative experiential session, during which they practice the previously introduced communication skills on 2 adolescent SPs. This educational method was chosen as it closely approximates "real life" while providing a safe environment for practice of communication skills.
FINDINGS TO DATE: The intern class was surveyed in June 2005, and resurveyed in December 2005 ($N=28$). Using the pre-/post-intervention survey data, we assessed the impact of the curriculum on interns' perceived comfort and attitudes towards caring for adolescents. Survey items used a 5 point ordinal scale (low of 1, high of 5). After 6 months, the intervention group had higher perceived competence in caring for adolescents than the control group (mean rating of 3.57 ± 0.94 vs. 3.214 ± 0.89, respectively). The intervention group's ratings increased on items about perceived comfort and whether internists should care for adolescents (2.84 ± 1.41 to 3.71 ± 1.06 and 3.77 ± 1.01 to 4.00 ± 0.78, respectively) whereas the controls groups' ratings dropped (4.23 ± 0.60 to 3.57 ± 1.09 and 3.92 ± 0.95 to 3.64 ± 1.08). At 6 months, the intervention group feels more comfortable assuring confidentiality compared to the control group (3.88 ± 1.03 vs. 3.77 ± 0.93). At baseline, 3/26 individuals felt knowledgeable about the laws regarding medical consent by a minor, compared to 12/28 individuals 6 months into internship; exposed interns being more likely to rate knowledge of the laws at 6 months ($p \equiv 0.02$). The curriculum was well received; all who participated rated the lecture as useful (rating of 4 or 5), and 72‰ rated the SP session as useful. While trends were noted, statistical significance was not attained given small sample and only 6/12 months worth of intervention data.
KEY LESSONS LEARNED: Lack of access to adolescent patients need not be a barrier to training in adolescent medicine. A lecture coupled with active participation during an SP session is an innovative method to increase interns' perceived comfort and knowledge in adolescent medicine.

TEACHING AND ASSESSING SUBSTANCE ABUSE SKILLS WITH OBJECTIVE STRUCTURED CLINICAL EXAMS (OSCES). S.J. Parish[1]; M. Ramaswamy[1]; M.R. Stein[1]; E.K. Kachur[2]; L. Modali[1]; J.H. Arnsten[1]. [1]Albert Einstein College of Medicine, Bronx, NY; [2]Medical Education Development, New York, NY. *(Tracking ID # 153887)*

STATEMENT OF PROBLEM OR QUESTION: Although internal and family medicine resident trainees commonly manage substance abuse disorders, optimal approaches to assessing and teaching these specialized interviewing and intervention skills are unknown. Objective Structured Clinical Exams (OSCEs) have become the gold standard for performance-based assessment and provide necessary skills practice by exposing trainees to realistic clinical scenarios and permitting individualized feedback.
OBJECTIVES OF PROGRAM/INTERVENTION: We developed a five-station OSCE for internal and family medicine residents to teach competencies in addiction medicine; assess residents' general communication, assessment, and management skills with substance abusing patients; and deliver immediate feedback and assess its impact on subsequent performance.
DESCRIPTION OF PROGRAM/INTERVENTION: Each OSCE station included standardized patients (SPs) portraying various substance abuse disorders and readiness to change stages. Faculty observers completed a 17-item instrument that covered three domains (six general communication, six assessment, and three management items) and two global items (general organization and overall performance). Items evaluating general communication and global skills were uniform across all stations, while items evaluating assessment and management skills were station specific. Residents assessed their overall station performance, and SPs provided a global satisfaction rating. All items were rated on a four-point Likert scale. At each station faculty provided individualized feedback and delivered standardized teaching points. Learning during the OSCE was assessed by measuring residents' performance improvement from the first to the final station. Residents completed a pre-OSCE survey regarding prior experience, interest, and competence in substance abuse, and a post-OSCE survey evaluating educational value.
FINDINGS TO DATE: From 2003–2005 one hundred thirty-one internal and family medicine residents in an urban university hospital participated during their PGY-3 ambulatory rotations. Residents performed better ($p<0.001$) in general communication (mean $\pm$ sd $= 3.12 \pm 0.35$) than either assessment (2.65 ± 0.32) or management (2.58 ± 0.44). Faculty and SP scores were highly correlated ($r=0.70$, $p<0.01$). OSCE performance was not associated with residents' self-assessed interest or competence in substance abuse. Residents' scores improved from their first to their final station (change $=0.14 \pm 0.64$, $p=0.01$), as did their scores in assessment (change $=0.15 \pm 0.78$, $p=0.03$) and management (change $=0.20 \pm 0.97$, $p=0.02$). Nearly half of the residents thought the stations resembled real-life clinical encounters, and the majority (73%) thought they provided a good cross-section of substance abuse issues. Over three-quarters of the residents felt the OSCE helped identify strengths and weaknesses, taught them something new, and provided valuable feedback.
KEY LESSONS LEARNED: Our substance abuse OSCE provided substantial information about resident performance in this distinct skill area. Addiction assessment and management are more challenging for residents than general communication skills. Immediate feedback provided during the OSCE helped teach substance abuse competencies. Implementing the OSCE allowed us to

develop a novel educational program for trainees from different departments and to gain insights for curricular innovations in substance abuse.

TEACHING CARDIOPULMONARY CLINICAL SKILLS VIA "VIRTUAL PATIENTS.". J. Jevtic[1]; D.M. Torre[1]; P. Redlich[1]; J.L. Sebastian[1]; D. Bragg[1]. [1]Medical College of Wisconsin, Milwaukee, WI. *(Tracking ID # 151336)*

STATEMENT OF PROBLEM OR QUESTION: Successfully teaching the skill of cardiopulmonary physical exam in the classic lecture-discussion and small group model is associated with various barriers including patient recruitment, changing physical exam findings and inability to use a standardized method to assess knowledge and skills attained by student learners.
OBJECTIVES OF PROGRAM/INTERVENTION: To enhance the knowledge and skills of clerkship (M3) students in cardiopulmonary auscultation and assess their ability to identify abnormal cardiac and pulmonary auscultory sounds using an interactive web-based module.
DESCRIPTION OF PROGRAM/INTERVENTION: Using the computer management platform ANGEL, we introduced an interactive web-based module to entering M3 students that highlighted five common diseases (i.e. asthma, pneumonia, emphysema, congestive heart failure, and acute coronary syndrome). The module is accessible via web during the week of clerkship orientation. Initially, a tutorial reviews basic and advanced cardiopulmonary physical exam skills with features such as hyperlinks to physical exam skills videos and clinical skills websites. Subsequently, a case based curriculum promotes active learning with interactive window pop-ups of pictures, X rays and audio of auscultory findings, as well as a videotaped patient interview. Students are asked to identify various physical exam findings, interpret abnormal cardiac and lung sounds, and make a diagnosis. An eight question pre/post knowledge quiz tested M3 students ($n=180$) ability to identify abnormal heart and lung sounds. M3 students also completed a survey rating their confidence to identify abnormal cardiopulmonary auscultory findings after the intervention, as well as for satisfaction with course content and engagement techniques.
FINDINGS TO DATE: Student's mean score on the knowledge quiz was 62.3% ($+/-19\%$) prior to the intervention, rising to 93.7% ($+/-11\%$) after the curriculum. The mean difference in the pre-test and post-test quiz scores was 31.4% which was statistically significant by dependent *t*-test ($p<0.001$). Two thirds of students rated the web-based module as very good or excellent. Program evaluation rating averaged >4 (1=Strongly Disagree to 5=Strongly Agree) for satisfaction with the curriculum in helping identify abnormal cardiac and pulmonary auscultory sounds. M3 student felt that the web hyperlinks, graphics, video and audio files enhanced their learning experience.
KEY LESSONS LEARNED: Results of our pre/post knowledge test indicate that students significantly improved their ability to identify abnormal cardiac and pulmonary auscultory sounds after exposure to our e-learning module. As well, students perceive their exposure to the computer based curriculum to be a positive experience despite the lack of face-to-face patient or teacher contact. Successful navigation of our e-learning module requires that students have access to appropriate software and speakers with headphones for an optimal learning environment.

TEACHING INTERDISCIPLINARY TRANSITIONAL CARE TO MEDICAL AND PHARMACY STUDENTS ON INPATIENT CLERKSHIP: DEVELOPING AND EVALUATING A POST-DISCHARGE CONTINUITY VISIT PROGRAM. C.J. Lai[1]; H. Nye[1]; T. Bookwalter[1]; A. Kwan[1]; K.E. Hauer[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 153985)*

STATEMENT OF PROBLEM OR QUESTION: Teaching medical and pharmacy students how to provide collaborative patient care in the hospital and after patients' discharge is of increasing interest nationally. A key focus of this emphasis is facilitating each patient's safe transition from the hospital to the outpatient setting.
OBJECTIVES OF PROGRAM/INTERVENTION: (1) To develop a protocol where medical and pharmacy students conduct joint visits to discharged patients; (2) to teach students collaborative skills in coordinating a safe transition from hospital to home; (3) to teach students how to identify and prevent barriers to a safe transition.
DESCRIPTION OF PROGRAM/INTERVENTION: Three groups of third-year medical and pharmacy students have completed our pilot program. Medicine and pharmacy students were paired according to the inpatient ward team they were assigned to, and each pair obtained consent from one patient who would be the subject for the post-discharge visit. The curriculum consisted of 3 components: (1) Initial Workshop, focusing on a discussion of interdisciplinary roles, discharge planning and transitional care; (2) Post-Discharge Visit at a patient's home or skilled nursing facility during which the student pair assessed for medication discrepancies, environmental saftey, and clinical status; and (3) Final Workshop, including a group debriefing. Student pairs wrote reports summarizing their findings and experiences to the patients' primary care providers. Core interdisciplinary faculty facilitated the workshops and were available for telephone consultations when the student pairs visited their patients. We developed a pre-post survey evaluating students' attitudes and self-assessed skills in interdisciplinary collaboration and transitional care, and a survey evaluating specific components of the curriculum.
FINDINGS TO DATE: Twenty-nine medical and 16 pharmacy students have participated; survey response rate was 86% and 88%, respectively. Students generally rated knowledge of and confidence in interdisciplinary roles and transitional care higher after participating in the curriculum; for example, after the program 87% of participants were confident in identifying factors to ensure a safe patient transition, compared to only 53% before the curriculum. Using a 1- ("strongly disagree") to 5- ("strongly agree") point Likert scale, the majority ($>85\%$) of students agreed or strongly agreed that the program added to their (1) learning about an interdisciplinary approach to patient care (mean Likert 4.3); (2) learning about discharge planning and transitional care (mean 4.3); and (3) appreciation of the patient as a "whole person" (mean 4.5). Furthermore, 90% of participants agreed or strongly agreed that they learned skills that they planned to apply to future patient care, and 82% believed that a post-discharge visit program should be required for all students. In contrast, the introductory workshop was not felt immediately applicable to their daily ward activities (mean Likert score 3.5), and the required written summary of their experiences (mean 3.3) was rated poorly by comparison. Qualitative comments were consistently positive; nearly all students felt that the curriculum offered greater understanding of the discharge process.
KEY LESSONS LEARNED: A well-structured curriculum that structures an approach to interdisciplinary post-discharge visits and provides students direct experiences with these visits can increase medical and pharmacy students' self-assessed ability to ensure patients' safe transition into the outpatient setting.

TEACHING MEDICAL HUMANITIES IN AN INTERNAL MEDICINE RESIDENCY PROGRAM: EVALUATION OF A CURRICULUM. N. Jain[1]; P. Aronowitz[1]. [1]California Pacific Medical Center (CPMC), San Francisco, CA. *(Tracking ID # 152905)*

STATEMENT OF PROBLEM OR QUESTION: Medical Humanities (MH) programs have recently increased in number at US medical schools. MH refers to the use of humanities and arts-based teaching materials in medical school and residency curricula. It includes disciplines like literature, religion, ethics, history, philosophy of medicine, film, social and cultural anthropology. While medical schools have embraced MH and its importance to medical education, residency programs lag behind in spite of residency training spanning a critical period for the development of skills and practice patterns.
OBJECTIVES OF PROGRAM/INTERVENTION: The objectives of this program were to determine resident attitudes towards MH, introduce a curriculum, and then evaluate it.
DESCRIPTION OF PROGRAM/INTERVENTION: This study was conducted from October 2004 to September 2005 in an Internal Medicine Residency training program in San Francisco. Housestaff completed an initial survey, participated in a MH curriculum, and then finished a final survey. IRB approval was obtained. The curriculum consisted of two noon conferences and two journal clubs. After the pre-curriculum survey was completed, the first noon conference was conducted by three housestaff and one attending. The concept of MH was introduced by providing historical examples of how medicine and humanities have been intertwined for several centuries. Three interns, one chief resident, and three attendings participated in the second noon conference. They shared memorable moments of their training by describing a scenario or sharing a piece of personal writing. The journal clubs were held outside the hospital where a New Yorker essay about average doctors and a Harvard Business Review article addressing women's ambition were discussed.
FINDINGS TO DATE: In both surveys, residents felt MH is an important part of medical education. They felt focusing on MH would improve the delivery of patient care for end-of-life issues, delivery of bad news, self-reflection, and moral/professional development. In the post–curriculum survey, a significant number of upper level residents compared with interns agreed with the statements that MH is an important part of medical education ($p=.05$), balances the technological focus of modern medicine ($p=.003$), and helps improve job satisfaction ($p=.05$). Female and male resident responses were compared. In the pre-curriculum survey, women were more likely than men to believe focusing on MH would improve patient care delivery through self-reflection ($p=0.02$) and moral/professional development ($p=0.02$). Notably, In the post-curriculum survey, a significant number of more women compared with men disagreed with the statement that more scheduled learning time should be devoted to science and clinically-based topics in preference to humanities topics ($p=.01$). Also a significant number of more women compared with men agreed that MH helped balance the technological focus of modern medicine ($p=.03$).
KEY LESSONS LEARNED: Residents in our training program believe formal exposure to the MH is an important part of medical education. Men and women trainees appear to have different opinions regarding the areas of patient care impacted by MH and its utility in an era of care driven by science and technology. Upper level residents compared with interns differ in how they feel MH will help them professionally.

TEACHING MEDICAL STUDENTS A PROBABILISTIC APPROACH TO GERIATRIC CANCER SCREENING USING EVIDENCE BASED MEDICINE. V. Sikka[1]; P.A. Boling[2]; W.R. Smith[2]. [1]Virginia Commonwealth University, Chester, VA; [2]Virginia Commonwealth University, Richmond, VA. *(Tracking ID # 151613)*

STATEMENT OF PROBLEM OR QUESTION: Medical students are taught early in medical school about cancer screening strategies but they receive inconsistent reinforcement in later years with little if any specific training in geriatric cancer screening.
OBJECTIVES OF PROGRAM/INTERVENTION: 1. Develop an educational program to improve students' cancer screening strategies in the elderly. 2. Educate medical students using data (JAMA, 2001*) on prognosis according to age and health status to establish a framework for individualized decision-making regarding cancer screening in elderly patients. 3. Evaluate students' awareness

of life expectancy and applied knowledge of cancer screening before and after the intervention using 7 case scenarios.
DESCRIPTION OF PROGRAM/INTERVENTION: For two years (2004 and 2005), we have presented a lecture on geriatric cancer screening to fourth year medical students one month before graduation. Prior to the 40-minute lecture, students read 7 brief case scenarios that reflect increasing age and co-morbidity. Four patients have no serious chronic illnesses (two at age 70 and two at age 80). Two patients (both age 75) are functional but have significant disease burden: one with longstanding ischemic heart disease and one with cirrhosis. The last patient (age 80) has advanced dementia and ADL dependency. Each student responds using a scorecard marked with a randomly assigned ID number. Students estimate each patient's life expectancy and state whether they would screen for cancer of the prostate, lung, colon, breast, ovary, and cervix and turn in the card. The presentation begins with epidemiologic data on life expectancy, sorted by quartiles of health status and by age in 5-year increments, as reported in the JAMA article.* Then the lecturer (PAB) presents data on operating characteristics, benefits, and burdens of common screening tests, plus current major medical society screening recommendations. The presentation makes no reference to the 7 cases. Finally students use paired score cards (same ID number as pre-lecture) to score the same 7 cases regarding life expectancy and cancer screening approach. This requires application of knowledge and problem solving rather than simple factual recall.
FINDINGS TO DATE: Before the lecture, students screened aggressively even when patient age, diagnosis, or general health suggested a high burden-benefit ratio. Post-lecture, screening declined significantly ($p<0.05$) in low-yield or high-burden scenarios, while aggressive screening persisted in cases with most chance of benefit. The intervention had a significant impact on students' assessment of prognosis and cancer screening strategy, and the evaluation method is interactive, informative, and efficient.
KEY LESSONS LEARNED: Fourth year medical students are not well-prepared to select the best cancer screening strategy in elderly patients. Reinforcement of basic epidemiologic principles throughout medical school may improve future physicians' ability to optimize care for a growing geriatric population. We hope to share this tool with several other medical schools to increase the generalizability of these findings. *Walter LC and Covinsky KE. "Cancer Screening in Elderly Patients: A Framework for Individualized Decision Making." JAMA. 2001; 285: 2750–2756.

TEACHING MEDICAL STUDENTS TO CARE FOR PATIENTS WITH DISABILITIES: IMPACT ON STUDENTS, FACULTY, AND PATIENTS. D.L. Stevens[1]; A. Moroz[1]; S. Waldman[1]; D. Richardson-Heron[2]; B.P. Dreyer[1]; F.B. Aull[1]; J.M. Chase[1]. [1]New York University, New York, NY; [2]United Cerebral Palsy, New York, NY. *(Tracking ID # 153885)*

STATEMENT OF PROBLEM OR QUESTION: The aging of the population will increase the number of people living with disabilities, but medical schools have not traditionally prepared students to care for disabled patients.
OBJECTIVES OF PROGRAM/INTERVENTION: We sought to design an innovative curriculum that develops students' a) empathy for patients with disabilities, b) skill in discussing a patient's disabilities/abilities and barriers to care and c) knowledge of the societal issues pertaining to disability. We also sought to assess the impact of the program on all participants.
DESCRIPTION OF PROGRAM/INTERVENTION: The curriculum consisted of a lecture, a Sensitivity Exercise and a Small Group Session. It took place over one week as part of a required clinical skills course for first year medical students. The lecture presented the epidemiology and societal issues of disabilities. The Sensitivity Exercise required students to perform a series of everyday tasks in an uncommon way (example: writing a sentence with one's hand taped) followed by a faculty-led discussion. The Small Group Session centered on an interview with a patient with a disability. With faculty supervision, groups of 4 students interviewed patients about their disability, barriers to healthcare, and how physicians have helped or hindered their adaptation to living with disability. Participants completed an attitude survey to assess the impact of the curriculum's components.
FINDINGS TO DATE: 160 first year medical students, 35 faculty physicians, and 30 patients (14 rehabilitation in-patients and 16 outpatients with congenital disabilities recruited through United Cerebral Palsy of NYC) participated with surveys completed by 103, 22 and 30 participants respectively. Student surveys: Students were highly satisfied and felt the curriculum would have a lasting impact: 90% agreed it was a valuable part of their medical education; 96% agreed that the disability interview should be a permanent component of their clinical skills curriculum. 90% felt they were more likely to discuss the psychosocial aspects of disability with future patients and 76% felt better equipped to care for disabled individuals. The following is typical of the written comments: ***"I learned about the personal challenges that a person w/cerebral palsy faces in regular day-to-day life. But more than that, I learned how a person with a ton of courage has learned to live and enjoy life"***. Patient surveys: 94% thought the interview was a valuable use of their time, and 63% indicated they would feel more comfortable discussing their disability with their doctor as a result of the session. Faculty surveys: 96% agreed that the patient interview improved students' understanding; 85% agreed the experience improved their own understanding of a disabled patient's perspective.
KEY LESSONS LEARNED: A multi-dimensional disability curriculum benefited a) students' attitudes and awareness of critical issues, b) faculty members understanding of a disabled patient's perspective and c) patients' comfort discussing their disability with physicians.

TEACHING OLD DOGS NEW TRICKS: FACULTY DEVELOPMENT FOR FIRST AND SECOND YEAR MEDICAL STUDENT LONGITUDINAL CLINICS. M. Mayer[1]; J.H. Isaacson[1]; N.B. Mehta[1]; N. Daniel[2]; C.A. Taylor[1]. [1]Cleveland Clinic Lerner College of Medicine, Cleveland, OH; [2]Cleveland Clinic Foundation, Solon, OH. *(Tracking ID # 152825)*

STATEMENT OF PROBLEM OR QUESTION: In 2004, we implemented a clinical skills program which includes a 2-year longitudinal clinic for beginning medical students. Most faculty had not previously taught first year medical students, so we needed to give them skills to best teach and assess beginning students.
OBJECTIVES OF PROGRAM/INTERVENTION: We aimed to equip faculty to facilitate objective-driven patient-based learning. Our goal was to teach faculty best use of direct observation and feedback skills. Making our teachers facile in use of online assessment tools was important, as student assessment is competency based, with evidence collected in e-portfolios.
DESCRIPTION OF PROGRAM/INTERVENTION: We set up faculty development sessions preceding the faculty's first contact with students, and follow-up sessions during the students' first and second years. We used video and role-play to teach brief (in the moment) feedback skills linked to patient encounters. We stressed direct observation of skills and useful (timely, specific) feedback. We taught faculty how to give weekly formative feedback at the end of each clinic, utilizing online skills lists based on course objectives. This and all subsequent sessions included hands-on tutorials on our web portal. During the second session for first year preceptors (after the first five clinic sessions) we debriefed experiences to learn and share "best teaching practices." This included how to maximize the value of direct observation of communication and physical exam skills. We gave a workshop on how to do most useful periodic assessment (the first of which was due a shortly after this faculty development session). During faculty development sessions for second-year preceptors we gave teachers tools for assessing oral and written presentations and clinical reasoning, and guiding students in patient journal selections (used to enhance reflective practice and to teach evidence-based medicine skills). More frequent clinic sessions in the second year and assessment of each skill set over a several-week period posed challenges for second-year preceptors; we reviewed strategies to meet these and taught them at a follow-up faculty development session.
FINDINGS TO DATE: Students have judged feedback from longitudinal clinic preceptors as best of several learning experiences during their first year. The value of our observation and feedback approach in building clinical skills has been noted in observed history, physical exam and presentation exercises completed by students starting in first year.
KEY LESSONS LEARNED: Lessons learned include the value of direct observation of clinical skills, noted by students and faculty. In part due to student assessment of this patient-based program we have realized the importance of, and gotten better at demonstrating useful in-the-moment feedback. "Just-in-time" faculty skills instruction seems more effective than teaching skills long before they're needed. "Role-relevant" faculty skills instruction seems particularly effective (as a result, we've shortened time for general skills instruction, and emphasized specific faculty feedback roles). Problems encountered with paucity of adequate direct observation and with poorer online assessments have often come from teachers who missed faculty development sessions.

TEACHING PRACTICE BASED LEARNING VIA A LONGITUDINAL CHART SELF-AUDIT CURRICULUM. J.R. Jaeger[1]; L.M. Bellini[1]. [1]University of Pennsylvania, Philadelphia, PA. *(Tracking ID # 151483)*

STATEMENT OF PROBLEM OR QUESTION: The ACGME mandates that internal medicine (IM) residents demonstrate competency in Practice-Based Learning (PBL). We report on a curriculum in which residents investigate and report on accepted measures of quality in their own longitudinal clinic population.
OBJECTIVES OF PROGRAM/INTERVENTION: 1. On an annual basis, residents will review their own practices using a standardized format 2. Residents will develop practice and educational strategies to address shortcomings identified through the audit 3. Clinic directors and the residency program will have portfolio data to demonstrate that residents are achieving competency in PBL and to track quality of care by trainee, year of training, practice site, or preceptor.
DESCRIPTION OF PROGRAM/INTERVENTION: Interns complete a personal quality improvement project as part of an ambulatory rotation in the second half of intern year. An introductory didactic explains the concepts and principles of quality improvement. Interns pick an issue of interest and evaluate their performance by reviewing charts of their patients at their outpatient practice site. They present their findings to their co-interns on the ambulatory rotation. The best presentations are presented later that year at Medical Grand Rounds. PGY-2's and PGY-3's have the option of repeating their intern project, or completing a standardized chart audit looking at 20 accepted measures of healthcare quality, ranging from prevention (e.g., vaccinations) to diabetic care (e.g., documentation of foot exams). Audits are reviewed with residents as part of scheduled preclinic feedback sessions.
FINDINGS TO DATE: Interns choose a wide variety of topics.The most commonly selected topic is cancer screening. Other commonly chosen topics are screening for hyperlipidemia and blood pressure management. Many interns choose to address "system" issues such as difficulty accessing mental health services or communication difficulties with specialists. Including presentation to their peers as a mandatory component of the project assures that presentations are well-referenced and of excellent quality. Three presentations were chosen for presentation at Medical Grand Rounds and feedback was excellent. Average time for completion of the PGY-2 and PGY-3 chart audit is approximately 10 minutes per chart.
KEY LESSONS LEARNED: 1. Self-audit of outpatient longitudinal patient charts is a useful method for teaching IM residents the skills of practice evaluation and quality improvement. 2. A curriculum involving chart audit

can be factored into existing rotations and routine clinic practice. 3. A standardized format for reporting chart audits, completed by residents, allows for comparison of quality of care over time and across diverse practice sites.

TEACHING PRACTICE-BASED LEARNING AND IMPROVEMENT THROUGH A DIABETES QUALITY IMPROVEMENT INITIATIVE. D. Morrison[1]; E.S. Spatz[1]; J. Stulman[1]. [1]Albert Einstein College of Medicine, Bronx, NY. *(Tracking ID # 151058)*

STATEMENT OF PROBLEM OR QUESTION: There is increasing recognition of the importance of physician-led continuous quality improvement in the practice of medicine. The ACGME has instituted a requirement that residents demonstrate competence in practice based learning and improvement. Nationwide, residency programs are now attempting to meet the new requirements, but there have been few reports about the effectiveness of implementing a resident-based quality improvement program at improving patient care.
OBJECTIVES OF PROGRAM/INTERVENTION: To educate residents about the principles of practice based learning and improvement, to involve residents in the process of designing interventions to improve quality of care for their own patients, and to improve quality of care for poorly controlled diabetics in an urban academic resident primary care clinic.
DESCRIPTION OF PROGRAM/INTERVENTION: A quality improvement primary care program for patients with chronically poorly controlled type 2 diabetes was started in an academic primary care clinic. Patients referred by their physicians were scheduled to attend program sessions every two weeks over the course of 2 to 4 months. Visit duration was equal to the usual visit duration in the resident primary care clinic but the time was structured differently to allow the patient to interact with a collaborative staff, including a nurse, a nutritionist, and a medicine resident supervised by a primary care attending. After seeing the patients, medicine residents were provided with a list of their own patient panel of diabetic patients from the general medical clinic, including a trend of the HbA1C values. For patients with HbA1C values greater than 8%, residents reviewed the medical record and completed a chart abstraction form identifying barriers to achievement of glycemic control. They then designed a patient-specific intervention to overcome these barriers and were asked to invite the patient to attend the program the next session, where the resident would implement the intervention. The residents then completed a form concerning the systems-related barriers to providing quality care to diabetics in their clinic. Subsequently, there was a faculty-facilitated resident discussion about the relative merits and feasibility of the resident-generated ideas for addressing those systems issues. This discussion included constraints related to cost, personnel, staff education, and operating issues.
FINDINGS TO DATE: Overall, the residents were receptive to this program and participated fully in the patient care sessions, the written work and the discussions. The written work provided documentation of education regarding the ACGME competency of practice based learning and improvement and systems based practice. To date, 104 patients have been enrolled in the program. Patients were included in further analysis ($n=66$) if they had type 2 diabetes for over one year and 2 consecutive HbA1C values greater than 8.0%. Entry HbA1C was defined as the latest value from 6 months prior to the initial visit until 2 weeks after the initial visit. Final HbA1C was defined as the first value more than 3 months after the final visit. Comparing entry and final HbA1C, the mean absolute reduction in HbA1C was 1.2% ($p<0.00001$).
KEY LESSONS LEARNED: Residents are receptive to quality improvement education provided in the context of designing quality improvement interventions for their own patients. A resident-based quality improvement program can lead to substantial improvement in diabetes control among chronically poorly controlled diabetic patients.

TEACHING RESIDENTS ACGME COMPETENCIES: PRELIMINARY RESULTS OF A CURRICULUM BASED ON CHRONIC ILLNESS CARE, PATIENT SAFETY, AND HEALTH ECONOMICS. J.D. Voss[1]; M.L. Plews-Ogan[1]; N. May[1]; A. Wolf[1]; J.B. Schorling[1]. [1]University of Virginia, Charlottesville, VA. *(Tracking ID # 154014)*

STATEMENT OF PROBLEM OR QUESTION: US residency programs need to develop methods to teach and measure the ACGME competencies, particularly the new compentencies of systems-based practice (SBP) and practice-based learning (PBL) and the newly emphasized competencies in professionalism, teamwork and communcation.
OBJECTIVES OF PROGRAM/INTERVENTION: One of the greatest teaching challenges for these new competencies is establishing relevance for learners.To meet this challenge while heeding national calls to teach chronic illness care and patient safety, we designed a curriculum using chronic illness care, practical health economics and patient safety as teaching metaphors for our curriculum in SBP, PBL, professionalism and communication.
DESCRIPTION OF PROGRAM/INTERVENTION: Our 24-session curriculum (8 2–3 hour seminars per year each residency year) develops learner competence using workshops, role play, simulation and Web-based tools for resident profiling. Year 1 residents participate in seminars that introduce SBP and quality improvement (QI) methods; teach principles of safe medical practice; learn about the chronic care model; and participate in a diabetes self-simulation. Interns also complete a 4-week advanced interviewing curriculum including videotaped role plays to practice motivational interviewing for chronic illness behavior change. Under faculty guidance, 2nd-year residents conduct a root cause analysis of a personal near miss/error and develop an intervention plan. They also study population-based medicine, use a locally developed web tool to profile their practice as an exercise in population-based medicine and use this information to develop a personal QI plan. Third-year residents study the near miss root cause project from year 2 in a change implementation workshop, attend health policy and billing/coding workshops and play a team based clinical health economics simulation (CHESS). They also reprofile their practice, review their QI project from year 2, participate in a writing seminar on professionalism, and finish the curriculum by presenting highlights from their learning portfolio to peer residents and faculty. Activities from the seminars are collected in portfolios for each resident including items such as personal practice profiles, reflective writing exercises, digital video files of role plays and Powerpoint presentations prepared by each learner.
FINDINGS TO DATE: In the first 18 months of curriculum implementation we recorded 343 evaluations for 15 different resident learning activities. Residents rated activities via a confidential online evaluation system using Likert scales (1=low, 5=high). Evaluations collect both process and summative evaluations from the learners for each activity. Overall rating of learner satisfaction for activities range from 4.3 to 5.0. Agreement ratings with a statement affirming the learner's ability to apply the material learned range from 4.2 to 4.8. Efforts to develop pyschometrically valid assessment instruments to measure actual learner competence are ongoing. Our goal is to develop methods for both summative and formative evaluation of resident portfolios as well as other exercises that can be used to assess resident competence.
KEY LESSONS LEARNED: Preliminary results show residents value our curriculum and believe they are gaining skill in ACGME competency-related areas. There is a paucity of reliable competency assessment tools with development made difficult by no gold standard for competency.We are currently evaluating learner portfolios to measure actual learner competence.

TEACHING STUDENTS ABOUT GOVERNMENT INSURANCE PROGRAMS THROUGH A SERVICE-LEARNING ENDEAVOR. Y.S. Meah[1]; S. Hurtado-Rogers[1]. [1]Mount Sinai School of Medicine, New York, NY. *(Tracking ID # 156932)*

STATEMENT OF PROBLEM OR QUESTION: A recent AMSA study has shown that a large proportion of the nation's medical students are dissatisfied with their current public health training. Although they appreciate substantial disparities in healthcare delivery, students have argued that existing medical school curricula address these inequities in limited scope. In particular, their understanding of public health benefits and reasons for unenrollment and disqualification is substantially limited by the time most enter residency training and often stagnates until years into practice.
OBJECTIVES OF PROGRAM/INTERVENTION: 1. Establishment of a facilitated-benefits enrollment process which employs students in the screening and acquisition of public insurance for uninsured patients. 2. Development of a multidisciplinary service-learning project that promotes collaboration of students with social workers at a student-run clinic for the uninsured. 3. Creation of a training program that utilizes patient cases in the promotion of student understanding of the qualifications for government-sponsored insurance programs.
DESCRIPTION OF PROGRAM/INTERVENTION: First and Second year medical students have been voluntarily recruited to work closely with social workers employed at our student-run free clinic. Before employing these students at the clinic, we have trained them to understand the qualifications of Medicaid and related programs through a series of multidisciplinary problem-based interactive seminars facilitated by a senior medical student, a clinician-educator and a team of social workers. All cases have been derived from actual circumstances encountered at our student-run clinic for the uninsured. Trained students are then partnered with social workers to screen all uninsured patients attending this clinic for public insurance eligibility. Students work closely with potentially qualified patients to overcome obstacles such as translating forms from English to Spanish, acquiring necessary documentation and completing paperwork and addressing patient fears about immigrant deportation, steps that might otherwise hinder successful application for benefits.
FINDINGS TO DATE: This project is in its pilot year. We hope to demonstrate how a patient-centered project can increase student awareness of both the qualifications for public insurance as well as the barriers to successful enrollment.
KEY LESSONS LEARNED: Learning about the qualifications for public insurance and the barriers to enrollment should begin in the early years of medical school when students are less encumbered by the stresses of the wards. A patient-centered hands-on approach may be the ideal method to cement such an understanding. Such a project should be developed in collaboration with social workers.

TEACHING THE ACGME CORE COMPETENCIES THROUGH THE MORBIDITY AND MORTALITY CONFERENCE. S. Kravet[1]; S. Wright[1]. [1]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 156727)*

STATEMENT OF PROBLEM OR QUESTION: A pragmatic approach to teaching and reinforcing the six ACGME Outcome Project core competencies is to explicitly integrate them into existing curricular forums. Morbidity and Mortality Conferences (MMC), by and large considered to represent excellent opportunities for learning and reflection, may be an ideal venue for such an educational innovation.
OBJECTIVES OF PROGRAM/INTERVENTION: The objective of this intervention is to demonstrate how the ACGME Outcome Project's six core competencies can provide a meaningful and systematic structure upon which cases at an MMC can be framed. We will share our 2 years of experience with this approach to show that the thoughtful selection of cases and skillful facilitation of

discussion can further expand and bolster the educational value of the venerable tradition of the MMC.
DESCRIPTION OF PROGRAM/INTERVENTION: We have redesigned the format of our MMC to explicitly highlight all 6 of the ACGME core competencies. In addition to teaching traditional case-based medical knowledge and patient care, attendees are stimulated to reflect on details of systems failures, where the essence of systems-based practice and practice-based learning are captured. We ask involved faculty to detail the communication between the team, patients, and families, highlighting positive and negative verbal and written examples. We draw attention to acts of professionalism in the face of untoward events, publicly complimenting faculty and trainees whenever possible. The one-hour long conference is held 4 to 6 times each year. The Deputy Director for Clinical Activity, a faculty member with oversight for quality, safety, and efficiency of the Department's clinical practice, prepares the cases and moderates the conference. Faculty members that had been involved in the care of the patients discussed, as well as those with special expertise in specific content areas, are contacted in advance and asked to prepare comments. Housestaff are never expected to present or answer questions related to specific errors or untoward events at this conference. We invite members of the greater health care team (e.g. nurses, pharmacists, and hospital administrators) to attend and contribute so as to foster a multidisciplinary collaborative approach toward safety, quality improvement, and a systems perspective. We explicitly highlight how each case relates to the core competencies. A mix of cases is carefully chosen so that each of the core competencies is emphasized at every conference at least once. The moderator labels components of cases as precisely as possible elucidating the relationship with one of the ACGME competencies. The moderator controls the flow and pace of the conference with the intention of fostering high quality discussions.
FINDINGS TO DATE: Evaluation of the impact and effects of this innovation are ongoing. Preliminary results from surveying the attendees suggest that the conference, now organized around the framework of the ACGME's competencies, is being well received. In support of the impact of this innovation are the policy changes that have come about in our Department following discussions about specific cases at our MMC. Suggestions and ideas from the M&M conferences have served as a springboard for operational process re-design.
KEY LESSONS LEARNED: Combining the ACGME Outcome Project competencies and the MMC has been successful in our Department. Though the traditional goal of M&M as a forum for discussing specific cases has been maintained, the competencies have added meaning and structure to the discussion of each case. This M&M model may be particularly beneficial at institutions where the educational value of these conferences is suboptimal, and for residency programs that are struggling to operationalize the competencies in a meaningful way.

THAT'S GREY'S NOT GRAY'S ANATOMY: USING THE ARTS TO TEACH DURING A THIRD YEAR CLERKSHIP. A.G. Gomez[1]; P. Cifuentes-Henderson[1]; C. Fung[1]; L. Wilkerson[1]. [1]David Geffen School of Medicine at UCLA, Los Angeles, CA. *(Tracking ID # 156479)*

STATEMENT OF PROBLEM OR QUESTION: Integrating humanities into the medical school curriculum helps students develop skills in the human dimensions of medical care conveying metaphorically rich examples of predicaments faced by sick people. Traditionally, curricula utilizing theatrical, artistic or literary reviews have been introduced in the preclinical years. However, as with the example of teaching cultural competence, studies show that experiences during the clinical years of training have both more profound and lasting effects; physicians in practice more poignantly recall these latter year experiences as shaping their practice behaviors. In the required ambulatory medicine clerkship at the David Geffen School of Medicine at UCLA, we introduced a literary exercise and the viewing of a segment of an episode of a popular television series to teach students culturally competent methods to assure patient adherence to medical regimens.
OBJECTIVES OF PROGRAM/INTERVENTION: 1. To integrate a literary exercise and an audiovisual pop culture presentation to a curricular element in a third year clerkship. 2. To develop knowledge, skills, and attitudes to practice medicine in a patient-centered manner, with a bio-psychosocial perspective and an appreciation for racial and cultural diversity. 3. To demonstrate the relevance of a patient-centered approach to improve patient adherence to medical regimens.
DESCRIPTION OF PROGRAM/INTERVENTION: Patient-Centered Care is taught via multiple modalities in our medical school including standardized patients, community service and clinical experiences. In the third year required Ambulatory Medicine clerkship we assign the reading of at minimum 3 chapters of "A Spirit Catches You and You Fall Down" by Anne Fadimen. This book recounts devastating consequences that a Hmong family faces due to cultural barriers in the care of their child in the American Healthcare system. Through a literary appraisal of the book, students demonstrate how a patient-centered approach to clinical interactions could have lead to better outcomes in the care of this child. They specifically explore negotiating treatment plans to improve patient adherence. We supply the books on loan and a significant number read the whole text. With 2 faculty facilitators, 24 students hold active give and take discussions using the story as an example. Further, we show and analyze segments of an episode of the popular ABC television series "Grey's Anatomy" that demonstrate a group of "physicians" managing a very similar situation.
FINDINGS TO DATE: This session, not expected in a clinical rotation, has been received with enthusiasm and is highly rated by students. Structured examinations using standardized patients show that UCLA students are acquiring the skills necessary to focus on the needs of patients; our goal is to show further improvement on patient-centered care items embedded in our Senior Clinical Performance Examination.
KEY LESSONS LEARNED: Popular/artistic works lend relevant examples of Patient-Centered approaches to delivering healthcare in the context of a 3rd year medical student's extracurricular world. The artistic format complements reviewing medical literature and traditional didactic sessions. Exercising elements usually devoted for entertainment and pleasure emphasizes the humanity of medicine.

THE CLINICAL SKILLS CURRICULUM: A WEB-BASED LEARNING MODULE TO ENHANCE STUDENTS' SKILLS IN INTERPRETATION OF BASIC DIAGNOSTIC STUDIES. M.L. Cannarozzi[1]; B. Bognar[1]; O. Kevin[1]. [1]University of South Florida, Tampa, FL. *(Tracking ID # 157115)*

STATEMENT OF PROBLEM OR QUESTION: What is the best way to teach and assess competency in common and important clinical skills (such as CXR and PFT interpretation, critical evaluation of peripheral blood smears and interpretation of body fluid analysis) within the internal medicine clerkship? Does knowledge of these clinical skills correlate with standard tests of knowledge such as NBME scores and performance on CPX (standardized patient) examinations?
OBJECTIVES OF PROGRAM/INTERVENTION: To assess student competency in these newly acquired clinical skills, a four-station Clinical Skills Exam is administered at the end of the clerkship. Students are required to interpret multiple diagnostic studies both in a case-based and stand-alone format. Additionally, one station combines assessment of two separate competencies (chest radiograph interpretation and pulmonary function test interpretation).
DESCRIPTION OF PROGRAM/INTERVENTION: In the last decade, assessment of students' clinical competence has become increasingly important in the undergraduate medical curriculum. Objective Standardized Clinical Examinations (OSCE) have been used to assess students' skills in a variety of content areas including history taking, physical examination, data interpretation and communication skills. At our institution, we have implemented a similar approach to assess student competence in interpretation of common diagnostic studies that are used across the clinical curriculum. Interpretation of chest radiographs, pulmonary function tests, peripheral blood smears, and body fluids are not skills unique to internal medicine. Although integral to understanding disease diagnosis and management, these skills have traditionally been addressed in assigned readings, discussed as part of a lecture, or informally taught in the context of clinical care. In the internal medicine clerkship, we have implemented a web-based curriculum to address acquisition of these skills in a thematic fashion across our eight-week experience. Each of the eight major specialties in medicine has been linked to a clinical skill/procedure in that field, and web-based learning modules have been created to guide students' self-directed learning.
FINDINGS TO DATE: Sixty-six students have taken the exam to date. The average score is 83% (range 45–100). Feedback received from students has been positive with the majority of students rating the curriculum very good to excellent. Preliminary data do not suggest a strong correlation between our clinical skills exam and clinical knowledge or other clinical skill sets measured within the clerkship. More study is needed to determine how to define competency in these important clinical skills. More study is also needed to better determine the relationship between clinical knowledge and clinical skills.
KEY LESSONS LEARNED: Given the increasing emphasis on competency-based education, formal instruction and objective assessment of these shared clinical skills is needed. Curricular topics not formally addressed or objectively measured within the clerkship may be taught incompletely or inconsistently across the clerkship year. Additionally, faculty and student time as well as geographic constraints may limit the opportunities for traditional lecture instruction. Our curriculum provides one method to obtain and assess initial competency in these important clinical skills.

THE EDUCATIONAL VALUE OF CASE REPORTS FROM THE SGIM NATIONAL MEETING IN THE INTERNAL MEDICINE CLERKSHIP. J.L. Wofford[1]; S. Singh[1]; M.M. Wofford[1]. [1]Wake Forest University, Winston-Salem, NC. *(Tracking ID # 151502)*

STATEMENT OF PROBLEM OR QUESTION: The case reports (clinical vignettes) reported at the national SGIM meeting represent a rich resource for teaching students about Internal Medicine.
OBJECTIVES OF PROGRAM/INTERVENTION: To explore the educational value of case reports from the SGIM national meeting for the third year clinical clerkship. To develop educational activities using the SGIM case reports database
DESCRIPTION OF PROGRAM/INTERVENTION: During one hourlong clerkship conference, third year students in their Ambulatory Internal Medicine clerkship (academic year 2005–6) were introduced to the case report with an oral case report presentation and a demonstration of the case reports available at the SGIM/COS annual meeting web site. Using a standardized worksheet, students then reviewed five to ten case reports and collected information on clinical setting, presenting symptoms, learning objectives, final diagnosis, and how the final diagnosis was made. A variety of independent and small group learning activities were built around the assigned case reports.
FINDINGS TO DATE: A total of 42 students evaluated 371 case reports from the 2004 and 2005 meetings. The clinical setting represented most often was the hospital setting (25.7%), followed by the emergency department (19.4%), and the outpatient clinic (17.7%). The most prevalent disease categories were Infectious Disease (19.0%) and Neurology (10.5%) with other specialties of

Internal Medicine less well represented. The case reports fit clearly with the current SGIM-CDIM curriculum in 42.6% (n=175) of the case reports, and clearly did not fit with the curriculum in 40.4% (n=164) of case reports. Students rated the learning value of the case reports with a mean rating of 3.78 (+1.0) (5 point Likert scale with 5 signifying most learning). Case reports that fit the SGIM-CDIM curriculum had greater learning value than those that did not fit (3.97 versus 3.60, p=.017), but there was no difference in learning value by clinical setting of the case report. The case reports assignment was useful in class discussions of the evidence hierarchy, case presentation, learning clinical language, and the breadth of Internal Medicine.
KEY LESSONS LEARNED: The case reports presented at the national SGIM meeting offer clinical content that is relevant and meaningful for third year clerkship students. Better educational use of the database could come from detailed indexing of the abstract and sharing of educational strategies.

THE HARVARD MEDICAL SCHOOL CAMBRIDGE INTEGRATED CLERKSHIP. D. Hirsh[1]; W. Gutterson[1]; M. Batalden[1]; S. Beck[1]; C. Bernstein[1]; J. Callahan[1]; P.A. Cohen[1]; D. Elvin[1]; M. Penglase Garcia[1]; E. Gaufberg[1]; S. Gaufberg[1]; A. Ghosh[1]; K. Shaffer[1]; D. Shtasel[1]; E. Krupat[2]; S. Pelletier[2]; B. Ogur[1]. [1]Harvard Medical School and Cambridge Health Alliance, Cambridge, MA; [2]Harvard Medical School, Boston, MA. *(Tracking ID # 154369)*

STATEMENT OF PROBLEM OR QUESTION: Can core clinical clerkships be taught simultaneously, without traditional block rotations?
OBJECTIVES OF PROGRAM/INTERVENTION: To design, implement, and assess a year-long, longitudinal, integrated program for the principal clinical year.
DESCRIPTION OF PROGRAM/INTERVENTION: The HMS Cambridge Integrated Clerkship (CIC) is a complete redesign of the third year, structured to teach core Medicine, Surgery, Pediatrics, Obstetrics/Gynecology, Psychiatry, Radiology, and Neurology in a longitudinal way. Traditional block rotations are replaced by a single integrated experience. The clerkship relies on a student's cohort of continuity patients and carefully chosen acute care encounters to provide the context for the year-long developmental curriculum. One of the educational pillars of the CIC is to connect students with patients through "whole illness episodes." Students meet patients at first contact with the healthcare system, participate in initial evaluation, problem formulation, and follow therapeutic decision-making and the patient's experience of the illness until stabilization or endpoint. Students follow patients in multiple departments and across multiple venues of care. A second pillar is to connect experienced faculty preceptors with students. Students work in ambulatory clinic settings with attendings from each of the core disciplines throughout the year. Students have longitudinal specialty-specific inpatient rounds and Master Clinician rounds with attendings all year. A case-based tutorial program frames CIC didactics and includes clinical, basic, and social science coursework, radiology, pathology, and patient simulator experiences. We assessed the program by comparing CIC students with a carefully matched cohort of students doing the traditional third year. The two groups' scores on content exams (Comprehensive Clinical Science Self Assessment and Shelf Exams) and the HMS 4th year OSCE were compared to each other and to the rest of the HMS class. In addition, CIC students and controls completed surveys and focus groups throughout the year.
FINDINGS TO DATE: At the beginning of the clerkship year, CIC students and matched traditional students showed no significant difference on MCAT scores, Step 1, future practice choices, 2nd year OSCE or attitudes toward patient care. At the end of the third year, the CIC students had combined Shelf exam scores that were significantly higher than the matched cohort ($p<.003$) and higher than the HMS class as a whole ($p<.005$). On the Comprehensive Clinical Science Self Assessment, CIC students had significantly higher scores ($p<.05$). On the fourth year OSCE, CIC students scores exceeded the controls and the rest of the HMS class ($p<.01$) When results of the focus groups were compared, there were no differences between CIC and controls on how prepared they felt to integrate basic sciences and clinical practice or to practice evidence-based medicine. However, CIC students felt more prepared to be truly caring with patients, deal with ethical dilemmas, see how the social context affects patients, involve patients in decision-making, relate well to a diverse population, and to be a self-reflective practitioners. CIC students report receiving most teaching and mentoring from faculty (not interns and residents).
KEY LESSONS LEARNED: CIC students performed as well on measures of clinical science knowledge and clinical skills. CIC students were more satisfied with their educational experience and felt more prepared in many areas related to professionalism.

THE HEALER'S ART: AN INNOVATION IN PROFESSIONALISM EDUCATION. M.W. Rabow[1]; R.N. Remen[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 154151)*

STATEMENT OF PROBLEM OR QUESTION: Students often enter medical school with an impulse toward service and compassion. The humanistic agenda may be diminished by a hidden curriculum that preferentially values cognitive dimensions of professionalism: expertise, technical competencies and formal ethics. However, professionalism includes deeper elements of patient care including mission, values, commitment to service and healing relationship.
OBJECTIVES OF PROGRAM/INTERVENTION: Educational efforts rarely engage the deeper elements of professionalism and many have not been adequately evaluated or disseminated nationally. In 1992, Rachel N. Remen, MD, developed the "Healer's Art," an elective course in professionalism education at UCSF and 44% of first years have participated since its inception. The course is now taught at 39 medical schools across the US and internationally.
DESCRIPTION OF PROGRAM/INTERVENTION: Nationally, all Healer's Art course directors undergo centralized training and all courses follow a standardized format. The Healer's Art offers five 3-hour sessions comprised of large and small group experiences. The large group session features a brief topic-driven commentary by course faculty followed by an opportunity for students to reflect on personal experiences with the topic. This is followed by a small group discussion in which students and faculty share as equals and discuss what was discovered in the reflection. In order to ensure each group member feels respected and safe, the small groups initially agree on ground rules of interaction and confidentiality. The five sessions include: Discovering and Nurturing Your Wholeness; Sharing Loss and Honoring Grief (2 sessions); Beyond Analysis: Allowing Awe in Medicine; and the Calling and Commitment. The Healer's Art is based on four educational theories. (1) Medical education is a moral trajectory and curriculum not only informs but also transforms learners. (2) Meaning and values are antecedent to professional behavior and commitment. (3) Education in professionalism requires experiential engagement using an interactive discovery model. (4) Learners know more than they realize about healing, service and doctor-patient relationship. In the small group interaction, students and faculty experience and strengthen basic principles of service and healing relationship: Safety, Authentic Listening and Presence; Intimacy, Respect and Trust; Compassion and Empathy; Community; and Commitment.
FINDINGS TO DATE: A course evaluation in 2003–04 included responses from 489 of 680 students (72%) and 88 of 174 faculty (50.1%) at 23 of the 25 schools participating at the time. Students and faculty reported using content from the course both professionally (65.7% and 75.0%) and personally (73.3% and 79.5%). Students rated course quality as 4.47 on a 5-point scale. Both students and faculty reported the course provided important learning not available elsewhere in their curriculum (4.59 and 4.76, respectively). Student age, year in school, gender, or medical school were not associated with differences in evaluation of the course utility or uniqueness. Further evaluation of the course's short and long-term impact is ongoing.
KEY LESSONS LEARNED: An experiential course in professionalism education was reported to be useful to students and faculty, and to offer learning not available elsewhere in most medical schools. Such a course is effective across a wide range of medical school cultures and may help promote deeper elements of professionalism.

THE PRIME CURRICULUM: CLINICAL RESEARCH TRAINING DURING RESIDENCY. R.J. Kohlwes[1]; R.L. Shunk[2]; A.L. Avins[2]; S.W. Bent[2]; J. Garber[2]; M. Shlipak[2]. [1]Society of General Internal Medicine, San Francisco, CA; [2]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 151435)*

STATEMENT OF PROBLEM OR QUESTION: Training residents in Evidence Based Medicine (EBM) is increasingly important in modern academic medicine. Our program's goal is to train EBM to future academic internists by teaching clinical research skills and enabling trainees to attempt a mentored research project.
OBJECTIVES OF PROGRAM/INTERVENTION: Enable internal medicine residents to "try out" a career in clinical outcomes research to make more educated career decisions.
DESCRIPTION OF PROGRAM/INTERVENTION: The Primary Medical Education (PRIME) program is an outpatient-based, internal medicine residency track nested within the University of California, San Francisco (UCSF) categorical medicine program based at the San Francisco Veteran's Affairs Medical Center (VAMC). The program accepts 8 UCSF medicine residents annually, who differentiate into PRIME after internship. In 2000, we implemented a novel research methods curriculum with the dual purposes of teaching basic epidemiology skills and providing mentored opportunities for clinical research projects during residency. The PRIME curriculum utilizes didactic lecture, frequent journal clubs, work-in-progress sessions, and active mentoring to enable residents to "try-out" a clinical research project during residency.
FINDINGS TO DATE: We had eight residents per year graduate from the program from 2001–2004, for a total of thirty-two alumni exposed to our curriculum. All PRIME residents passed the Internal Medicine Board Exam on their first attempt. The overall clinical competence scores as rated by 613 students, peers and attending physicians evaluating the 32 PRIME Residents gave an overall average score of 8.23 on a 9.0 point scale. This was significantly better than the average of 8.09 from 2294 responses for the rest of the internal medicine program, ($P<0.001$). Seven of the thirty-two PRIME residents were asked to be Chief Residents (21.8%) compared with 17 of 185 from the other UCSF Internal Medicine programs (9.2%). ($P=0.03$). PRIME has become the most popular resident rated outpatient rotation in internal medicine at UCSF over that period of time with a score of 4.57 (0–5 scale) for PRIME compared with 4.29 for the categorical outpatient experience although this difference does not reach statistical significance. ($P=0.17$) Amongst the 32 PRIME residents in four years, 22 have produced 20 original research papers in peer-reviewed journals that are published or in-press, 2 clinical-review papers, 1 paper currently under review and 2 book chapters. 5 other residents presented their projects at our annual Floyd Rector Resident Research Symposium. In large part due to presentations from the PRIME residents, the average number of resident publications at the Rector Symposium rose from 6–9 presentations per year in the 1990's to 13–21 presentations since 2001. Residents are nearly always the lead authors of these original research articles, which is a position they earn by leading every aspect from conception and design to manuscript production under the guidance of their mentor.
KEY LESSONS LEARNED: While learning skills in evidence-based medicine, residents can conduct high-quality research. Utilizing a collaboration of General Internal Medicine (GIM) researchers and educators, our curriculum affords

residents the opportunity to "try-out" clinical outcomes research as a potential future career choice.

TRADITIONAL PHYSICAL EXAM INSTRUCTION VS. STANDARDIZED PHYSICAL EXAM TEACHING ASSOCIATES. K.J. White[1]; J.H. Fisher[1]; G. Barley[1]; B.G. Dwinnell[2]. [1]University of Colorado Health Sciences Center, Aurora, CO; [2]University of Colorado Health Sciences Center, Denver, CO. *(Tracking ID # 151677)*

STATEMENT OF PROBLEM OR QUESTION: Traditionally, the instruction of physical exam skills has ocurred in small groups of students under the guidance of faculty physician tutors. Often, the students are practicing the skills on one another. Some of the challenges faced with the traditional method include recruitment of faculty for teaching, difficulties of having students practice on one another, particularly in coed groups, and lack of ability to standardize what the students are learning. Recent data suggest that SPETAs (standardized physical exam teaching associates) are at least equally effective as faculty in teaching physical exam skills to first and second year medical students. The following study was designed to create a direct comparison of traditional teaching methods vs. SPETAs in physical exam instruction for first year medical students.
OBJECTIVES OF PROGRAM/INTERVENTION: To evaluate effectiveness of SPETAs in teaching physical exam skills to first year medical students vs. the traditional faculty led small group instruction of these skills.
DESCRIPTION OF PROGRAM/INTERVENTION: The first year class of medical students at the University of Colorado Health Sciences Center was randomly divided into two groups for the physical exam curriculum portion of the Foundations of Doctoring Course (n=144). All students learned the physical examination of the upper extremity, lower extremity and back, chest (cardiovascular and pulmonary), and abdomen. One half of the class learned the physical exam skills in faculty led small groups with one faculty member and 6 students per group. The other half of the class learned the physical exam skills from SPETAs with 3 students and one SPETA per group. Both groups had the same amount of instruction time per system. Both groups were tested via OSCEs upon completion of all instruction. The same checklist was used to train the SPETAs, guide the faculty tutors, and for the OSCEs. All students completed a post-examination attitudinal survey on their physical exam teaching.
FINDINGS TO DATE: There was no statistically significant difference in scores between the two groups except for the abdominal exam, in which the SPETA-taught students performed better. For the abdominal exam OSCE, the mean scores were 85% and 89% for faculty physician-taught and SPETA-taught students respectively (p=0.34). There was a trend in all groups that the SPETA-taught students performed better, but this did not reach statistical significance. The post-examination quesitonnaire revealed that greater than 70% of students in both groups felt their intstructors were well prepared. Approximately 55% of students in both groups felt there was not enough time to practice the skills during the sessions. 80% of students in both groups felt the group size was appropriate for subject and format. Interestingly, only 41% of SPETA-taught students felt their instructors were able to answer questions raised during the sessions, compared to 83% of faculty-taught students. On the other hand, 71% of SPETA-taught students reported practicing physical exam skills during all sessions, while only 42% of faculty-taught students did.
KEY LESSONS LEARNED: SPETAs are an effective means of teaching physical exam skills to first year medical students, particularly when the goal is purely skills acquisition. Faculty physicians are more qualified to discuss clinical correlates, which becomes more relevant as the students progress through the curriculum.

TRAINING PHYSICIAN INVESTIGATORS IN MEDICINE AND PUBLIC HEALTH RESEARCH. M.N. Gourevitch[1]; M.D. Schwartz[1]; N.R. Shah[1]; A.L. Mendelsohn[1]; G.L. Foltin[1]; L.R. Goldfrank[1]; M. Lipkin[1]. [1]New York University, New York, NY. *(Tracking ID # 153650)*

STATEMENT OF PROBLEM OR QUESTION: Translation of scientific advances into measurable public health improvements is unacceptably slow. To improve the pace, we designed an innovative fellowship to train clinical investigators in the research skills needed to address challenges at the interfaces of public health, population medicine, and traditional medicine.
OBJECTIVES OF PROGRAM/INTERVENTION: To design, implement, and evaluate a post-residency physician research fellowship in health promotion, disease prevention, and preparedness.
DESCRIPTION OF PROGRAM/INTERVENTION: A two-year research-training fellowship for post-residency physicians was awarded CDC funding (T01 mechanism). The year one curriculum teaches research methods and core public health knowledge, and introduces participants to diverse public health investigators and practitioners. In years one and two, fellows conduct mentored research investigating real-world hypotheses pertinent to medicine and public health. Partners include state (New York, New Jersey) and local (New York City) health departments and municipal hospital systems, with bidirectional transfer of experience and expertise. Research opportunities in health promotion, disease prevention and preparedness focus on problems affecting vulnerable urban populations. Emphasis is placed on acquiring the skills and experience essential to conducting applied research that is generalizable, sustainable, and incorporates attention to economic forces and policy implications.
FINDINGS TO DATE: Six physicians enrolled in the initial fellowship cohort, reflecting diverse racial/ethnic backgrounds (1 Hispanic, 1 African American, 2 Asian, 2 Caucasian) and medical disciplines (3 Internal Medicine, 2 Pediatrics, 1 Emergency Medicine). Four are female. Four enrolled immediately following completion of residency or chief residency, and two after working in research and practice for 3–5 years. First semester courses included biostatistics, medical informatics, and environmental medicine. An Integrative Seminar bridged course-based learning with the more complex, real-world challenges of public health research: speakers represented front line agencies and research faculty. In Public Health Journal Club fellows applied critical appraisal skills to a broad range of population health-oriented literature. Launching fellows in their research was challenging. Following introduction to a variety of potential mentors, fellows narrowed their choices based on common interests and personal chemistry. Fellows' mentoring teams typically include a faculty researcher, public health official, methodologist and junior faculty mentor. An iterative process generated research projects that would be a) feasible in two years, and b) passed the "so what" test regarding potential population health impact. Projects selected by fellows target community diabetes treatment and control, colorectal screening of immigrants, health literacy of pediatric emergency department patients, community-based obesity prevention, internet use by multi-ethnic diabetics, and insurance status change and access to care. A novel, multi-station, performance-based evaluation of problem-solving competence across varied public health and medicine interface cases is being developed. In addition to providing education and feedback for trainees and program leadership, it will yield pilot data in developing an exportable measure of public health trainee performance.
KEY LESSONS LEARNED: A research fellowship can bridge the divide between medicine and public health and foster applied population-based research.

UNIVERSAL SERVICE LEARNING IN THE MEDICAL SCHOOL CURRICULUM TO ENHANCE PROFESSIONALISM AND HUMANISTIC PRACTICE. M. Nadkarni[1]; D. Alexander[1]; B. Lorntz[1]; D. Lieb[1]. [1]University of Virginia, Charlottesville, VA. *(Tracking ID # 156460)*

STATEMENT OF PROBLEM OR QUESTION: Early in their medical education, students are consumed by basic science courses and may have little time to to interact with future patients, nor have the altruistic values which drew many to medical school reinforced. The "hidden curriculum" in medical school may squelch values of humanistic practice and may isolate students from the very community in which they will later function. Can integrating universal community-based service learning into the first year medical school curriculum, with a dual focus on community service and disciplined self reflection, promote an ethic of service and humanistic practice as overarching values in medical education?
OBJECTIVES OF PROGRAM/INTERVENTION: 1) To develop and nurture an "ethic of service" in medical students via participation in the "community service exploratory course." 2) To place first year medical students into community based service learning experiencesto expose students to the challenges and barriers individuals may face in accessing medical care. 3) To enable students to gain familiarity with the network of community social, psychological and eduational resources available to their future patients while providing useful direct community service. 4) To enhance the University Medical School's engagement with community agencies as a partner in the medical educaiton of future physicians.
DESCRIPTION OF PROGRAM/INTERVENTION: All first year medical students at University of Virginia were in enrolled in the Community Service Exploratory Course. All were assigned to community based agencies or schools to perform a required 30 hours of service learning over one semester. Direct contact with patients/clients was a prerequisite for approved placements. In conjunction with supervised service with community agencies, students completed 3 sets of reflection questions and participated in 3 small group discussion sessions to stimulate personal growth and incorporation of humanistic values into their professional development. Additionally, panel discussions with practicing physicians engaged in ongoing community service were presented.
FINDINGS TO DATE: Pre and Post placement evaluations revealed that students responded positively to service learning placements in community settings. Many stated they were exposed to new populations and experiences that they might otherwise have missed. Many reported considering career paths different than those they expressed upon matriculation. The majority expressed a better understanding of barriers potential patients may experience in accessing medical care and ways they might help patients overcome obstacles in adhering to treatment plans. 72% of students indicated they planned to continue community service during the remainder of their medical training.
KEY LESSONS LEARNED: Universal Service Learning with community placements early in medical training may help lay a foundation for the future practice of medicine by sensititzing students to both the challenges patients face and the community resources that exist. Associated self reflection exercises encourage students to cultivate humanistic qualities by heightening awareness of their personal values, internal strengths and personal limitations. Increased outreach into the community, with increased visibility of partnerships with community agencies also enhanced interactions between the medical school and the local community.

USING IPOD TECHNOLOGY TO CREATE A SELF-GUIDED CLINIC TOUR FOR RESIDENT ORIENTATION. J.L. Wofford[1]; M. Wofford[1]; D.P. Miller[1]; C. Brownlee[1]; S. Singh[1]. [1]Wake Forest University, Winston-Salem, NC. *(Tracking ID # 153102)*

STATEMENT OF PROBLEM OR QUESTION: With learners rotating through different clinical settings every month, orientation to a new clinical service or setting is often haphazard and incomplete. An innovative, uniform, and

entertaining approach to providing information is needed to improve efficiency and effectiveness of the orientation process.
OBJECTIVES OF PROGRAM/INTERVENTION: To explore the use of iPod technology for clinic orientation.
DESCRIPTION OF PROGRAM/INTERVENTION: On arrival to the clinic, new residents were presented an iPod Shuffle containing an audio guide and a one page worksheet. They were then oriented to the tour strategy and directed to the patient registration area, the first station on the tour. The iShuffle/worksheet directed the orientee through the clinic - from registation/waiting area to exam room to clinical support areas - a total of 10 stations. Each station had a corresponding iPod audio segment that introduced faculty members and support staff, speaking in their own voices and explaining their roles in clinic. Residents were instructed to introduce themselves to clinic staff who had been primed to respond and welcome. The companion worksheet enhanced engagement by soliciting written responses based on information collected throughout the tour. At the end of the 30 minute tour, new residents turned in their iShuffle/worksheet and met with a faculty member for unanswered questions. Development of the materials and strategy first required group consensus about orientation content with attention to time limitation and attention span of the new residents. The audio content involved limited rehearsal time and included a variety of music sound bites used to fade in/fade out between tour stations.
FINDINGS TO DATE: Most residents were able to accomplish the self-guided tour independently although completion of the tour guide worksheet was variable. The faculty spent less time with the orientation process than in previous years. Residents reported the experience was enjoyable and useful. Faculty and staff participated with enthusiasm in the development of the materials and even seemed proud to play a part in the novel approach to orientation.
KEY LESSONS LEARNED: Use of iPod technology for clinic orientation is possible, novel, and efficient. The attraction of new technology and entertainment as part of an orientation engages residents and saves faculty time. We are currently developing iPod orientations as a routine means of orientating learners to other rotations.

USING POETRY AND MEDICAL NARRATIVE TO TEACH MEDICAL INTERVIEWING SKILLS. R.S. Strauss[1]. [1]VA Medical Center, San Francisco, San Bruno, CA. *(Tracking ID # 154843)*

STATEMENT OF PROBLEM OR QUESTION: In the progressively time-constrained doctor-patient encounter, it is becoming more and more challenging for the doctor to be both an astute observer and a connected, compassionate caregiver. Medical educators are tasked with finding innovative ways to teach these skills to medical students.
OBJECTIVES OF PROGRAM/INTERVENTION: To develop an innovative curriculum using poetry and "medical narrative" to teach medical interviewing to first and second year medical students at the University of California, San Diego. Elizabeth Bishop's poems, with a particular focus on her parenthetical comments, were used to increase awareness of the parenthetical moments in patient encounters which sometimes lead to unexpected diagnoses and to closer doctor-patient relationships.
DESCRIPTION OF PROGRAM/INTERVENTION: Elizabeth Bishop, acknowledged as one of the leading 20th century American poets, wrote in an accessible, precise style often noted for its detailed observations. Frequently in her writing, the speaker steps back to offer brief parenthetical comments which allow the reader to look at her poems in an entirely new light. For the curriculum, a selected brief Elizabeth Bishop poem, "One Art," is read, with an emphasis on the use of parenthetical statements. [Poem excerpt: "The art of losing isn't hard to master; so many things seem filled with the intent to be lost that their loss is no disaster. Lose something every day. Accept the fluster of lost door keys, the hour badly spent. The art of losing isn't hard to master. . . . –Even losing you (the joking voice, a gesture I love) I shan't have lied. It's evident the art of losing's not too hard to master though it may look like (Write it!) like disaster."] The irony of the parenthetical moments within the rigid structure of this poem are instructive with regards to the need for physicians to be alert to key parenthetical moments within the patient encounter. The parenthetical statements in the poem are then compared to parenthetical statements made during real case-based patient encounters, such as a patient struggling with the decision to perform colon cancer screening. The class is then invited to reflect on similar important parenthetical moments they've experienced within the narrative structure of their own patient encounters.
FINDINGS TO DATE: This curriculum stimulated dialogue about the doctor-patient relationship which students reported they found very interesting, engaging, and useful.
KEY LESSONS LEARNED: The parenthetical observations in Elizabeth Bishop's poetry provide a useful tool for challenging and teaching medical students to be astute observers and active participants in the "medical narrative" during their doctor-patient encounters.

USING THE SYSTEMS-BASED PRACTICE COMPETENCY TO ENABLE CHANGE IN A RESIDENCY PROGRAM ENVIRONMENT. L. Icayan[1]; R.C. Anderson[1]. [1]Evanston Northwestern Healthcare, Evanston, IL. *(Tracking ID # 154551)*

STATEMENT OF PROBLEM OR QUESTION: Can team-based Grand Rounds presentations effectively demonstrate the systems-based practice core competency?
OBJECTIVES OF PROGRAM/INTERVENTION: 1) To provide a forum to identify, propose and discuss solutions for systems-based practice issues. 2) To encourage multidisciplinary thinking in the approach to patient care and medical education.
DESCRIPTION OF PROGRAM/INTERVENTION: Ten teams of 7 to 8 house staff are asked to identify an issue that affects either the quality of their patient care or the quality of their residency training program. The team meets to discuss details of the issue in the context of the larger system of health care delivery. Potential solutions are considered, researched and then discussed with the residency program leadership for appropriateness, feasibility and presentation refinement. The key stakeholders who can act on the issues are invited to the Grand Rounds presentation and sent a copy of the PowerPoint slides. Each team presents for 10 minutes at one of two consecutive Department of Medicine Grand Rounds.
FINDINGS TO DATE: Examples of issues presented included a better system of identifying patients as teaching or non-teaching in the emergency room, developing a business of medicine curriculum, improving the organization of the code blue team and developing a health maintenance/screening flow sheet in our electronic medical record. The presentations and proposed solutions prompted subsequent meetings with team leaders, residency administration and the leadership of our electronic medical record to problem-solve identified issues. Textbooks related to the business of medicine were purchased and a business of medicine curriculum is being developed.
KEY LESSONS LEARNED: Team-based problem solving and Grand Rounds presentations of solutions are an effective means of understanding systems-based issues and provoking change. The hospital administration, electronic medical record leadership and residency program all listened carefully to the presentations and have subsequently made changes to improve patient care and medical education based on the recommendations.

USING THEATRE TO TEACH EMPATHY TO HOUSESTAFF. A. Dow[1]; A. Anderson[1]; D. Leong1; R.P. Wenzel[1]. [1]Virginia Commonwealth University, Richmond, VA. *(Tracking ID # 154693)*

STATEMENT OF PROBLEM OR QUESTION: While empathy is a necessary skill for clinicians, few graduate medical education programs have a specific curriculum dedicated to teaching empathy.
OBJECTIVES OF PROGRAM/INTERVENTION: 1) To develop an innovative curriculum with the Department of Theatre to teach empathy to housestaff; 2) To assess the effect of the curriculum using specific behavioral measures
DESCRIPTION OF PROGRAM/INTERVENTION: Empathy is identifying with the situation and feelings of another. The act of empathy consists of listening attentively and responding with the appropriate verbiage, tone, inflection, and posture dictated by the interaction. This process is similar to the skills experienced actors use on stage to create realistic relationships between characters. One area of emphasis in theatre education is recognizing emotional subtlety and producing a carefully measured response in order to evoke the proper sentiment. We hypothesized that these carefully measured responses are comparable to the empathy skills an expert clinician uses to interact with patients. As such, professors of theatre may have unique talents to teach clinical empathy. We designed an empathy curriculum with the Department of Theatre and measured the effects of our intervention in a controlled trial. The intervention consisted of six hours of classroom and workshop instruction by Department of Theatre professors. Topics included speech, body positioning and posture, recognizing emotional subtlety in patients, and projecting empathy. Sessions were interactive and designed to enhance clinical implementation of the techniques. We assessed participants at baseline and at least once within the four months after the intervention. Department of Theatre faculty performed the assessments in the resident continuity clinic by observing interactions with patients. An evaluation tool commonly used by the Theatre Department to assess student performance was modified for this purpose. This tool evaluated thirty-three areas within six subgroups: empathetic communication, relating to the listener, verbal communication, non-verbal communication, respect for dignity, and overall impression. The intervention group was compared pre- versus post-intervention and versus the control group. Statistical analysis was done with two sample *t*-tests and mixed analysis of variance.
FINDINGS TO DATE: We noted no difference in baseline empathy behaviors between the two study groups ($p > .3$). Post-intervention, the intervention group showed significant improvement ($p < .05$) across all subgroups of measurement. The post-intervention scores for the intervention group were significantly better (p .05) than those in the control group for five of six subgroups: empathetic communication, relating to the listener, verbal communication, respect for dignity, and overall impression. For the sixth subgroup (non-verbal communication), the comparison of the post-intervention group versus the control group showed a positive trend for significance ($p = 0.101$).
KEY LESSONS LEARNED: Theatre professors are experts in nuanced interactions. Skilled in recognizing emotion and projecting understanding, these professors are a unique resource for assessing and teaching empathy. This controlled study demonstrated that professors of theatre can teach empathy skills to residents. This study is the first to combine the dramatic arts and graduate medical education and is an example of the rigorous study of new educational methods. Further study is ongoing to assess the longevity of the taught skills and the effect of the curriculum on patient satisfaction.

WEB BASED INTERACTIVE DERMATOLOGICAL AND FUNDOSCOPIC CURRICULUM FOR INTERNAL MEDICINE RESIDENTS. V. Venkatachalam[1]. [1]Hartford Hospital, Hartford, CT. *(Tracking ID # 153384)*

STATEMENT OF PROBLEM OR QUESTION: It is a challenging task to educate Internal Medicine residents in common dermatological problems and fundoscopic findings in the limited amount of time that is spent in ambulatory

training. Our goal was to assess the baseline core knowledge of Internal Medicine residents in common dermatological and fundoscopic cases and identify the potential areas of deficits through a web based interactive curriculum.
OBJECTIVES OF PROGRAM/INTERVENTION: 1. To identify knowledge deficits among Internal Medicine residents on common dermatological diagnoses and fundoscopic findings. 2. To create a web based interactive dermatological and fundoscopic curriculum for Internal Medicine residency program that can be modified periodically to meet their needs.
DESCRIPTION OF PROGRAM/INTERVENTION: A web based interactive dermatological and opthalmological curriculum was developed in a powerpoint presentation format with 15 slides of common dermatological cases and 5 fundoscopic findings. There were total of 48 questions for these 20 slides. Internal medicine residents PGY 1 and PGY 2 rotating in ambulatory block were required to take the test during the rotation. Residents had an average of two dermatology rounds to attend in this block. In addition to the clinical teaching, a formal didactic presentation of the slides in the test was performed by full time teaching faculty during the rotation. The diagnoses that were answered incorrectly by majority of the residents were identified to provide immediate feeback and education. This is an ongoing curriculum where residents will be retaking the test every year. The performances will be evaluated every year, and the curriculum will be modified to meet the residents' needs.
FINDINGS TO DATE: Forty-six Internal Medicine residents participated in the test from March 2004 to June 2005. There were 19 PGY 2 residents and 27 PGY 1 residents. The mean score for PGY 1 was 69.5% and that for PGY 2 was 76.4%. The individual diagnoses that were answered correctly by more than 80% of residents include Acne vulgaris, Scabies, Alopecia Areata, Atopic Dermatitis, Pyoderma Gangreneosum and CMV retinitis. The diagnoses that were answered correctly by less than 80% of residents include Erythema Multiforme, Acne Rosacea, Dermatomyositis, Lichen Planus, Vasculitis, Seborrehic Keratosis, Dysplastic Nevi, Melonama, Retrobulbar neuritis, Papilledema, Diabetic Proliferative Retinopathy and Central Retinal Vein Occlusion. The questions related to etiology of Erythema Multiforme were answered correctly only by 28% of residents and the correct CD4 count for CMV retinitis was answered only by 24% residents.
KEY LESSONS LEARNED: Residents need more training in recognizing dermatological slides. Emphasis in teaching should be made towards more common diagnoses like Erythema Multiforme, Acne Rosacea, Melanoma and Dysplastic nevi. We believe this will help them succeed in Internal Medicine Boards and also improve their core knowledge base.Similarly more emphasis is needed to recognize Diabetic Proferative Retinopathy and Pappiledema which are more common than CMV retinitis. The teaching curriculum should also include etiology and treatment for common rashes to ensure best quality of care for their patients.

INNOVATIONS IN PRACTICE MANAGEMENT

A NOVEL APPROACH TO CHRONIC PAIN MANAGEMENT IN A PRIMARY CARE SETTING. J. Seaman[1]; J.T. Hagaman[1]; E. Warm[1]; D.P. Schauer[1]; G.W. Rouan[1]. [1]University of Cincinnati, Cincinnati, OH. *(Tracking ID # 153298)*

STATEMENT OF PROBLEM/QUESTION: Outpatient management of chronic pain is challenging in academic primary care practices. Office staff, resident and faculty physicians were frequently dissatisfied with the management of chronic pain at our institution (a resident practice in an urban medical center). Suboptimal chronic pain management resulted in frequent phone calls to the clinic for medication refills and visits to the emergency room.
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: The purpose of this intervention was to: 1.) reduce phone call volume 2.) optimize healthcare utilization 3.) improve patient adherence to the controlled substance agreement 4.) identify those patients who are being managed on chronic narcotics and 5.) improve staff satisfaction with chronic pain management.
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: Patients who were managed with a stable dose of narcotic medication were referred to a medication nurse in the outpatient Internal Medicine resident continuity practice. Patients were required to sign a controlled substance agreement with stipulations on expected patient behaviors and provisions for random urine toxicology screening. The medication nurse saw each patient on a monthly basis. At each visit the medication nurse assessed the patient's pain, refilled prescriptions, and randomly administered urine toxicology screens. Patients continued to have routine office visits with their primary physician. If complications arose or their pain was poorly controlled, they were seen sooner.
FINDINGS TO DATE/EVALUATION OF WEB SITE: Between February 2005 and November 2005, 205 patients have been referred to the medication nurse program accounting for over 400 visits. Of the patients referred, sixty (29%) were discharged for violation of the controlled substance agreement. Eighty-six (42%) patients were seen one to three times and for less than six months. Additionally, we describe a group of fifty-nine (28%) patients have seen the medication nurse at least four times and have been compliant with the controlled substance agreement. For these fifty-nine compliant patients, the number of phone calls was halved (8.1 v 4.2 call/year, $p=0.0004$) in the year following referral. Additionally, among these 59 patients, emergency department visits decreased from 98 to 77 visits per year in an annualized fashion when compared to the previous year. Patient's subjective assessment of pain and function remained unchanged throughout the study period (6.3/10 v 5.9/10, p=ns and 52.3 v 44.5, p=ns, respectively).
KEY LESSONS LEARNED: Utilization of a medication nurse in the management of chronic pain: 1.) Optimizes healthcare utilization and efficiency, by decreasing emergency department visits and reducing patient phone call volume to the practice 2.) Enhanced provider satisfaction 3.) Results in no change in patient's perception of pain or functioning

A NOVEL APPROACH TO TREATING CHRONIC NON-MALIGNANT PAIN IN A RESIDENT PRIMARY CARE CLINIC. J. Gibson[1]; C. Nicolaidis[2]; P. Bascom[2]; J. Bowen[2]. [1]Legacy Health System, Portland, OR; [2]Oregon Health & Science University, Portland, OR. *(Tracking ID # 154078)*

STATEMENT OF PROBLEM/QUESTION: Patients with chronic non-malignant pain challenge residents and resident clinics, resulting in decreased resident satisfaction with clinic experiences and diminished quality of medical care and pain care.
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: 1) Improve delivery of pain care to patients with chronic-non-malignant pain in an internal medicine resident outpatient practice 2) Improve delivery of non-pain related medical care to patients in an internal medicine resident outpatient practice. 3) Increase resident satisfaction with the care of patients with chronic pain and with their overall outpatient clinic experience.
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: Patients with chronic, non-malignant pain in an internal medicine resident outpatient practice were enrolled in a clinic designed to focus only on pain issues. Here, patients receive an in-depth assessment of their pain and all subsequent pain care is provided using chronic illness management practices. This clinic is staffed by general medicine faculty with an interest in chronic pain and internal medicine residents rotate through on a regular basis as part of their outpatient experience. The patients continue to receive all other continuity care through the resident clinic.
FINDINGS TO DATE/EVALUATION OF WEB SITE: Internal medicine residents at Oregon Health and Science University were surveyed to assess attitudes towards patients with chronic pain and towards their outpatient medicine experience (N=70, 75% response rate). All were surveyed about current attitudes, regardless of year of training, including 32 residents with clinics at the intervention site and 38 residents with clinics elsewhere (and without patients in the pain clinic). There were 23 senior residents (15 at the intervention site and 8 elsewhere) who had been in residency prior to the institution of this intervention. These residents were asked to rate both current attitudes and attitudes from a time period prior to the intervention. Current attitudes were the same for intervention site and non-intervention site residents. However, when looking at the changes in attitudes from pre-intervention to post-intervention, residents at the intervention site had statistically significant changes in attitudes when compared to those at non-intervention sites in two areas: a decrease in frustration levels with patient complaints and expectations ($p<0.05$) and an increase in awareness of clinic support for chronic pain care ($p<0.05$). Also in comparing these two groups, there was a trend towards decreased dread when anticipating a visit with a chronic pain patient. Interviews and focus groups were also conducted with 11 residents of the 15 who had experienced pain care at the intervention site both before and after implementation. Analysis of transcripts revealed a number of recurrent themes. Prior to intervention pain care was seen as taking up too much time, continuity and clinic support were noted to be poor and pain care was seen to interfere with the provision of other medical care. After the start of this pain clinic, residents noted an increased ability to focus exclusively on either pain issues or other medical issues at regular visits. Residents also reported increased enjoyment of both pain clinic and regular clinic experiences.
KEY LESSONS LEARNED: These results suggest that a specialized pain clinic embedded within a resident primary care practice can improve the quality of both pain care and non-pain related medical care delivered in this setting and that such a system can improve resident satisfaction with these clinical experiences.

A PRACTICAL OFFICE-BASED CHOLESTEROL MANAGEMENT SYSTEM. R.L. Degoma[1]; E.M. Degoma[2]. [1]New Jersey Preventive Cardiology and Cholesterol Clinic, Trenton, NJ; [2]Stanford University, Stanford, CA. *(Tracking ID # 151414)*

STATEMENT OF PROBLEM/QUESTION: Despite a wealth of data demonstrating the efficacy and safety of LDL-lowering drugs, a significant number of high-risk patients remain untreated or undertreated.
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: 1. To develop a simple yet comprehensive approach to enable busy primary care providers to achieve appropriate LDL-c reductions without additional investment in technology or personnel. 2. To evaluate adherence to National Cholesterol Education Panel Adult Treatment Panel III (NCEP ATP III) guidelines following implementation of the office-based cholesterol management system.
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: We constructed a computer-assisted cholesterol management system incorporating the following five core components: 1) a step-by-step algorithm simplifying NCEP ATP III guidelines, 2) templates for initial risk assessment and subsequent encounters to expedite record-keeping, 3) an evidence-based calculator to estimate the statin dose required to get to goal, 4) educational materials to address patient concerns, and 5) a rapid LDL-c auditing system. We subsequently conducted a single-center prospective chart analysis examining consecutive coronary heart disease (CHD) and CHD risk-equivalent patients seen in the office between January 4, 2005 and April 14, 2005. Patients were included in the study if

they had a minimum of two prior clinic visits to permit risk assessment and initiation of therapy. There were no exclusion criteria.
FINDINGS TO DATE/EVALUATION OF WEB SITE: A total of 339 high-risk patients were enrolled in the prospective chart analysis. 85% of patients achieved an LDL-c below 100 mg/dl. An LDL-c less than 70 mg/dl was observed in 32% of patients. LDL-c was between 100 and 129 mg/dl in 11% and exceeded 130 mg/dl in 4% of patients.
KEY LESSONS LEARNED: A computer-assisted approach to outpatient lipid management incorporating five core components can be implemented without additional expenditure in a busy private practice and can successfully achieve the target LDL-c below 100 mg/dl in a substantial number of high-risk patients.

AN EXPERIENCE IN A PRIMARY CARE CLINIC WITH PHYSICIANS AND PHARMACISTS TO PROVIDE INTERNET ACCESS AND PATIENT COUNSELING REGARDING MEDICARE PART D. S.V. Joy[1]; S. Lee[1]; V. Bradley[1]; P. Rodgers[1]; B. McLendon-Arvik[1]; J. Stefanadis[1]; J. Carter[1]. [1]Duke University, Durham, NC. *(Tracking ID # 152053)*

STATEMENT OF PROBLEM/QUESTION: What added service can primary care physicians and clinical pharmacists offer to patients within a clinical setting that allows patients access to the internet and one-on-one counseling to better understand the options available to them for prescription drug coverage through Medicare Part D?
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: Medicare Part D (prescription drug coverage) is the biggest change in Medicare since the program's inception. This complex program has many choices, and much of the information is internet-based. To better educate Medicare patients who are currently seeking their care at an academic general internal medicine clinic, volunteers of physicians, pharmacists and administrative assistants were made available to patients at the point-of-care during non-operational clinic hours to provide internet access and one-on-one counseling to Medicare patients who had questions about Medicare Part D.
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: All internal medicine physicians, clinic nurses, and administrative staff practicing at an academic general internal medicine clinic were asked to provide names of patients that they had encountered in clinical practice who had either expressed concerns or questions about Medicare Part D, had expressed non-compliance with medications due to cost issues, and/or who were currently enrolled in indigent drug programs through pharmaceutical programs. Current insurance databases used by the practice were unable to provide a list of patients who are enrolled in Medicare and do not have supplemental drug coverage. A survey was given at the completion of the session to each patients to assess the benefit of this program, and patients internet usage.
FINDINGS TO DATE/EVALUATION OF WEB SITE: A total of 40 potential patients were identified by the clinic staff, and 34 of these patients were contacted by a practice administrative assistant to attempt to schedule an appointment for this session. 19 of these patients were scheduled for a 60 minute appointment with either a volunteer physician or pharmacist with 15 patients (7 Male, 8 Female, 67% Caucasian, 27% African-American, 6% Asian, age range 58–83 y, 47% of patients without current, creditable prescription drug coverage) arriving for their appointment. Four (27%) of the patients came with their children present. 10 patient surveys were completed. 50% of these patients had access to the internet, but only 40% of all surveyed patients had used the internet prior to this appointment to access information on Medicare Part D. Using a 5- point Likert Scale (1-not helpful, 5 very helpful), 80% of patients reported that this session was very helpful to them to better understand Medicare Part D plans.
KEY LESSONS LEARNED: Proactive, one-on-one counseling sessions between physicians, pharmacists and patients at a point-of-care clinic utilizing the clinic's internet access to review Medicare Part D prescription drug plans was well received. Current databases present in clinical practice are insufficient to proactively identify Medicare patients who do not have prescription drug coverage. The prior use of the internet by this group of patients to evaluate Medicare Part D options was not widespread. Further development of such collaborative, multidisciplinary community efforts within individual physician clinic sites should be strongly evaluated as an added patient service.

AN INTRODUCTORY VISIT DECREASES TIME TO ENROLLMENT IN A PRIMARY CARE-BASED CHRONIC PAIN MANAGEMENT PROGRAM. N.M. Potisek[1]; T.J. Ives[1]; P. Chelminski[1]; D.A. Dewalt[1]; R.M. Malone[1]; M.E. Bryant-Shilliday[1]; M.P. Pignone[1]. [1]University of North Carolina at Chapel Hill, Chapel Hill, NC. *(Tracking ID # 153076)*

STATEMENT OF PROBLEM/QUESTION: Long wait times for enrollment into our primary care-based pain management program result in delayed treatment for patients with chronic pain and decreased attendance rates for initial appointments.
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: 1. To decrease the wait time for enrollment of new patients into a structured, primary care-based chronic pain management program. 2. To improve initial appointment attendance rates with the program's clinical provider, a clinical pharmacist practitioner (CPP).
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: We measured patient wait time for enrollment into the program by querying the appointment system on the first clinic day of each week for the number of days until the first and third available initial appointments. In response to long wait times and suboptimal attendance rates, an introductory visit was developed and tested in clinic. Before the intervention, patients scheduled for an initial appointment were seen by a trained care assistant (CA) and the CPP, for enrollment into the program and initial pain management, respectively. After the intervention, patients were scheduled for an introductory visit for enrollment into the program with only the CA. During the introductory visit the CA, who has an undergraduate degree and helps to coordinate care for patients, explains program structure and requirements, assesses pain and medication adherence, administers validated scales to screen for depression and to assess pain-related disability, obtains a urine toxicological screen, reviews the standard medication contract, and provides the patient with a scheduled appointment with the CPP for the next available new patient appointment for evaluation and additional pharmacological management. If the patient has immediate care needs, the CPP performs a focused assessment during the introductory visit. Six introductory patient visits, each lasting thirty minutes, are scheduled each week.
FINDINGS TO DATE/EVALUATION OF WEB SITE: Before implementation of the introductory visit, average wait times for the first and third available initial appointments with the CPP were 61 days and 65 days. The attendance rate was 57% for initial appointments. After implementation of the introductory visit, average wait times for the first and third available introductory appointments with the CA were reduced to 22 days and 27 days ($p < 0.001$). The attendance rates improved to 83% for initial appointments.
KEY LESSONS LEARNED: Introductory visits with a trained CA reduce patient wait times for enrollment into our structured pain management program and improve attendance rates for initial appointments with the program's clinical provider.

ASSESSMENT OF AN INTERVENTION TO IMPROVE REAL-TIME SCHEDULING OF FOLLOW-UP APPOINTMENTS IN AN ACADEMIC GENERAL INTERNAL MEDICINE CLINIC. R.M. Malone[1]; A.G. Whitney[1]; R.S. Boone[1]; E. Mark[1]; T.M. Miller[1]; B. Bryant Shilliday[1]; M. Pignone[1]. [1]University of North Carolina at Chapel Hill, Chapel Hill, NC. *(Tracking ID # 153584)*

STATEMENT OF PROBLEM/QUESTION: Providers and patients expressed concern that follow-up appointments were not being scheduled in a timely manner. Current General Internal Medicine Clinic (GIMC) policy requires clerical staff to schedule appointments with patients at the time of check-out. This real-time scheduling (RTS) of follow-up appointments at check-out is utilized to improve continuity of care, improve appointment show rates, and facilitate planned care.
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: Key clinic staff and administrators met to discuss RTS issues. Methods for baseline and follow-up assessment were developed. A clinic goal of 75% of appointments scheduled in "real-time" was agreed upon. Interventions to attain this goal would be developed based on the data collected.
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: We performed a pre- and post-analysis of our RTS procedure. Over a 3 day period we assessed consecutive patients from planned care programs seen in clinic. The primary outcome was the % of RTS performed (defined as an appointment made within 24 hours of check-out and within the time frame requested by the provider). Secondary objectives were to review of accuracy of check-out paperwork, assess of provider availability during requested time frame, and follow-up 1 week later the status of patients who did not have initial RTS.
FINDINGS TO DATE/EVALUATION OF WEB SITE: At baseline 48 consecutively identified records were assessed over 4 days. The baseline RTS rate was 44%. 96% of check-out paper work was completed correctly by provider. 54% of requests were not completed because the provider lacked appointment availability. After 1 week, 35% of the 26 patients without RTS were scheduled. Key clinic staff and administrators reviewed the initial data, considered options for improvement, and agreed on a set of interventions to be tested. Interventions included: assignment of specific administrative staff members to resolve issues that could not be handled at the time of check-out, using a simple tracking system ("hot file"); greater attention to ensuring that the residents' schedules were prepared and available at least 3 months in advance; and utilization of billing data to identify patients who left without returning check-out paperwork; During follow-up 65 consecutively identified records were assessed over 4 days. The follow-up RTS rate was 89%. 100% of check-out paper work was completed correctly by the provider. 43% of the 7 requests were not made occurred because the provider lacked appointment availability. After 1 week 57% of the 7 patients without RTS were scheduled.
KEY LESSONS LEARNED: Interventions developed met our goal of at least 75% RTS. The intervention did not require additional staff, merely a shift of responsibility of one member of our administrative support staff and development of a tracking system for missing paperwork and appointment-making difficulties. Provider availability during the requested follow-up period remains an issue to be addressed.

BRINGING PRIMARY CARE TO LEGAL AID IN THE BRONX. H.D. Venters[1]; J.P. Deluca[2]; E. Drucker[1]. [1]Montefiore Medical Center, Bronx, NY; [2]Montefiore Medical Center, Hillsdale, NJ. *(Tracking ID # 153302)*

STATEMENT OF PROBLEM/QUESTION: The access to and continuity of primary care for many indigent patients in the Bronx is affected by legal proceedings with little co-ordination between the health care professionals and public defenders involved in the same cases.
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: 1) To create a collaboration between a large primary care clinic of Montefiore Medical Center and a legal aid service agency, Bronx Defenders, both located in the same South Bronx neighborhood. 2) To assess the healthcare utilization of these legal aid clients. 3) To explore the opportunities for improving access to primary care among Bronx Defenders clients.

DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: Bronx Defenders is a legal aid agency that represents 1/3 of criminal defendants who require court-appointed representation in Bronx County courts (approximately 12,000 clients per year). A collaboration between a large community health center of Montefiore Medical Center and Bronx Defenders began in April 2005 with one internal medicine resident spending 2–10 hours per week at Bronx Defenders. During an intake with their clients, the five Bronx Defenders' social workers survey their clients' interest in seeing an on-site physician. Those interested meet with the physician in a private office. The physician asks all clients the reason for requesting the encounter as well as: (a) if they have a regular primary care physician and (b) last outpatient visit. For those clients who would like to be seen at the Montefiore clinic, the physician arranges the appointment while the client waits. Although the Montefiore clinic is one block from the Bronx Defenders, some clients feel more comfortable returning to the Bronx Defenders office on the day of their clinic appointment where a Bronx Defenders social worker escorts the client to the clinic and helps them register.
FINDINGS TO DATE/EVALUATION OF WEB SITE: In the 3 months since office hours began at Bronx Defenders, 40 hours of resident time produced 27 client contacts 77% (21/27) of which were for acute complaints such as pain, shortness of breath, and sore throat. Of the 27 contacts, 37% (10/27) involved discussion, 33% (9/27) involved assistance reconnecting with an existing physician, and 30% (8/27) resulted in new clinic appointments, of which 62% (5/8) were kept. Presenting illnesses at clinic included pelvic inflammatory disease, upper respiratory tract infection, cirrhosis, AIDS, and burns from crack pipe use. Three clients who came to clinic were actively using crack cocaine. Their medical evaluation and referral to drug rehabilitation was an alternative to incarceration for misdemeanor offenses. Over half (15/27) of client contacts had primary care physicians and 10 of these 15 clients had seen their physician in the prior six months. One client contact involved referral directly to an Emergency Department and while another resulted in informing a jailed client and legal staff that the client is Hepatitis C positive. This finding, from old medical records, was presented in the form of affidavit and eventual trial testimony.
KEY LESSONS LEARNED: To date, this project has confirmed the need for and receptivity to primary care and consultation assistance among the legal aid client population. Success thus far appears linked to the presence of the resident on site at Bronx Defenders. A logistical challenge has been maintaining a presence during floor or unit rotations of residency with only one resident participating in the project.

CARDIOVASCULAR HEALTH OUTCOME PROJECT FOR DIABETIC PATIENTS IN LEHIGH VALLEY HOSPITAL. M. Bhide[1]; A. Gupta[1]. [1]Lehigh Valley Hospital, Allentown, PA. *(Tracking ID # 153152)*

STATEMENT OF PROBLEM/QUESTION: Diabetes represents an ever increasing cause of morbidity and mortality in the society. Meticulous comprehensive management of chronic diseases like diabetes is important to improve quality of life of our people. The study consisted of assessment of cardiovascular risk factors in patients with Diabetes at Lehigh Valley Hospital. We then compared our results with the goals set by JNC-7, ATP-3 and American Diabetes Association.
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: To provide clinicians with information regarding their practice as it relates to management of diabetic patients with dyslipidemia and hypertension and evaluate goals for attainment of optimum lipids, blood pressure and HbA1c levels. Also identify our compliance with achieving practice guidelines with respect to: Ophthalmic and podiatric examinations Immunization with influenza and pneumococcal vaccines Assessment of renal function Including use of ACE inhibitor or ARB Prevention of CVD (e.g. aspirin use, smoking cessation) Assess body mass index
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: After IRB approval of our proposal, charts of 100 diabetic patients from Lehigh Valley physicians practice were selected using a randomized sampling methodology. Information regarding labs, exams, medications and follow-up was collected as recorded in the charts. Detailed statistical analysis of the data was undertaken. This was an analytical study and no intervention was planned
FINDINGS TO DATE/EVALUATION OF WEB SITE: 90.5% of patients were overweight, obese or morbidly obese 49% of patients underwent annual ophthalmic exams 69% of patients underwent annual podiatric exams 85.7% of patients underwent urine protein screening 69% of patients were on ACE inhibitor or ARB 70% of patients were on aspirin 77% of patients received influenza vaccine 66% of patients received pneumococcal vaccine 6% of documented smokers had smoking cessation interventions 64.1% of patients achieved LDL 62% achieved target HDL and 75.9% of patients achieved TG goals, 56.6% of patients achieved BP goals 58.6% of patients achieved HbA1c goals 58.3% of patients achieved FBS goals
KEY LESSONS LEARNED: The practice guidelines compliance was calculated. Lehigh valley hospital achieved a Diabetes Physician Recognition Program score=45. Recommendations from the study were to initiate quality improvement program(s) to continue to improve HbA1c, improve lipid levels and BP in our study population. It was decided to use this study as benchmark for future studies. It enabled us to develop a comprehensive care model for management chronic diseases including Diabetes.

CHRONIC DIABETES SELF-MANAGEMENT: COMPARISON OF CARE PLAN DEVELOPMENT USING THE FLINDERS MODEL OF CHRONIC CARE VERSUS FORMAL STANDARDIZED PATIENT EDUCATION. C.A. Bloomfield[1]; E.J. Gertner[1]; M.G. Regan-Smith[2]; S.J. Smith[1]; M. Kender[1]. [1]Lehigh Valley Hospital, Allentown, PA; [2]Dartmouth Medical School, Hanover, NH. *(Tracking ID # 152670)*

STATEMENT OF PROBLEM/QUESTION: Chronic disease is increasing in magnitude, overwhelming our health care system and resources. Self-management has been identified as essential to effective chronic disease care, yet training patients in these skills infrequently is integrated into health care delivery. Does the Flinders Model of Chronic Care Management, well-studied and utilized in Australia, improve patient self-efficacy, satisfaction, and health status outcomes compared with standardized patient education?
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: 1) Increase resident awareness of different methods to promote patient self-care when managing patients with diabetes mellitus; 2) Compare quantitative and qualitative outcomes between diabetics managed with either routine, 60-minute standardized diabetic education visits with patients managed utilizing the Flinders Model of Chronic Care Management; 3) Gain experience institutionally with training patients in self-management skills, specifically using the Flinders Model, and through numerous rapid PDSA cycles of change, adapt/modify the process so that it can be used as a model to manage all patients with chronic disease.
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: The pilot program involves two residents who have been trained to use the Flinders Model of Chronic Care Management in the care of diabetic patients in their continuity care teaching clinic. New diabetic visits include patient completion of the Partners in Health survey to assess their self-management skills, and resident completion of the Cue and Response sheet and the Problems and Goals questionnaire. All are used to develop an individualized care plan to achieve a patient-identified goal. Another four residents see new diabetic patients using a traditional medical model interview, and provide a 60-minute standardized patient education/self-management session. This session includes reviewing a colorful display depicting 12 areas of self-management, identifying community resources, and discussing complications of diabetes. Patient outcomes for both groups include baseline and biannual assessment of patient satisfaction and patient self-efficacy, blood pressure, HBA1C, and lipid profile. In addition, resident and clinic preceptor satisfaction scores will be obtained through individual interviews at the midpoint and end of the intervention. The goal for this pilot is to have a minimum of 30 patients in each group whose diabetes is managed by each of these strategies, and to compare the patient outcomes and resident and preceptor satisfaction between the two methods of promoting self-management.
FINDINGS TO DATE/EVALUATION OF WEB SITE: Several diabetic patients have had Flinders interviews and development of a Flinders Care Plan that aims to achieve the patient-identified goal. Post-session patient feedback thus far consistently has been rated 4 out of 5. Participating resident and attending feedback also has been strongly positive. Although we have not completed a sufficent number of patient visits for clinical significance, we hope to demonstrate improvements in overall outcomes and/or superiority of one method as we continue to collect data.
KEY LESSONS LEARNED: Residents and patients like the Flinders Model; however, as an innovative care process, clinic infrastructure needs improvement to facilitate this care design. The Flinders Model provides a structure for teaching self-management skills to diabetic patients, which can be replicated for other chronic diseases. Further, this structured interview process allows identification of other factors influencing chronic care.

COLLABORATION OF GLOBAL HEALTHCARE SYSTEMS IN EARTHQUAKE RELIEF IN PAKISTAN: ROLE OF APPNA AND U.S. HEALTHCARE IN THE YEAR 2005/6. T.K. Malik[1]; M. Arshad[2]; R. Khalid[3]; A. Piracha4. [1]Mount Sinai School of Medicine, New York, NY; [2]University of Wisconsin, Milwaukee, WI;[3]New York Hospital Medical Center, Queens, NY;[4]Medical Center, Princeton, WV. *(Tracking ID # 157114)*

STATEMENT OF PROBLEM/QUESTION: Countrywide or regional disasters can pose medical emergencies beyond the capacity of global health care systems. Such recent emergencies are the Tsunami in South East Asia, Hurricane Katrina and 2005 Earthquake in Northern Pakistan. United Nations estimates about 80,000 persons died, 85,000 persons were injured and more than 2.5 million rendered homeless as a result of the earthquake, posing a healthcare challenge of unimaginable proportions.
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: Members of Association of Physicians of Pakistani descent of North America (APPNA), some also members of SGIM, mounted a coordinated response with the objective of helping with this medical emergency. The intervention consisted of needs assessment, setting up infrastructure and disaster management coordinating offices both in the U.S. and in Pakistan, sending surgeons/physicians of defined skills to disaster areas on a rotating basis, air freighting donated or bought equipment and drugs, setting up educational seminars/training in rehabilitation.
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: APPNA, in collaboration with other organizations, coordinated the travel logistics of over 175 surgeon/physicians of various specialties and other medical volunteers from the U.S. The teams also included nurses, operating room technicians and allied health professionals. Several other physicians made independent travel arrangements. These personnel were distributed all over the disaster areas as needed. APPNA has adopted a remote village in a devastated area and supplied a medical dispensary, 350 all-weather tents, roofing material for building over 400 homes, 3000 blankets, 1000 sleeping bags, and 10,000 warm jackets. Examples of equipment made available through APPNA includes: Two equipped operating rooms and a neurosurgical OR, C-arm machines, portable X-ray/anesthesia and dialysis machines, cardiac monitors, ventilators, defibrillators, wheel chairs, surgical supplies, rehab equipment and drugs of all kinds, etc.
FINDINGS TO DATE/EVALUATION OF WEB SITE: APPNA held a conference in Pakistan on December 22–23, 2005 devoted to disaster relief and to review its work to date: A master plan for an effective and efficient national medical emergency system did not exist. Large areas affected by earthquake were inaccessible (landslides, roads disappeared, high altitude, bad weather). APPNA members generously donated their time to help in emergency.

KEY LESSONS LEARNED: Mounting rapid response for identified need was felt to be key in a well-established emergency system. To mention one program: Post earthquake, there was a large population of amputees and women paraplegics - the latter caught by falling debris as they ran out of homes during earthquake. The need to train persons with physical therapy skills for rehabilitation of this large population overwhelmed local resources. We procured donations (MA, TM), devised an educational program, got together a team of physical and occupational therapists and went to Pakistan to give seminars and hands-on training in rehabilitation at institutions close to the earthquake affected areas. Equipment (crutches, walkers, etc.) was donated, 250 persons were trained in basic physical rehabilitation, and a basic physical therapy unit was financed in Azad Kashmir near the epicenter of earthquake in a matter of two months.

DESIGN AND IMPLEMENTATION OF AN ELECTRONIC APPLICATION TO SUPPORT MULTI-DISCIPLINARY MEDICATION RECONCILIATION EFFORTS AT TWO ACADEMIC MEDICAL CENTERS. E.G. Poon[1]; B. Blumenfeld[2]; C. Hamann[3]; E. Graydon-Baker[1]; A. Turchin[2]; G. Baker[3]; P. McCarthy[3]; J. Poikonen[2]; J.L. Schnipper[1]; R.K. Hallisey[3]; S. Smith[3]; C. McCormack[1]; M. Paterno[2]; C.M. Coley[3]; A. Karson[3]; H.C. Chueh[3]; C. Van Putten[2]; S.G. Millar[3]; M. Clapp[3]; I. Bhan[3]; G.S. Meyer[3]; T.K. Gandhi[1]; C. Broverman[2]. [1]Brigham and Women's Hospital, Boston, MA; [2]Partners HealthCare System, Wellesley, MA; [3]Massachusetts General Hospital, Boston, MA. *(Tracking ID # 152872)*

STATEMENT OF PROBLEM/QUESTION: Unintended medication discrepancies at the time of hospital admission and discharge are common and have considerable potential for harm to patients. A robust medication reconciliation (MR) process can prevent unintended discrepancies and is mandated by JCAHO as a patient safety goal for 2005.
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: To design and implement an MR process that will leverage the multiple outpatient electronic medical record (EMR) systems and inpatient computerized provider order entry (CPOE) systems within a large integrated delivery network in Boston, MA. The system must allow clinicians from multiple disciplines to create accurately and efficiently the pre-admission medication list (PAML) upon patients' admission and use the verified PAML to inform the writing of admission and discharge orders.
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: We began the design process by performing paper pilots of the MR protocols developed at other hospitals to learn about the MR needs unique to our environment. We then assembled a multi-disciplinary work team to explore solutions that would fit the workflow in 2 academic medical centers that use separate, locally-developed CPOE systems. We then designed and developed a common web-based application, called the PAML Builder, that is summoned by clinicians from within either CPOE system. This application assembles the outpatient medication information from 2 EMRs commonly used by physicians with the most recent discharge orders from both medical centers. Using the PAML Builder, the admitting physician integrates the medication history gathered from patients and their caretakers with the on-line medication information to generate efficiently an accurate PAML and to indicate whether any medication should be changed or held on admission. Depending on local practice, a pharmacist and/or the admitting nurse verifies the PAML and resolves any discrepancies with the responsible physician. At discharge, the discharging physician compares the PAML with the active inpatient medication list to make the most informed choices about the appropriate discharge orders.
FINDINGS TO DATE/EVALUATION OF WEB SITE: The PAML application has undergone a successful 10-day pilot with one internal medicine team, involving 43 patients, 14 residents, about 50 nurses and 15 pharmacists. Overall, 51% of patients had a PAML built. Patients admitted by residents who received brief training were significantly more likely to have a PAML built compared to those admitted by untrained residents. (Trained: 86%, Untrained: 29%, OR=15.3, 95% CI[adjusted for clustering]=3.1 to 74, p=0.0007). Clinicians stated through informal feedback that they appreciated the availability of the on-line PAML to facilitate decision making at admission and discharge. Anecdotally, 2 significant medication discrepancies at discharge were discovered and corrected through the use of MR process. More pilots are planned over the next 3 months in other clinical areas.
KEY LESSONS LEARNED: An early version of the PAML Builder application was well accepted by its intended users, and has significant potential to prevent medication errors during transitions of care. The design and implementation effort has illustrated the importance of fully understanding the underlying clinical processes and inter-disciplinary communication patterns before designing a computer application to support these activities. We have also learned that educational efforts are important for the adoption of this initiative and that the use of successive pilots to refine the solution incrementally is an important strategy for success.

DESIGNING AND EVALUATING A MULTI-DISCIPLINARY PAIN MANAGEMENT CLINIC FOR AN UNDERSERVED POPULATION IN A FREE CLINIC. M.D. Spar[1]; M. Hardy[1]. [1]University of California, Los Angeles, Venice, CA. *(Tracking ID # 153485)*

STATEMENT OF PROBLEM/QUESTION: The use of CAM therapies, or an Integrative Medicine model, has rarely been evaluated in an underserved population. Barriers to CAM utilization previously identified have included cost as well as language and cultural barriers. Utilization studies of low-income patients have documented significant use of CAM modalities especially for pain. Chronic pain causes significant morbidity and potential loss of wages in a population that cannot easily support this loss. Osteoarthritis, low back pain and other musculoskeletal complaints are the most common causes of chronic pain seen at the Venice Family Clinic (VFC), the largest free clinic in the United States. Since the withdrawal of COX-2 inhibitors from the market, the limited access to specialty care and non-prescribing of chronic narcotics have made management of these common problems much more difficult and less effective. The providers and patients at VFC have identified a need for other methods to manage chronic non-malignant pain.
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: 1. To assess challenges inherent in offering CAM & IM services to an underserved population. 2. To develop culturally sensitive programming for modalities not part of the culture of origin of the patients. 3. To create effective treatment programs for chronic pain tailored for an economically challenged, underserved population and delivered in a community health care setting. 4. To design and implement an efficient evaluation process for such a program.
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: Funding was obtained from the Mann Family Foundation to identify and develop appropriate options for care. With this support, the staff has done a needs assessment, which confirmed the findings in the literature regarding the prevalence of chronic musculoskeletal pain and the interest in exploring the integration of CAM therapies into the regular clinic model. The pilot study was undertaken in the context of the launching of a larger initiative to promote health and wellness in our population. A multi-modality chronic pain clinic was begun open to any clinic patients referred by their PCP. Patients are treated with any combination of acupuncture, chiropractic, osteopathic manipulation, mind-body healing, and western medicine. Patients self-report outcomes using validated pain scales, depression sceening tools and quality of life measures. Case conferences are held weekly among all of the practitioners to discuss individual patients and to share general philosophies of practice.
FINDINGS TO DATE/EVALUATION OF WEB SITE: Current findings are limited to the experience of setting up such a program in a resource limited and culturally diverse setting. We found some barriers among staff and providers, but will describe how those barriers were investigated and addressed. We will describe the training approach used to obtain broad support for the program. The pilot program is just beginning, but findings on outcomes will be available by the time of the conference.
KEY LESSONS LEARNED: While the discussion will be general enough in nature to allow application to a wide variety of service providers, special attention will be paid to the modifications which were required to accommodate the ethnicity of our patient population, the diversity of our staff and the fiscal constraints of a free clinic. Strategies for implementation and evaluation of the program and data from the pilot project will be presented. Suggestions for mechanisms to convert a successful pilot program into a self-sustaining clinical service will also be discussed.

DEVELOPMENT OF A PRIMARY CARE MUSCULOSKELETAL CLINIC AT THE SAN DIEGO VA. M.K. Hose[1]; A. Quan[1]. [1]VA San Diego Healthcare System, San Diego, CA. *(Tracking ID # 151349)*

STATEMENT OF PROBLEM/QUESTION: Is the creation of a primary care musculoskeletal clinic an efficient way to treat orthopedic complaints, which are beyond the scope of primary care practitioners, yet below orthopedic surgical intervention?
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: Our objectives are to create a primary care musculoskeletal clinic to assess and treat common outpatient orthopedic conditions and to decrease the burden on primary care providers, who lack the time and training to perform injection treatments.
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: In 2003 two internal medicine physicians with expertise in primary care orthopedics initiated a primary care musculoskeletal (MS) clinic at the San Diego VA. Our goal is to maximize non-surgical options, including joint injections, for musculoskeletal complaints. From the inception of our clinic, the demand for appointments surpassed our availability. In 2004 we partnered with the Physical Medicine and Rehabilitation department to open a second half-day of MS clinic, and in 2005 we added a third half-day clinic in order to meet the volume of MS referrals. We also initiated an adjunct acupuncture clinic to offer non-traditional methods to deal with musculoskeletal pain. Due to the popularity of this option and the high number of consults, this clinic has since developed into a separate clinic.
FINDINGS TO DATE/EVALUATION OF WEB SITE: In order to understand referral patterns to the MS clinic, we surveyed the primary care providers at the San Diego VA, who care for approximately 30,000 veterans. We had a response rate of 33 of 41 providers (80.5%). The vast majority of providers (94%) state that >20% of their clinic patients present with musculoskeletal complaints, which is consistent with published national averages. Patients complained to their providers most commonly of spine, knee, and shoulder pain. Although 55% of responders state the main reason for referring patients to the MS clinic was a lack of training in injection techniques, up to 70% of providers feel that they do not have enough time to address their patients' musculoskeletal complaints in the setting of a primary care visit. In an analysis of consults to MS clinic from 7/1/03 to 7/31/05, a total of 1417 referrals were made to the MS clinic, an average of 57 referrals per month. Approximately 80% of referrals were for shoulder (34%) and knee (46%). The remaining 20% of referrals were injection requests for conditions of the hand (5%), elbow (5%), wrist (4%), trochanteric bursa (3%), ankle (2%) and foot (1%). Two-thirds (66%) of the patients seen in the MS clinic for any indication received a therapeutic injection. Only 1.3% of all patients assessed and treated in the MS clinic were eventually referred to orthopedics for surgical options.
KEY LESSONS LEARNED: The large number of musculoskeletal complaints within the VA population overwhelms the resources of both primary care providers and orthopedists. The creation of a primary care musculoskeletal

clinic is an effective way to bridge the gap between the expertise of primary care providers and the surgical interventions offered by orthopedists.

DIABETES DASHBOARDS: SPEEDING THE ADOPTION OF POPULATION MANAGEMENT IN PRIMARY CARE. J. Kimura[1]; K. Dasilva[2]. [1]Harvard Vanguard Medical Associates, Newton, MA; [2]Harvard Vanguard Medical Associates, Boston, MA. *(Tracking ID # 156263)*

STATEMENT OF PROBLEM/QUESTION: Despite increasing pressure to improve health care quality including trends towards greater public transparency of quality metrics, the rate of improvement in health care delivery systems remains sluggish.
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: 1. To leverage EMR clinical data to drive continuous improvement in diabetes care 2. To design a diabetes report that highlights team opportunities for delivery process and care improvement 3. To design structural and process innovations in the delivery system to facilitate faster adoption of population management across primary care teams.
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: In 2003, Harvard Vanguard Medical Associates (HVMA) initiated a systems improvement project to leverage EMR data to promote diabetes population management. The diabetes dashboard is the foundation of the population management process. It provides each PCP with a diabetic roster including two year trends of clinical data (HgA1c, SBP/DBP, LDL, BMI), the presence of common co-morbidities, currently prescribed pharmacologic treatment, and smoking status. All clinical results are color-coded to indicate level of risk according to national guidelines (ATP III, JNC VII, and ADA/Joslin). The reports are generated monthly from a centralized patient data warehouse and accessible through a web-based reporting platform. All reports can be exported into Excel enabling end-user customization. To facilitate use of the dashboards, structural alignment and novel workflows were created to minimize barriers to action. Dashboard reviews were integrated into quarterly team meetings and new roles for PCPs, mid-level clinicians, and RNs around longitudinal chronic illness team care were introduced. Mid-level clinician roles were enhanced to include more routine chronic illness care as well as patient self-management promotion utilizing motivational interviewing. Finally, new care pathways involving structured, planned visit sequences were designed to take advantage of these new mid-level skills. Teams managed the use of these new workflows and they were driven off the quarterly dashboard data reviews. Organizationally, primary care team adoption of population management is measured through the percentage of mid-level planned visits conducted. HEDIS measures for comprehensive diabetes care are used for clinical improvement–primarily the percentage of patients with HgA1c $>9.0\%$.
FINDINGS TO DATE/EVALUATION OF WEB SITE: Implementation is complete at 7 of 14 health centers. The integrated, multi-faceted approach to this process improvement garnered faster buy-in from clinicians, however its complexity required more effort and attention during implementation to ensure durable and sustainable change. Physicians respond favorably to the dashboard and generate many intervention ideas to improve care. The two most cited barrier to adoption and action were the lack of time/capacity and ineffective teamwork skills. The rate of planned visits across the organization is 10% of all mid-level visits with a target of 50% (based on modeling of PCP panel morbidity).
KEY LESSONS LEARNED: 1. The diabetes dashboard is a clinically intuitive platform that garners clinician support for improvement and is a foundation for care improvement through population management; data drives system improvement. 2. Structural changes like new roles/responsibilities for team members are needed to create capacity for change and adoption. 3. Process changes such as new workflows can integrate, coordinate, and drive adoption of the target program.

DISEASE SELF-MANAGEMENT INTERVENTION FOR PATIENTS WITH DIABETES: A PILOT FEASIBILITY STUDY. V.L. Hunt[1]; K. Vickers-Douglas[1]; J. Hathaway[1]; S. Smith[1]. [1]Mayo Clinic, Rochester, MN. *(Tracking ID # 151384)*

STATEMENT OF PROBLEM/QUESTION: The majority of patient health behaviors needed for managing diabetes occur outside the office seting. Healthcare professionals often have limited time to provide self-management education during an office visit. Consequently, an allied health professional who can provide convenient chronic disease self-management education as an adjunct to usual care, may be in a unique position to impact patient health behaviors.
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: The primary objective was to determine the feasibility of a disease self-management intervention for patients with diabetes that have suboptimal control of blood sugar, systolic blood pressure, or LDL cholesterol.
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: Potential participants (i.e. adults with diagnosis of diabetes and either a systolic blood pressure >130 mmHg, HgbA1C $>7.0\%$, or a LDL cholesterol of >100mg/dl) were identified through an established diabetes registry. Those meeting inclusion criteria ($n=34$) completed baseline assessments and were randomized to either the intervention or control group. The control group received usual medical care and completed study assessments. The telephone-delivered self-management intervention emphasized increased disease management self-efficacy, collaborative goal-setting, and ongoing problem-solving to empower and support patients in better managing their health. The social cognitive theory (self-efficacy theory) and self-management education approach (Lorig, 2003) provided the theoretical framework and self-management strategies used in the intervention. Collaborative care, involving a partnership between the self-management support educator and patient was emphasized. The individually-tailored intervention was delivered over the telephone by a trained self-management support educator, over approximately 7 telephone contacts during the 3 month study period. Participants in this condition also received usual care from their healthcare provider. All measures were completed at baseline and 3 months. Self-report measures included disease management self-efficacy, depressive symptoms, health distress, exercise, healthy eating, stress management, communication with physicians, diabetes health-care utilization, alcohol and tobacco use, and adherence to prescribed medication regimen. Blood pressure, weight, and height measures were assessed at baseline and end-of-treatment.
FINDINGS TO DATE/EVALUATION OF WEB SITE: Of the 113 patients invited to participate, 34 were enrolled (12 women, 22 men; 82% married, 94% white, Mean Age $=56.50$) and 31 (100% of intervention participants, 83% of control participants) completed the study. Participants in the self-management intervention had significantly higher self-efficacy for diabetes management ($p=0.01$), higher self-efficacy for dietary change ($p=0.05$), lower health distress ($p<0.01$), and lower depressive symptoms ($p<0.01$) than the control group at the end of treatment assessment (3 months after baseline). The groups did not significantly differ on self-reported exercise, healthy eating, health care utilization, body mass index or blood pressure.
KEY LESSONS LEARNED: Patients with diabetes can be recruited and retained for an intervention in primary care, and self-management education positively impacts several aspects of disease management (e.g., self-efficacy for disease management). Telephone-delivered self-management intervention in primary care appears to be feasible. Partnering with patients improves some patient outcomes (e.g., self-efficacy) and collaborative care can utilize readily-available technology (e.g., telephone).

DISSEMINATING CLINICAL TRIAL RESULTS TO PROMOTE PUBLIC HEALTH: CASE STUDY FROM THE ANTIHYPERTENSIVE AND LIPID-LOWERING TREATMENT TO PREVENT HEART ATTACK TRIAL (ALLHAT). L. Katz[1]; L. Bartholomew[2]; G. Dawson[2]; S.L. Pressel[2]; B.R. Davis[2]; W. Cushman[3]; P. Whelton[4]. [1]VA New York Harbor Healthcare System, New York, NY; [2]University of Texas Health Science Center at Houston, Houston, TX; [3]Memphis VAMC, Memphis, TN; [4]Tulane University, New Orleans, LA. *(Tracking ID # 155045)*

STATEMENT OF PROBLEM/QUESTION: Dissemination of clinical trial results via media coverage, scientific presentations and journal publications often has little impact on physician practices and the health of patients. To change physician behavior and improve public health, a more comprehensive plan to influence determinants of prescribing practices is necessary. Recently the National Heart, Lung, and Blood Institute (NHLBI) has required dissemination and evaluation plans for trials with potential immediate public health applicability.
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: The objectives are for clinicians to help patients achieve a blood pressure goal of $<140/90$ mm Hg and to encourage clinicians to prescribe a thiazide-type diuretic for most patients with hypertension for improved cardiovascular outcomes and blood pressure control.
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: ALLHAT, the first trial completed under this policy, has a two-component plan. The first component is a traditional approach of media coverage, scientific presentations and publications. The second, a joint effort of the National High Blood Pressure Education Program of NHLBI and ALLHAT, uses a behavioral theory-based approach to promote the ALLHAT results and the guidelines in The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC 7). Strategies based on practice change literature include (1) academic detailing, in which physicians approach colleagues regarding blood pressure treatment and control, (2) direct patient messages to stimulate patient communication with physicians regarding blood pressure control, (3) approaches to formulary systems to encourage evidence-based prescriptions and cost awareness, and (4) direct professional organization appeals to physicians.
FINDINGS TO DATE/EVALUATION OF WEB SITE: A pilot of the academic detailing by Investigator Educators (IE) was accomplished between September 2004 and March 2005. After a training session, 24 IE's made almost 200 presentations to about 3000 practicing clinicians. From June 2005 through December 2005, 128 additional IE's were trained to participate in the full scale project. As of January 2006, 151 ALLHAT investigators had accomplished 369 presentations to 5088 physicians, PharmD's, nurse practitioners, and physician assistants of the 29,000 expected total clinician contacts. Direct patient messages have been developed and are being sent to managed care newsletters and high-profile media outlets. Formulary packets were developed and eight of the largest formulary systems in the U.S. are being approached and engaged in discussions of the implementation of the JNC 7 guidelines. Materials for use by professional societies are being developed. Evaluation includes aspects of implementation and outcome, physicians reached with presentations, and changes in prescribing trends from national databases including the Department of Veterans Affairs and managed care organizations.
KEY LESSONS LEARNED: The pilot has demonstrated the feasibility of the IE approach: Investigators from a range of practices (small private practices to large health organizations to academic medical systems) were recruited and trained and then made presentations to colleagues at the expected average rate of one per month.

EARLY DISCHARGE INITIATIVE. L. Shieh[1]; B. Gavi[1]; K. Posley[1]; C. Sharp[1]; S. Lada[1]; S. Nekimken[1]; M. Lang[1]; B. Grenz[1]; E. Polek[1]; K. Surman[1]; L. Sangermano[1]; C. Day[1]; P. Pompei[1]; P. Rudd[1]. [1]Stanford University, Stanford, CA. *(Tracking ID # 151141)*

STATEMENT OF PROBLEM/QUESTION: Delayed discharges from the hospital can negatively impact hospital throughput by preventing new patients from

accessing beds. At Stanford Hospital and Clinics (SHC), the median discharge order time was 13:21 and median discharge departure time was 15:40 in Q4 2004 by hospitalists on the Medicine Service. Barriers to early discharge include culture shift, difficulty predicting discharge date and time, and the multiple factors/groups involved in the discharge process. We hypothesized that interdisciplinary communication and preparation among hospitalist attendings, house staff, nursing staff, and patient/family can prompt earlier discharge.
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: The study objective was to re-design interdisciplinary discharge processes and hospitalists' responsibilities to achieve: (1) Decrease in median discharge order entry time (2) Decrease in median patient discharge time compared to the hospitalists' prior year's performance and current non-hospitalist medicine service patients.
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: A multidisciplinary process excellence team used a 90-Day Rapid Results Model from 6/05–9/05 with monitoring through 10/05. The process included literature review, current process mapping, and brainstorming for interventions. The team sought to improve (1) Formal physician communication on admission to staff/patient/family regarding estimated discharge date and discharge needs, (2) Afternoon rounding by the hospitalist with the house staff, (3) Standardized approach to discharge during morning rounds emphasizing earlier orders and preparation for discharge, (4) Daily resource nurse/case management and house staff morning rounds, (5) Creation of an anticipated discharge order in the computerized physician order entry alerting staff of pending discharges, (6) Use of central whiteboard to communicate discharge date to all relevant healthcare providers, (7) Revised nurse discharge planner and new checklist, (8) Increased emphasis on importance of preparation and early discharge orders during house staff orientation.
FINDINGS TO DATE/EVALUATION OF WEB SITE: Initial cycle data: (1) Hospitalists entered discharge orders 2.5 hours earlier than prior year, (2) Hospitalists' patients discharged 2.0 hours earlier than prior year, (3) Hospitalists entering discharge orders 1.3 hours earlier than other Medicine physicians, (4) Hospitalists' patients discharged 1.3 hours earlier than other Medicine patients.
KEY LESSONS LEARNED: (1) Cross functional communication remains key to coordinating patient care for discharge, (2) Early notification of patient, family, and staff allows for proactive discharge preparation, (3) Attending hospitalists should drive the process but also need support of interdisciplinary team and hospital administration, (4) Bi-monthly data are critical to motivate all parties for accountability and engagement in discharging the patient, (5) Opportunities to improve include facilitating transport home, coordinating with skilled nursing facilities, and expediting tests and procedures

ENROLLMENT CALCULATOR: DECISIONAL ANALYSIS TOOL FOR ASSESSMENT OF CLINICAL TRIALS. S.H. Yale[1]; P. Squires[1]; P. Chyou[1]. [1]Marshfield Clinic and Marshfield Clinic Research Foundation, Marshfield, WI. *(Tracking ID # 153472)*

STATEMENT OF PROBLEM/QUESTION: A successfully completed clinical trial can be defined as one that meets or exceeds its subject enrollment goals within the time frame defined by the sponsor. Meeting target enrollment enhances the relationship between the sponsor and the institution and paves the way for future collaborative research. There is currently no standard tool that is used to predict whether a given study will be completed by its enrollment end date. Knowledge of this information is particularly important since it provides an objective measurement that can be used to determine whether study intervention strategies are necessary and/or whether resources should be allocated to other studies that have a greater probability of success. The goal of this study is to develop an enrollment calculator that can be used to evaluate the success of any defined clinical trial.
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: A SQL server databses supporting the Visual Basic Microsqt Access application that electronically stores and secures information on over 400 clinical research studies was developed. This database contains information on all aspects of the studies' research protocols, including Institutional Review Board approvals and continued reviews, enrollment start and end dates, workdays into and those remaining in the study periods, and the number of subjects screened and enrolled. Using this information, we developed an enrollment calculator that can be used to assess clinical research trials. The average number of enrollees per workday was calculated, and the predicted additional enrollment was defined. The proportion of patients that will be recruited in the remaining time was also estimated.
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: The number of predicted additional enrollees, the proportion of subjects that will be recruited in the remaining time, the number of workdays needed to meet the goal, and the end date to achieve the enrollment goal were calculated for each of the active clinical trials during at our facility during fiscal year 2005 using the enrollment calculator. Upper and lower confidence intervals were calculated along with upper and lower numbers of patients at the 75, 90 and 95% confidence limits. A simple and easy to understand graphical result can also be generated from our approach.
FINDINGS TO DATE/EVALUATION OF WEB SITE: Application of this tool in fiscal year 2005 resulted in an increase in the number of successful clinical research trials by 15%.
KEY LESSONS LEARNED: An enrollment calculator is a useful semiquantitative decision analysis tool for the assessment of clinical trials. Administrators, investigators, and institutional review boards can use this tool as an objective measurement of the probability of completing a research study. This knowledge is important as it allows institutions to make the best use of their resources.

EVALUATION OF PRESCRIPTIONS GENERATED FROM AN ELECTRONIC MEDICAL RECORD PRESCRIPTION WRITER IN A LARGE ACADEMIC INSTITUTION. S.K. Ford[1]; R.M. Malone[1]; B. Bryant[1]; B.H. Dennis[1]. [1]University of North Carolina at Chapel Hill, Chapel Hill, NC. *(Tracking ID # 152852)*

STATEMENT OF PROBLEM/QUESTION: Computerized prescriber order entry (CPOE) has been touted as a method for decreasing medication errors, however the literature reports frustration from physicians with the increased time commitment required with CPOE. Our institution has an electronic medical record (EMR) that has the capability of generating computerized prescriptions for outpatient use and has received complaints from physicians and pharmacists who feel that EMR prescriptions require more interventions and clarifications than traditional, handwritten prescriptions.
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: This evaluation was designed to assess the percent of computer-generated prescriptions that required the pharmacist to contact the prescriber for clarification and to characterize the problems requiring clarification.
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: This was a retrospective review of all new prescriptions presented to two outpatient pharmacies in a large public academic medical center over a one week period. Prescriptions were screened and those generated by the EMR were reviewed to identify all prescriptions that required the pharmacist to call the prescriber for clarification.
FINDINGS TO DATE/EVALUATION OF WEB SITE: Two thousand three hundred and thirty four prescriptions were filled at both pharmacies during the study period; 1011 were new prescriptions. Of these new prescriptions 985 (97%) were screened and twenty-six prescriptions (3%) were not identified, likely due to misfiling. Three hundred and seventy (38%) of these were EMR-generated. Thirty-one (8%) of the EMR-generated prescriptions required pharmacist intervention and prescriber clarification. Common reasons for clarification were dispensing quantity (52%), prescription of non-formulary agent (22%), dosing inconsistencies (16%), and inappropriate dosing frequency or frequency chosen does not match free text written in comments field (10 %).
KEY LESSONS LEARNED: Although concern exists among physician and outpatient pharmacy staff there seems to be a low rate (8%) of pharmacist intervention required for clarification of EMR-generated prescriptions. This evaluation raises concerns over the low rate of use of the EMR prescription writer and suggests that determining reasons for lack of use of the EMR prescription generator may be an important tool to increase use. Results of this evaluation were utilized by our institution when creating a new version of the prescription writer. The investigators plan to repeat this evaluation and survey physicians to assess reasons for not using the EMR prescription writers.

EXAM-ROOM VERSUS TRADITIONAL PRESENTATION IN A RESIDENT AMBULATORY CLINIC. D. Dunham[1]; J. Butter[1]; D. Wayne[1]; M.M. Green[1]; V. Fleming[1]. [1]Northwestern University, Chicago, IL. *(Tracking ID # 151056)*

STATEMENT OF PROBLEM/QUESTION: There are many challenges in optimizing clinical encounters between resident physicians, attending physicians and patients in ambulatory care. Usual staffing models have one attending physician mentoring multiple residents. This model often results in delays of patient flow. Time pressures can further compromise teaching in clinic and time spent with patients. Residents have other significant clinical obligations limiting their access for ambulatory patients. Residents' short tenure limits their ability to develop a longitudinal relationship with patients. These factors are barriers in building a continuity ambulatory practice for residents. We hoped to determine if having residents present to attendings in the presence of patients improves teaching and overall satisfaction.
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: We had several objectives in our intervention. In comparing exam-room presentations to traditional presentations we wished to determine the following: 1. Do patients, and physicians prefer exam-room or traditional presentations? 2. Do physicians spend more time with patients when there is an exam-room presentation? 3. Do physicians feel more teaching is accomplished with an exam-room presentation? 4. Is patient flow different in exam-room presentations?
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: We randomized our resident and attending physician teams to alternate residents' patient presentations by month to attendings. This study took place over 4 months. Presentations of patients in their ambulatory visit occurred either in the traditional manner (in a conference area away from the patient) or in front of the patient (exam-room presentation). If a patient consented, they along with the attending and resident physician were asked to fill out separate questionnaires describing their impressions of their interactions.
FINDINGS TO DATE/EVALUATION OF WEB SITE: In general patients preferred exam-room presentations. Patients felt they spent more time with physicians during exam-room presentations (20 versus 12 minutes). Patients were also more likely to feel physicians showed more care and concern during the exam-room presentation (90% versus 84%). They felt physicians were more likely to spend an appropriate amount of time with them during the exam-room presentations (96% versus 91%). Resident and Attending physicians both felt residents were more likely to experience a loss of autonomy during exam-room presentations (6% versus 18% for residents and 6% versus 12% for attendings). Attending physicians felt they provided excellent care more frequently during exam-room presentation (100% versus 92%). Attending physicians also reports that residents were more likely to learn about treating patients in a professsional manner during the exam-room presentation (91% versus 84%). Attendings felt they were more likely to spend an adequate amount of time with patients in the exam room presentations (96% versus 88%). Attendings felt they spent more time with patients with the exam-room compared to traditional presentation (8.0 versus 5.5 minutes). Note: Study ongoing and to end January 31, 2006. Results

above are preliminary and based on less than half of eventual responses. Final data will be available by April 1, 2006.
KEY LESSONS LEARNED: Having exam-room presentations done in a resident ambulatory practice can be accomplished. Patients and attending physicians viewed exam-room presentations as more favorable than the traditional presentations while residents did not. Both residents and attendings felt residents were more apt to feel a loss of autonomy with exam-room presentations.

FACTORS THAT INFLUENCE SUBSPECIALTY CHOICES OF INTERNAL MEDICINE RESIDENTS IN CANADA. L. Horn[1]; K. Tzanetos[1]; K. Thorpe[1]; S. Straus[1]. [1]University of Toronto, Toronto, Ontario *(Tracking ID # 153478)*

STATEMENT OF PROBLEM/QUESTION: There is growing concern over the size and composition of internal medicine subspecialty training programs.
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: In order to address the concern about physician imbalances in internal medicine subspecialties, we need to determine the proportion of residents applying to the subspecialty programs and examine the factors that motivate residents when making career decisions.
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: Data from the Canada Post M.D Education Registry (CAPER) was used to determine the trends in subspecialty choices among internal medicine residents from 1995 to 2003. Third year residents in core internal medicine training programs completed a web-based survey. Residents choosing procedure-based specialties (cardiology, respirology, gastroenterology and critical care), cognitive-based specialties (hematology, infectious diseases, nephrology and oncology) and cognitive-based specialties with declining applicants (geriatrics, GIM, endocrinology and rheumatology) were compared in terms of demographics and the influence of 50 non-demographic Likert-based items. Multivariable regression analyses were used to model the variables affecting trainees choice of career.
FINDINGS TO DATE/EVALUATION OF WEB SITE: From 1995 to 2003 there has been a progressive increase in the number of residents completing their training in procedure-based specialties (from 35% to 43%), while general internal medicine has seen the greatest decrease in the number of trainees (from 33% to 20%). Seventy-eight percent of procedure-based specialty positions are occupied by men, while 61% of non procedure-based specialty positions are filled by women. Although residents may develop interest in a specialty early in their training, their final decision is made during residency. Residents choose careers that are consistent with their personality, and that will offer intellectual stimulation and diversity in clinical spectrum. The reputation of the specialty, anticipated salary and lifestyle as a staff also appear to be important factors to certain groups.
KEY LESSONS LEARNED: This study suggests that internal medicine trainees, and particularly males, are increasingly choosing procedure-based specialties while non procedure-based specialties, and especially general internal medicine, are losing appeal. We need to implement strategies to ensure positive experiences and improved job satisfaction in order to attract residents to less popular specialties. Further research should focus on confirming these findings and exploring ways of ensuring resident interest across all the domains of internal medicine.

FAILURE OF HEPARIN DOSING GUIDELINES IN OBESE PATIENTS. A. Raina[1]; A.L. Towers[1]; C. Faber[1]; S.J. Skledar[1]; A. Seybert[1]; J. Bonner[1]; S. Heena[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 153117)*

STATEMENT OF PROBLEM/QUESTION: Current guidelines for anticoagulation with intravenous unfractionated heparin (UFH) recommend weight-based dosing. Recommended dosing for acute coronary syndromes (ACS) includes a bolus of 60–70 units/kg (maximum 5000 units) with infusion of 12–15 units/kg/hour (maximum 1000 units/hour), and dosing for venous thromboembolic events (VTE) is a bolus of 80 units/kg with infusion of 18 units/kg/hour. These guidelines are not adequately evaluated for UFH dosing in obese patients.
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: To determine effectiveness of the current weight-based UFH dosing guidelines in achieving therapeutic aPTT and report the incidence of bleeding complications in obese patients (more than 90 kg) receiving UFH.
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: As a quality improvement initiative, 109 random obese patients who received UFH infusions during June 2004 to December 2004 at an academic medical centre were retrospectively evaluated using inpatient electronic medical records. Adherence to guidelines regarding anticoagulation is reported. Mean bolus doses and infusion rates are compared by indication for anticoagulation and therapeutic status. In addition, incidence of heparin complications is reported.
FINDINGS TO DATE/EVALUATION OF WEB SITE: The indications for anticoagulation were VTE in 59 (54.2%) and ACS in 50 (45.8%) patients. Mean patient age was 56.7 years with mean weight of 121.6 kg. Only 66% (72/109) of patients had received an initial bolus with a mean of 53.6 units/kg. Mean bolus and infusion were 50.9 units/kg and 13.8 units/kg/hour in VTE patients and 56.5 units/kg and 12 units/kg/hour in ACS patients respectively. The recommended guidelines were followed in 20.9% (15/72) patients for initial bolus dosing and in 19.3% (21/109) patients for infusion. Six hourly aPTT monitoring guideline for first 24 hours was followed in 54/109 (49.5%) patients. Within 24 hours, 22 (20.1%) patients remained sub-therapeutic, 27 (24.7%) patients were therapeutic (aPTT 46–90 seconds) and 57 (52.2%) patients were supratherapeutic. Three patients had therapy discontinued within 24 hours and did not have aPTT monitoring. Among supratherapeutic patients 87.2% (49/57) had received recommended or less than recommended UFH dosing. There were total of eight (8/109, 7.3%) complications due to UFH therapy, six were bleeding complications and two were heparin induced thrombocytopenia. Three (3/59, 5.0%) bleeding episodes in patients receiving UFH for VTE were: neck hematoma and epistaxis, excess bleeding from PICC line site, urethral and vaginal bleeding. Five complications (5/50, 10%) in patients receiving UFH for ACS were: three bleeding episodes (lower gastrointestinal bleed, retroperitoneal hematoma, epistaxis), and two patients developed heparin induced thrombocytopenia. All 8 patients with bleeding complications had supratherapeutic aPTT within first 24 hours and only 2 patients had received higher dosing than recommended guidelines.
KEY LESSONS LEARNED: Poor adherence to guidelines and downward adjustments in heparin dosing was demonstrated.Supra-therapeutic aPTT occurred in 52.2% of patients even with downward adjustment of dosing. and wasassociated with increased risk of bleeding complications. Reevaluation fof the dosing guidelines for UFH in obese patients is warranted

FINANCIAL INCENTIVES TO IMPROVE PRIMARY CARE PHYSICIAN DEPRESSION CARE: EFFECT ON DEPRESSION SCREENING. M.K. Ong[1]; D. Lee[2]; M.B. Potter[2]; M.D. Feldman[2]. [1]University of California, Los Angeles, Los Angeles, CA; [2]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 153356)*

STATEMENT OF PROBLEM/QUESTION: Depression screening is being considered as a future "pay for performance" measure for primary care practices, but primary care practices do not currently receive reimbursement from managed behavioral health care organizations (MBHOs) for depression screening or treatment.
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: 1. Determine if a pilot program to improve depression care increased depression screening 2. Determine if financial incentives increased depression screening
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: The Depression in Primary Care program at UC San Francisco reorganizes primary care-based depression care along evidence-based best practices and provides payment to primary care physicians (PCPs) and practices for depression care. Following current U.S. Preventive Services Task Force recommendations, an annual depression screening procedure was introduced in conjunction with a coordinated program of depression care. Faculty PCPs who participated in a depression skills training session, which included sections on depression screening, were considered "credentialed" and therefore eligible to submit claims for reimbursement for providing depression care provided to patients insured by the participating insurer and MBHO. An annual depression screen prompt was added to the automated PCP reminder that accompanies the health maintenance data at every patient visit. This new depression screen prompt asks PCPs if the patient has been depressed or had anhedonia in the past month, and allows PCPs to enter yes, no, or free response feedback into the automated system. Results of depression screens are displayed in the health care maintenance data at all subsequent visits.
FINDINGS TO DATE/EVALUATION OF WEB SITE: Among the 37,872 patients seen at the four UC San Francisco primary care clinics between 10/1/2002 and 8/30/2005, 5471 had documented depression screening by 130 primary care providers. Credentialed providers (33 of 47 faculty members) conducted 70% of overall screening. After excluding the 7% of screening by non-eligible providers (i.e. medicine resident physicians), credentialed providers conducted 86% of all screening. Few credentialed providers submitted claims for reimbursement. In the clinic providing the majority of submitted claims, 7 of 12 credentialed providers cared for patients whose insurance coverage permitted submission of claims for depression care; only 3 actually submitted claims. Analysis of this clinic's screening activity among the credentialed providers found that the 3 who submitted claims conducted 50% of screening, the 4 who were eligible but did not submit claims conducted 37% of screening, and the 5 who were not eligible to submit claims conducted 13% of screening.
KEY LESSONS LEARNED: Depression screening following implementation of the program appears low despite availability of financial incentives for depression care. However, the low screening activity may reflect a lack of documentation. Credentialed providers documented the majority of depression screens, suggesting that training or prospect of reimbursement may improve depression screening. However, financial incentive use by credentialed providers appears low; non-price incentives such as care management of depressed patients likely induced more referral behavior. This may be due to lack of direct incentives, difficulty navigating through the reimbursement process, or low prevalence of patients meeting the criteria for claims.

"I WASN'T THE ONLY ONE GOING THROUGH THIS": GROUP VISITS FOR OLDER ADULTS WITH DEPRESSION ARE FEASIBILE AND ACCEPTABLE. S.L. Swenson[1]; J. Zandecki[1]; R. Gonzales[1]; M.D. Feldman[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 151859)*

STATEMENT OF PROBLEM/QUESTION: Group visits appear promising for chronic disease management, but their feasibility, acceptability, and effectiveness for managing depression in primary care patients are unknown. We developed and evaluated a group intervention to enhance depression treatment for older primary care patients with depression.
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: This pilot study examines (1) the feasibility of depression group visits in 2 academic general internal medicine practices, (2) their acceptability to patients, and (3) their impact on depression symptoms and patient self-efficacy.
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: We recruited English-speaking primary care patients aged 50 or older with significant depression

symptoms (major depression by clinical diagnostic interview or baseline Patient Health Questionnaire for Depression (PHQ-9) score of 10 or more. We excluded those who needed acute psychiatric hospitalization or had severe dementia. The 10-week program consisted of medication management, psychotherapy referral, and an education and activation component that was based on a well-validated program of chronic disease self-management. A physician and social worker led weekly two-hour group meetings conducted at patients' primary care clinics.
FINDINGS TO DATE/EVALUATION OF WEB SITE: The program's 29 participants were ethnically diverse (28% African-American, 17% Latino, 7% Asian-American) with a median age of 63 years and multiple medical co-morbidities (mean 3.5). Most (83%) had chronic or recurrent depression. They were moderately depressed based on PHQ-9 scores (mean PHQ-9 = 13; 6–21), and 66% were taking antidepressants at baseline. FEASIBILITY: We received 50 referrals from 28 clinicians; 11 patients declined, and 10 were ineligible. Attendance was high (mean = 71% of meetings), and 25 participants completed the program. A majority (59%) started or changed antidepressants. ACCEPTABILITY: We used 3 components of Roger's Diffusions of Innovations theory to evaluate acceptability: relative advantage, complexity, and compatibility. Relative Advantage: All participants agreed (79% strongly agreed; 21% agreed) that the program was a "useful addition" to their existing depression treatment. Complexity: 92% reported that it was easy for them to participate in the meetings. Compatibility: 88% agreed that it was moderately or extremely important that meetings occurred in their general medicine clinic. Most (79%) said that they would definitely recommend the program to depressed family or friends. CLINICAL OUTCOMES: Patients' depression symptoms improved during the program and at 16-week follow-up (mean PHQ-9 at baseline = 13.2, 10 weeks = 7.8; $p < .0001$; 16 weeks = 9.5; $p = .01$ by paired *t*-test). Self-efficacy scores also improved (baseline = 5.4; 10 weeks = 6.4; 16 weeks = 6.2; 1–10 range; 10 = maximum), but these differences did not reach statistical significance. At 16-week follow-up, most participants felt confident that they could manage their depression effectively (median 8.7; range 1–10; 1 = "not at all confident" and 10 = "extremely confident"). QUALITATIVE INTERVIEWS: Patients thought that action plans, social worker and group member support, and cognitive tools for symptom management were central to the program's effectiveness.
KEY LESSONS LEARNED: Depression group visits that teach self-management strategies and offer medication management are feasible and acceptable to older patients with depression. Social worker support helps to engage and retain patients. Improvements in depression symptoms and patient self-efficacy appear promising but await confirmation in a randomized clinical trial.

IDENTIFICATION AND PREVENTION OF DELIRIUM ON GENERAL MEDICINE FLOORS. R. Aggarwal[1]; M. Saul[1]; P. Chaffin[1]; A.L. Towers[1]; N. Resnick[1]; H.S. Sheth[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 152615)*

STATEMENT OF PROBLEM/QUESTION: Delirium is associated with a 25–3% mortality rate in elderly patients. Hospitalized elderly patients developing delirium require higher level of nursing care; have increased risk of institutional placements, and greater healthcare costs. A comprehensive program to prevent delirium in elderly who are at high risk of developing delirium will be of great benefit to patients, hospital and community.
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: 1. To evaluate if nursing implemented fall risk assessment (FRA) on admission will identify high risk patients for delirium. 2. To determine the need for modification in FRA tool to incorporate delirium risk factors.
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: Our study group comprised of all patients aged 65 years or more were admitted to a general medicine floor at UPMC Presbyterian Hospital from Jan 12, 2005 to Jul 12, 2005. On admission each patient in the group was assessed for fall risk by the nursing staff using Fall Risk Assessment (FRA) form. In addition, all patients were assessed daily for delirium by nurses using the Confusion Assessment Method (CAM) survey form during their stay on the medical floor. All pertinent information including demographic and clinical data were collected from electronic medical records and archived hospital laboratory database (MARS). Delirium incident patients were compared with non incident patients for differences in demographic (age, gender, race, Charlson's co-morbidity index), laboratory data (albumin as an indicator for malnutrition, BUN/serum creatinine ratio as marker for dehydration) and each component of fall risk assessment as well as over all fall risk. Chi-square test and *t*-test were used to compare the groups.
FINDINGS TO DATE/EVALUATION OF WEB SITE: Total 275 patients of age 65 years or greater were assessed by CAM and FRA over a period of 6 months. CAM identified delirium prevalence in our study population was 12.7 % (35/275) and incidence 4.8 % (12/252) after excluding 23 patients who had delirium on admission. Delirium incident patients had mean age of 79.8 years compared to 78.1 years in non-incident patients ($p = 0.27$). Delirium incident patients had higher odds of being an African American, having dementia, dehydration (BUN/S creatinine ratio of >25) and risk of fall compared to the non-incident group (OR >2.0 &/or $p < 0.05$). Seventy five percent (9/12) of patients with delirium were assessed moderate to high risk for fall by FRA. Delirium incidence was associated with following components of fall risk assessment: mental status changes on admission, decreased or limited mobility, history of fall prior to admission, and difficulty in vision, speech or hearing.
KEY LESSONS LEARNED: FRA by nursing staff identified 75% of delirium incidence among elderly patients on general medicine floor. Addition of patient age, dementia and dehydration to FRA may identify more high risk patients for developing delirium. Since race is not a known risk factor for delirium and considering small number of incident patients we do not recommend race to be included in screening tool at present.

IMPACT OF A STRATEGY FOR MANAGING OUTPATIENT PHARMACEUTICAL COSTS IN A VA MEDICAL CENTER. U. Subramanian[1]; M. Jones[2]; J.R. Curtis[2]; T.A. Stavenger[3]; T.R. Emmendorfer[3]; J.P. Walsh[2]. [1]VA HSRD Center of Excellence in Implementing Evidence based Practice, Indianapolis, IN; [2]Richard L. Roudebush VA Medical Center, Indianapolis, IN; [3]Ann Arbor VAMC, Ann Arbor, MI. *(Tracking ID # 153703)*

STATEMENT OF PROBLEM/QUESTION: Expenditures on prescription drugs is the fastest growing component of health care costs, growing at a rate that is twice that of other health care spending. Per patient expenditures for outpatient pharmaceuticals in the VA system have increased at an average annual rate of 4.73% over the last 5 years. A comprehensive program to limit pharmaceutical expenditures was mandated at our VA facility in late 2004.
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: Implement cost containment measures based on evidence based guidelines targeting prescribing of high-priced pharmaceuticals to meet the fiscal mandates at our facility. To evaluate the cost-savings, adverse events and downstream benefits related to implementation of cost containment in pharmaceutical expenditures.
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: The VA Pharmacy Benefits Management database was used to compare expenditures for individual drugs and drug classes at our facility to average expenditures at 15 facilities, matched based on system, patient and community level characteristics. Both the percentage of patients treated and costs per treated patient were compared for each agent prescribed and potential "cost avoidance" for each agent was calculated. For those agents where the potential cost avoidance exceeded $50,000/year, a systematic process for review included: 1) Reviews of electronic progress records to assess reasons for the prescription; 2) Reviews of key literature and published guidelines for each agent; 3) Consultation with local experts; 4) Costs of alternate therapies; and 5) Determination of practices at VA facilities with low usage of targeted agents. Based on the above reviews, evidence based criteria for use of agents (N = 12) were developed. Where criteria were straightforward, therapeutic conversions to alternate agents (N = 5) were instituted. Where criteria for use were complicated (N = 7), prior approval consults for initiation of therapy were required. Patients already on the targeted medications were reviewed at routine clinic visits and converted to alternate therapy if they did not meet critera for use.
FINDINGS TO DATE/EVALUATION OF WEB SITE: Twenty seven agents were identified in the peer group comparisons for which potential cost avoidance either exceeded $100,000 per year or was greater than 50% of total cost. As a result of the intervention, total (inpatient and outpatient) pharmaceutical expenditures at our facility in FY05 were $3.67 million below budgeted levels. Per patient pharmaceutical costs declined from $896 in FY04 to $814 in FY05. When compared to the 2.58% increase in per patient pharmaceutical costs in the VA system, the calculated FY05 cost avoidance at our facility was $4.05 million, or 13.0% of total costs. The major added cost of this initiative was $315,000 in annual salary and benefits for three new clinical pharmacists. There have been no major adverse events clearly related to these therapeutic conversions. More detailed analyses of clinical outcomes are ongoing.
KEY LESSONS LEARNED: Wide variation in usage of many high priced pharmaceuticals in the VA system suggests that aggressive application of evidence-based criteria may offer substantial cost savings system-wide, with no adverse events related to these measures. Despite significant budgetary contraints, savings from this cost containment initiative related to medication utilization permitted funding of $1.2 million in equipment requests and 35 new personnel positions.

IMPLEMENTATION OF A MEDICATION RECONCILIATION PROCESS IN AN AMBULATORY INTERNAL MEDICINE CLINIC. C.L. Nassaralla[1]; J.M. Naessens[1]; R. Chaudhry[1]; M.A. Hansen[1]; S. Scheitel[1]. [1]Mayo Clinic, Rochester, MN. *(Tracking ID # 151763)*

STATEMENT OF PROBLEM/QUESTION: An increasing number of patients with multiple medical problems are being cared for in the outpatient setting. The complexity of these patients poses a challenge for primary care physicians to maintain the quality and continuity of patient care, while minimizing medication errors. Updated and accurate medication lists would greatly minimize drug-related morbidity and improve patient health outcome.
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: This prospective study was designed to evaluate the causes of medication list inaccuracy, and implement interventions to enhance the overall accuracy of medication lists.
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: The study setting was a primary care internal medicine clinic outpatient practice which consisted of 8 staff physicians and 23 residents. The study took place over 4 months with two multi-interventions. Prior to the first intervention baseline data was collected and analyzed assessing the completeness of medication documentation in the electronic medical record. Completeness defined as including medication name, dose, frequency and route. The first intervention consisted of: 1) standardization of the rooming process with initiation of a preliminary note by the licensed practical nurses (LPNs); 2) review of the medication list by the patient; 3) E-mail commmunication to staff defining what constitutes a complete medication list and providing feedback of baseline measures. A second data collection was undertaken two months after the intervention to re-assess the medication list completeness and correctness. The second intervention was two-fold: 1) all members of the health care team were trained regarding the definition of medication reconciliation and composition of a complete and correct medication list; 2) the entire visit process from the scheduling of the appointment to the physician's signing of the final clinical note was reviewed, and each health care team member was instructed in their role to enhance medication reconciliation since the accuracy of the medication lists is directly related to the completeness and correctness of the documented medication list.
FINDINGS TO DATE/EVALUATION OF WEB SITE: Completeness of specific medication items improved from 13.5% (baseline) to 62.3% (post second inter-

vention), $p<0.001$. However, the completeness of the entire medication lists only improved from 4% to 17%, $p<0.001$. The major causes of incomplete documentation of medication lists prior to implementing interventions were the lack of route (84.6%) and frequency (22.3%) of medication items within a medication list. In addition, documentation of over-the-counter and "as needed" medications was often incomplete. The major causes of incorrectness in a medication list were due to misreporting of medications by patients or failure of clinicians to update the medication list when changes were made. We found it easier to improve completeness than correctness of a medication list.
KEY LESSONS LEARNED: To improve the accuracy of medication lists it is necessary for the patient and for all members of the health care team to participate.

IMPLEMENTATION OF A TELEPHONIC NURSE-ADMINISTERED OUTREACH PROGRAM TO IMPROVE QUALITY OF CARE FOR LOW INCOME LATINO PATIENTS ON A DIABETES REGISTRY. H. Fischer[1]; T. MacKenzie[1]; D. Lakich[2]; S. Soria[1]; B. Weber[1]; D. Stell[1]; C. Rice-Peterson[1]; R. Estacio[1]. [1]Denver Health and Hospital Authority, Denver, CO; [2]Colorado Prevention Center, denver, CO. *(Tracking ID # 154353)*

STATEMENT OF PROBLEM/QUESTION: Can nurses improve diabetes related outcomes in our patients via protocol-based regular telephone contact?
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: 1) Increase the percent of our diabetic patients with LDL less than 100 mg/dl from 66% to 80% 2) Measure the impact of the intervention on blood pressure control, glycemic control, progression of nephropathy, achievement of aggressive lipid goals in patients with cardiovascular disease, cigarette smoking status, and hospital and emergency room visits 3) Determine the cost-effectiveness of this intervention.
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: Our federally qualified community health center has approximately 20,000 visits annually by Denver residents. The patient population is 80% Latino, 10% Caucasian, 5% African-American, and 5% other ethnicity. Using our diabetes registry, we randomly selected 700 patients to enroll in the study. Patients were randomized to continue with their usual care ($N=350$) or to participate in our nurse run program ($N=350$). Three of our registered nurses were trained on algorithms for diabetes care. These algorithms address management of lipids, blood pressure, nephropathy, aspirin use, eye screening, pneumovax and influenza vaccines, nephropathy, and eye screening. The nurses were also trained in motivational interviewing techniques. The training took approximately 10 hours in a group format over a 6 week period. The nurses collect data on a given patient in a Microsoft Access database, and a printable version of the data is scanned into our electronic medical record. The nurses track patients using Microsoft Outlook. A software interface with our registry data allows us to prioritize patients for nurse contact according to lipid and blood pressure control. Each of the three nurses dedicates 25% time to this program. The program began in September 2005 and will end in April of 2007.
FINDINGS TO DATE/EVALUATION OF WEB SITE: 1) Over the first 3 months of the program, the nurses initiated the lipid management algorithm on all patients with LDL more than 100 who have not had their lipids checked in the last 3 months 2) The nurses are now focusing on patients over age 40 with total cholesterol more than 135 for whom a statin medication would be indicated per the updated American Diabetes Association guidelines 3) Two nurses express enthusiasm about their increased responsibility and the continuity of care 4) One nurse expressed difficulty and frustration contacting and motivating patients and has subsequently shifted her duties to another nurse
KEY LESSONS LEARNED: 1) Our primarily indigent and often migratory population has proved more difficult to track by telephone than anticipated 2) Registered Nurses are able and willing to provide telephone care to patients according to moderately complex algorithms 3) We are continuing to try to improve the integration of this program with the care that patients receive from their providers

IMPROVING DIABETES CARE BY INTEGRATING A CHRONIC ILLNESS MANAGEMENT CLINIC INTO AN ACADEMIC GENERAL INTERNAL MEDICINE PRACTICE. A. Dipiero[1]; D.A. Dorr[1]; J.L. Bowen[1]. [1]Oregon Health & Science University, Portland, OR. *(Tracking ID # 153652)*

STATEMENT OF PROBLEM/QUESTION: Most patients with diabetes do not receive the recommended care known to improve outcomes. The Chronic Care Model may improve processes and outcomes. However, few studies have investigated its implementation in academic general internal medicine (GIM) practices where many of the providers practice part time and where learners are part of the care delivery team.
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: We aimed to design a focused clinic dedicated to improving processes and outcomes for patients with diabetes and integrate it into an academic GIM group.
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: We established a Chronic Illness Management (CIM) clinic focusing exclusively on fulfilling evidence-based processes for diabetic patients receiving their primary care in an academic GIM practice. Diabetic patients identified through billing and laboratory records are offered visits to the CIM clinic after review and approval by the patient's primary clinician. All patients continue receiving their usual primary care. The use of a patient database, planned visits, provider education, and self-management strategies distinguishes this practice from usual care. The CIM team includes a dedicated nurse, social worker, medical assistants and two GIM faculty. Internal medicine residents are integrated into the care team as part of a required one-month rotation. An automated database tracks patients failing to meet standards of care. The CIM team resolves barriers to recommended care through coordination meetings, scheduled follow-up, and recurring improvement cycles. Process and outcomes measures were analyzed using a retrospective cohort model over 15 months, where patients exposed to the CIM clinic were compared with non-exposed patients by multivariable logistic models controlling for confounders such as comorbidities and previous adherence.
FINDINGS TO DATE/EVALUATION OF WEB SITE: Diabetes process measures and intermediate outcomes for 288 persons exposed to the Chronic Illness Management clinic were compared with 277 controls who received usual care. At baseline, the two groups were not significantly different with regards to age, gender, insurance coverage, LDL cholesterol and blood pressure. The CIM-exposed group did have a significantly higher hemoglobin A1c (HbA1c) level (7.3% vs. 7.0%) and comorbidity score (3.3 vs. 2.6, $p=0.0001$) due to a greater frequency of depression (27% vs. 20%, $p=0.03$). Patients in the CIM clinic experienced a significant increase in adherence to the following recommended preventive measures compared to control patients: yearly LDL cholesterol testing (OR=3.1, $p=0.0002$), and yearly measurement of urine microalbumin (OR=3.3, $p=0.003$) and blood pressure (OR=12.8, $p<0.0001$). Adherence to recommended testing of HbA1c improved in both groups equally (OR=1.3, p=ns). Exposure to the CIM clinic also resulted in a significant increase in the odds of patients achieving key intermediate outcomes compared to control patients: HbA1c<7% (OR=1.7, $p=0.04$), blood pressure <130/80 (OR=2.8, $p=0.001$), and establishment of self-management goals (OR 8.1, $p<0.0001$).
KEY LESSONS LEARNED: An academic CIM clinic dedicated to fulfilling diabetes-specific processes of care significantly improves both process measures and intermediate outcomes. Key features are the role of the CIM clinic in supporting the primary clinician, educating the care team and regularly reviewing patient results. We discuss how others could integrate these functions into GIM practices to enhance diabetes care.

IMPROVING GLYCEMIC CONTROL IN MEDICAL INPATIENTS: A PILOT STUDY. J. Trujillo[1]; E. Barsky[2]; B. Greenwood[2]; S. Wahlstrom[2]; B. Dang[2]; M. Pendergrass[2]; J.L. Schnipper[2]. [1]Northeastern University, Boston, MA; [2]Brigham and Women's Hospital, Boston, MA. *(Tracking ID # 154672)*

STATEMENT OF PROBLEM/QUESTION: The American Diabetes Association and American College of Endocrinology recommend glucose levels <180 mg/dL in non-ICU hospitalized patients. However, data are lacking regarding the efficacy of subcutaneous insulin protocols in achieving glycemic control among general medicine inpatients.
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: To implement a subcutaneous insulin protocol, determine its effects on glycemic control, and identify barriers to implementation on a general medicine service.
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: Baseline data were collected on 107 general medicine patients with diabetes or hyperglycemia on admission. We then conducted a pilot study of a subcutaneous insulin protocol on two general medicine teams at Brigham and Women's Hospital. Patients were included if they had known type 2 diabetes or a random glucose >180 mg/dL and at least one fasting glucose >140 mg/dL. Primary protocol components were: stop oral diabetic agents if appropriate, initiate basal insulin, consider nutritional or correctional insulin in poorly controlled patients, and adjust doses daily. For eligible patients, a pharmacist recommended protocol initiation and daily dose adjustments to the primary team. Study outcomes included the incidence of hyper- and hypoglycemia, overall protocol acceptance rate, use of basal and nutritional insulin, and daily dose adjustments under the protocol. Residents were interviewed to identify barriers to protocol acceptance.
FINDINGS TO DATE/EVALUATION OF WEB SITE: Eighty-nine patients were included in the pilot study. Basal insulin was ordered more often during the pilot compared to baseline (60% vs. 49%), but this difference was not significant ($p=0.15$). In the pilot, use of basal insulin increased over the hospital stay (41% on day 1, 72% on day 5, $p<0.001$ for trend), in contrast to the baseline cohort (35% on day 1, 49% on day 5, p=NS). Nutritional insulin was ordered more often in the pilot compared to baseline (22% vs. 3%, $p<0.001$). Overall glycemic control in pilot patients was not significantly different than baseline. The incidence of hyperglycemia (glucose >180 mg/dL) was 31.6% of readings per patient in the pilot compared to 32.5% at baseline (p=NS). However, hyperglycemia rates did improve during the hospital stay in the pilot (48% on day 1, 33% on day 5, $p=0.002$ for trend) while no improvement was seen at baseline (37% on day 1, 34% on day 5, p=NS). The incidence of hypoglycemia was 1.4% of readings per patient compared to 0.8% at baseline (p=NS). Residents accepted the protocol in 46 patients (52%). Basal insulin was started on hospital day 1 in only half of patients who eventually received it. Dose adjustments only took place in 15% of patients during the first week. Implementation barriers included fear of hypoglycemia and concerns in specific patient populations (renal insufficiency, steroid tapers).
KEY LESSONS LEARNED: Our protocol was accepted in theory but difficult to implement in practice. Compliance was marginal and often delayed; improvements were most noticeable over the course of hospitalization. The protocol has since been revised to increase use of nutritional insulin and simplify daily adjustments. The protocol has been integrated into our computerized physician order entry system to improve compliance, especially at time of admission. Early compliance and intensive staff education are likely necessary impact glycemic control.

IMPROVING WORKFLOW AND QUALITY FOR ACUTE RESPIRATORY INFECTIONS WITH AN ELECTRONIC "SMART FORM". J.A. Linder[1]; L.A. Volk[1]; R. Tsurikova[1]; A.J. Melnikas[1]; M. Palchuk[1]; M. Olsha-Yehiav[1]; B. Middleton[1]. [1]Brigham and Women's Hospital and Partners HealthCare, Boston, MA. *(Tracking ID # 153510)*

STATEMENT OF PROBLEM/QUESTION: Acute Respiratory Infections (ARIs) are the most common reason for seeking medical care and the number one

reason for antibiotic prescribing in the United States. Much antibiotic prescribing for ARIs is inappropriate. However, delivering electronic decision support for ARIs is challenging because of the brevity of ARI visits. Research into ARIs is frequently hampered by inadequate and non-standard documentation.
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: We designed an electronic health record (EHR)-integrated, documentation-based clinical decision support system for the care of patients with ARIs, the ARI Smart Form. The ARI Smart Form has 3 objectives: 1) improve workflow for clinicians; 2) assist clinicians in reducing inappropriate antibiotic prescribing; and 3) improve and standardize documentation.
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: The ARI Smart Form is available in the ambulatory EHR used at our organization. The ARI Smart Form is launched from the Notes page of the EHR and is designed to be used while interviewing and evaluating patients. The ARI Smart Form integrates display of information, decision support, ordering and documentation and includes 6 components: entry of clinical information; patient data display; diagnosis selection; presentation of treatment options with integrated decision support; printing of patient handouts; and access to supporting medical literature. The ARI Smart Form imports patients' problem lists, allergies, medications, and vital signs; speeds workflow using drop-down lists, radio buttons, and check boxes (especially "all normal" checkboxes); and provides "one-click" ordering of medicines, patient handouts, and excuse-from-work letters. All orders and actions are automatically documented and the ARI Smart Form formats all information into a typical narrative note.
FINDINGS TO DATE/EVALUATION OF WEB SITE: We conducted a pilot study of the ARI Smart From in September 2005, tracking the use of the ARI Smart Form and surveying participants about their impressions. Eleven clinicians used the ARI Smart Form with 26 unique patients. Based on billing data, clinicians used the ARI Smart Form for 27% of their ARI visits during the pilot period. Clinicians prescribed antibiotics to 6 of 6 patients with antibiotic-appropriate diagnoses (e.g., sinusitis, streptococcal pharyngitis) and to 3 of 20 (15%) patients with antibiotic-inappropriate diagnoses (e.g., non-specific upper respiratory infection, acute bronchitis). The mean duration of ARI Smart Form use, which could include interviewing and examining the patient as well as documentation time, was 7 minutes (standard deviation $\pm$ 4 minutes). Six of 10 survey respondents (60%) would recommend the ARI SF to their colleagues unchanged and 3 of 10 respondents (30%) would recommend it with minor modification. Eight of 10 respondents (80%) reported that the ARI Smart Form was either time-neutral or timesaving.
KEY LESSONS LEARNED: Decision-support applications for acute problems must provide clinicians with self-evident benefits at the time of the visit (e.g., saving time, improving patient education) or they will go unused. The ARI Smart Form requires further evaluation, but has the potential to improve workflow, reduce inappropriate antibiotic prescribing, and standardize documentation.

INFORMATICS SOLUTIONS TO ACHIEVE JUST-IN-TIME SUBJECT ENROLLMENT ACROSS A PRACTICE BASED RESEARCH NETWORK. A.N. Kho[1]; B.L. Hudson[2]; J.A. French[2]; M. Litherland[3]; W.M. Tierney[1]. [1]Indiana University Purdue University Indianapolis, Indianapolis, IN; [2]Indiana University School of Medicine, Indianapolis, IN; [3]Cleveland Clinic Foundation, Cleveland, OH. *(Tracking ID # 149960)*

STATEMENT OF PROBLEM/QUESTION: Practice Based Research Networks (PBRNs) typically involve geographically dispersed practice sites which complicates screening, enrolling, and following of research subjects. Electronic health records (EHRs) can provide solutions.
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: 1) Use informatics expertise and an EHR to efficiently enroll subjects in a PBRN. 2) Expand the effectiveness of a limited pool of research staff. 3) Create an open source solution to identify eligible subjects from patients' EHRs despite Open Access (i.e. same day) patient scheduling.
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: In 1999, the Indiana University Medical Group PBRN established ResNet to identify patients eligible for multiple studies, enhance recruitment, and manage data. ResNet spans 17 primary care sites and by intent includes an even mix of commercial and indigent populations. ResNet's underlying informatics infrastructure forms a cornerstone of efficient enrollment and magnified the effectiveness of a limited pool of research assistants. In May of 2005, the Indiana University Medical Group instituted Open Access scheduling of appointments. The practice's EHR had previously generated weekly lists of eligible patients for multiple studies. Open Access' same day scheduling necessitated a system for real-time communication between the scheduling system and the research assistants enrolling patients for multiple studies. We implemented a centralized open-source software application to receive electronic appointment notices from ResNet clinics. The application automatically matches registered patients with new appointments to a list of eligible patients. Research assistants verify patient eligibility from this dynamically updated list and tailor recruitment at the various clinics based on numbers of eligible patients visiting.
FINDINGS TO DATE/EVALUATION OF WEB SITE: Since its inception, ResNet has screened over 18,000 patients and recruited over 6,000 subjects for more than 30 studies with more than $15 million in extramural direct cost funding. Fewer than 2% of potentially eligible patients were missed prior to the institution of Open Access. The open source software solution allowed research assistants to resume electronic screening of eligible patients and maintain pre-Open Access levels of recruitment efficiency.
KEY LESSONS LEARNED: 1) Informatics tools can greatly increase the efficiency of subject recruitment and expand the reach of a limited pool of research assistants. 2) Standardized registration messages present an opportunity for the automatic capture of appointment data. This open source solution can be a useful adjunct, or stand alone application for enrollment in practice based research networks.

INNOVATIONS IN MANAGING DIABETIC RETINOPATHY IN A PRIMARY CARE PRACTICE. J.A. Sackey[1]; J.J. Heffernan[1]; A. Tolson[2]; J. Cavallerano[2]. [1]Harvard University, Boston, MA; [2]Beth Israel Deaconess Medical Center, Boston, MA. *(Tracking ID # 156997)*

STATEMENT OF PROBLEM/QUESTION: Despite proven methods of care, only 40–60% of Americans with diabetes mellitus (DM) receive recommended diabetes eye care.
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: This ocular telemedicine program (1) expands access of eye care to diabetic patients, (2) identifies level of diabetic retinopathy (DR), (3) refers patients for appropriate evaluation, follow-up, or treatment, and (4) educates patients concerning diabetic eye disease and importance of life-long retinal evaluation, with the goal of preserving vision.
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: Patients with diagnosed DM examined at Healthcare Associates (HCA), an urban primary care clinic, were either referred spontaneously or pre-scheduled to Joslin Diabetes Center's (JDC) Ocular Telehealth Program for on-site digital retinal imaging without pupil dilation using the Joslin Vision Network (JVN), a telemedicine program that identifies level of DR, diabetic macular edema (DME), and eye disease not related to DM comparable to retinal specialist dilated examination and the accepted standard of seven-field retinal photography. Images are electronically transmitted to Joslin Diabetes Center for evaluation. Findings are reported in the HCA electronic medical record and a care coordinator ensures proper referral, follow-up evaluation, or treatment. Patients receive education concerning eye disease during imaging and when findings are reported.
FINDINGS TO DATE/EVALUATION OF WEB SITE: In a cohort of 553 patients, 272 patients (49.2%) reported no eye examination within 12 months. Based on severity of disease in the worse eye, 394 patients (70.7%) had no or mild nonproliferative DR (NPDR), 32 (5.4%) had moderate or worse NPDR, and 6 (1.1%) had proliferative (PDR). 26 patients (4.7%) had DME, 11 of whom had clinically significant DME. 227 patients (41.0%) had at least one nondiabetic ocular finding and 322 (58.2%) were referred for more prompt ophthalmic evaluation based on identified pathology.
KEY LESSONS LEARNED: In an urban outpatient primary care facility, the program facilitated retinal exam for persons with DM, identified and initiated evaluation for diverse levels of DR, identified nondiabetic ocular disorders requiring referral for ocular examination, and provided education opportunities for patients.

INSTITUTING A CARE MANAGEMENT PROGRAM: ONE METHOD TO IMPROVE CLINIC ACCESS. M.L. Lypson[1]; D. Ramsey[2]; A. Tremblay[2]; E.W. Young[3]. [1]University of Michigan, Ann Arbor, MI; [2]Ann Arbor VA Healthcare System, Ann Arbor, MI; [3]Ann Arbor VA Health Care System, University of Michigan, Ann Arbor, MI. *(Tracking ID # 157023)*

STATEMENT OF PROBLEM/QUESTION: Access to a physician when you want and when you need one is the basis of the Veterans Health Administration's (VHA) campaign of Advance Clinic Access (ACA). VHA has developed performance measures for the health care system that in ideal circumstances ensures that patients are seen within 30 days of a request for a new appointment in either primary or specialty care. Meeting these measures without additional resources has been a challenge to most VHA clinics. We offer that developing a clinic team with care managers in the lead is an ideal way to ensure compliance.
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: In 2004 our tertiary VA medical center underwent large scale reorganization. Our goal was to develop teams in all outpatient clinics that meet the VHA performance measures. These teams provided the workforce needed to improve access and are led by Care Managers. The care managers are registered nurses, nurse practitioners or physician assistants who have a full time presence with a particular clinic. These individuals manage the supply and demand of the clinic by evaluating referral patterns, establishing referral guidelines, and providing oversight for the clinic. Their full time presence was a must given the high number of part-time physicians we share with our University affiliate. We used the principles of Care management to develop our program. A care management program: 1. is integrated into and exploits the disease process (Clinical Process Improvement); 2. ensures that resources are managed by evaluating quality/variation (ACA); and 3. uses evidence-based clinical practice (Disease & Case management) Care managers are responsible for: • Coordinating inter-session follow-up • Facilitating hospital - outpatient transitions • Being conduits for communication and continuity • Managing referral guidelines and appointment structure • Ensuring smooth clinic flow • Educating staff.
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: We developed a multiple choice pre-test for providers prior to our reorganizational efforts. Only 45% could accurately define Advance Clinic access, 67% could properly recall the VHA goals for clinic access and only 53% could properly cite how care management would improve access. Following these results we implemented wide spread educational efforts, that included closing clinics and having all staff attend "Day Zero". This conference reviewed aspects of the reorganization, VHA performance measures and job roles/responsibilities. Monthly meeting were also held with care managers geared toward covering any questions or issues that might arise in their new roles.
FINDINGS TO DATE/EVALUATION OF WEB SITE: In 2005 the care managers were asked evaluate the reorganization efforts to date. They noted: · improved

access for patients as demonstrated by 50–75% reductions in waits improved consult responses · increased staff awareness of clinic supply and demand · improved prioritization of care The care managers however still express concern regarding limited physician buy-in, time spent on administrative tasks rather than clinical care, limited support staff assistance and limited work as teams.
KEY LESSONS LEARNED: Care management is an effective way to improve access for patients when resources are limited. Nevertheless, working to maintain and improve buy-in from the physician and staff is a struggle. Implementing a care management program is one small piece to a large puzzle of adequate support staff and improving care for our veterans.

INTEGRATING GERIATRIC CARE MANAGEMENT INTO PRIMARY CARE PRACTICE.
D.A. Dorr[1]; L. Burns[2]; C.P. Brunker[2]; S. Donnelly[3]; A. Wilcox[2]. [1]Oregon Health & Science University, Portland, OR; [2]Intermountain Health Care, Salt Lake City, UT; [3]HealthInsight, Salt Lake City, UT. *(Tracking ID # 153921)*

STATEMENT OF PROBLEM/QUESTION: For seniors with multiple chronic conditions and little social, emotional, or physical support, creating an appropriate plan and facilitating self-management is difficult. Frequently, physicians have limited time, tools and training in techniques for patient education, coaching, motivating, and problem solving for the patient and family to be successful.
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: This program is designed to facilitate transformation of the primary care approach to complex senior patients through people and technology. Participants will learn of a framework to incorporate care management functions and technological innovations into primary care, which expand the scope of care beyond the traditional doctor-patient encounter. Learners will explore information and communication requirements for the primary team. Finally, participants will assess the costs and potential benefit within their practice settings for implementation of a interdisciplinary care management approach.
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: The framework design comes from the Intermountain Healthcare care management program, which consists of seven different clinics with fifty physicians and seven care managers. Care managers are empowered to assist complex patients (50% with more than one disease or condition) through a specific training mechanism created by a geriatrician, the dissemination of care manager-inclusive guidelines, and the creation of specific information technology. The information technology facilitates creation of and Access to a care plans, encourages Best practices through reminders and ticklers, and helps the care manager Communicate with the primary care team, consultants and specialists. The Hartford Foundation funded an evaluation of the program impact on costs, patient outcomes, and mortality.
FINDINGS TO DATE/EVALUATION OF WEB SITE: A general framework to describe the care manager's efforts have been created; the care managers have seen more than 9,000 patients (3,000 seniors) over a three year period, focusing on depression, diabetes, social needs, caregiver strain, and frailty. The program has shown significant improvement in physician productivity (8% increase in RVUs billed), 21% reduction in mortality and 33% hospitalizations for diabetic patients, and high satisfaction of the primary care team and patients/caregivers. Description and utilization of the specific components of the information system and the care manager tasks will be presented. Attendees will be involved in an interactive discussion about potential replication in their settings. The specific information technology used to support the care managers' daily functions is a separate tool that the will be available free to the audience and at www.intermountainhealthcare.com/cmt.
KEY LESSONS LEARNED: An intervention for geriatric patients involving people and technology has been successful in improving health; some aspects are more beneficial than others. Application to other primary care clinics requires elucidation of how current functions are completed, and how the tools provided will fit into the new system. Policy makers are actively considering the costs and benefits of such programs. General internists and researchers engaged in structuring the care of such patients may benefit from flexible tools and the framework created through these efforts.

LEAN MANUFACTURING TO LEAN HEALTHCARE: TRANSFORMING THE DELIVERY OF CLINICAL CARE MEDICINE AT A MAJOR ACADEMIC MEDICAL CENTER
C.S. Kim[1]; D.A. Spahlinger[1]; J. Kin[1]; V. Harrison[1]; R.J. Coffey[1]; J. Rizzo[1]; D. Guglielmo[1]; J. Hallas[1]; K. Michels[1]; A. Perry[1]; H. Wurster[1]; J.E. Billi[1]. [1]University of Michigan, Ann Arbor, MI. *(Tracking ID # 151850)*

STATEMENT OF PROBLEM/QUESTION: In Crossing the Quality Chasm: A New Health System for the 21st Century, the Institute of Medicine called for fundamental reform of the health care system to assure that care is safe, effective, patient-centered, timely, efficient, and equitable.
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: University of Michigan Health System (UMHS) leaders believe that Lean production methods can be applied in health care settings to help bridge the quality chasm, and address institutional goals of providing high quality, efficient, appropriate, and safe delivery of clinical care at the same time.
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: The management philosophy of Lean production has enjoyed tremendous success in improving quality and efficiency in both manufacturing and service industries. At the heart of Lean production's philosophy is the goal of endless transformation of waste into value from the customer's perspective. The Lean approach provides comprehensive, coordinated conceptualizations and tools that directly address problems of complex processes and segmented responsibilities that together reduce overall quality and increase its costs. To improve the quality and efficiency of healthcare delivery, we are translating and adopting the philosophy and methods of Lean manufacturing to UMHS. Lean thinking is a way to approach how we can provide healthcare that specifies value, lines up value-creating actions in the best sequence (value stream), conduct these activities without interruption (flow) whenever someone requests them (pull), and perform them more effectively (perfection). To implement and disseminate Lean learning within our organization, several "model line" projects have been selected by institutional leadership as the hospital's initial priorities for application of Lean techniques. These included: vascular access services; orthopedic surgery clinic scheduling; medication administration timing; radiation oncology clinic referral program; emergency department patient flow; operating room start time; faculty appointment credentialing and provider enrollment; and care coordination of the hospitalized patient.
FINDINGS TO DATE/EVALUATION OF WEB SITE: The model line projects have shown promising results. For example, in vascular access, despite a 35% increase in volume of peripherally inserted central catheters, the number of lines placed within 24 hours has improved by 40%. For appointment scheduling, at one subspecialty clinic site 89% of the appointments have been able to accommodate patients by providing them with an appointment time and date with one phone call, fast approaching the goal of 90%. Furthermore, several of the participants have found this new methodology in process improvement to be a generally useful approach to apply in other areas of their work.
KEY LESSONS LEARNED: Our model line projects are demonstrating significant gains in quality, safety, appropriateness and efficiency of care provided across the UMHS, and will lead to "Lean" becoming the uniform institutional approach to process improvement. The successful results of implementing Lean production at our institution can have universal application at other health care systems. We plan to disseminate the ideas of design, methods, and results of our work.

MONTHLY DIABETIC HEALTH FAIR MODEL OF CARE IMPROVES EFFICIENCY OF PATIENT EDUCATION AND IS ASSOCIATED WITH BETTER CLINCAL OUTCOMES.
N.O. Ezike[1]; G. Vachon[1]. [1]Cook County Bureau of Health Services, chicago, IL. *(Tracking ID # 154399)*

STATEMENT OF PROBLEM/QUESTION: With typical diabetic care resulting in ~ 2 hours/year of direct patient care contact with a medical provider, many diabetics remain uninformed about the clinical parameters that are monitored in order to minimize complications. Although many are aware of some potential complications of diabetes, many more are uninformed about the direct correlation between non-pharmacologic health practices and glycemic control.
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: To develop a patient-centered process for in depth education of diabetic patients about their chronic disease in a time efficient manner To promote the attainment of diabetic care goals and practice guidelines To utilize the capacity of community organizations and individuals to impact the health of patients with diabetes.
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: The Austin Health Center of Cook County is an urban safety net health center with 12,000 patient visits annually, with African-Americans accounting for over 90% of the patients. There are ~ 700 diabetic patients enrolled in the clinic. On the first Thursday afternoon of each month, the clinic closes for traditional clinic care to become an informal, drop-in style clinic site with multiple available activities reminiscent of a health fair for our diabetic patients. Volunteers from local community groups and organizations run many of the stations. Throughout the afternoon, healthful snacks are made available to the participants. The repeating group activities that occur at different stations include: · Diabetic "ABC's"–review of clinical parameter goals and guidelines · Exercise Classes for ambulatory and non-ambulatory patients · Yoga Classes for ambulatory and non-ambulatory patients · Nutritionist consultation · Live Cooking Demonstration · Foot care teaching · Eye screenings · Medication review, refill and adjustment · Goal Setting · Computer-aided morbidity and risk analyses with take-home printouts · Culturally appropriate, interactive, educational CD-ROM programs · Glucometer teaching · Support group meeting The patient is in control of their disease and their visit for the afternoon. The patient may choose to visit one or multiple stations as time and space permit. The monthly event is evaluated with post-event focus groups done by telephone conference calls. Patients' suggestions are incorporated into subsequent fairs thus far resulting in the addition of yoga, exercise and cooking classes.
FINDINGS TO DATE/EVALUATION OF WEB SITE: Participants' knowledge of their HgbA1c values has gone from under 10% to over 60%. Participants (n=123) have an average HgbA1c=7.6 while non-participant clinic patients with laboratory studies performed within the last 12 months (n=319) have an average HgbA1c of 8.0 All patients surveyed via focus groups were extremely positive about their experience with this care model. With different stations throughout the clinic, a waiting room full of idle patients becomes an extinct concept. Group sessions may be a more effective healthcare delivery model for disseminating disease specific information and skills than the 1-on-1 traditional 15-minute office visit. Participants express appreciation for the opportunity to discuss the ups and downs of managing their disease with other patients.
KEY LESSONS LEARNED: Health fair style process is a well-received approach to diabetic health care. The inclusion of local volunteers in the form of local nutritionists, health instructors and exercise instructors creates and consolidates community linkages and partnerships to further promote the health of the community.

OVERCOMING PROVIDER INERTIA: IMPROVEMENT IN LDL-CHOLESTEROL MANAGEMENT. K.C. Goldberg[1]; S.D. Melnyk[2]; D.L. Simel[1]. [1]VA Health Services Research and Development/Duke University Medical Center, Durham, NC; [2]Durham VA Medical Center/University of North Carolina at Chapel Hill, Durham, NC. *(Tracking ID # 156231)*

STATEMENT OF PROBLEM/QUESTION: Despite widely disseminated national guidelines, many patients under medical care have not reached their target low-density lipoprotein (LDL) cholesterol levels. Provider inertia is one impediment to achieving those targets, and an educational intervention aimed at primary care providers may partially overcome it.
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: To overcome provider inertia towards changing simvastatin dose so that a population of high-risk patients met their LDL-cholesterol targets.
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: A low-cost, multipart educational intervention including electronic mail messages, modules presented at staff meetings, and involvement by thought leaders.
FINDINGS TO DATE/EVALUATION OF WEB SITE: Initially only 49% of 4,048 patients met their LDL treatment target. Prior to the intervention, the simvastatin dose was changed in only 16% of 2,103 patient visits where the patient was not at treatment target and on less than maximum statin dose. Primary care providers were more likely to adjust simvastatin for patients with high LDL-cholesterols and for those who took their medication regularly, and less likely for older patients and for those with diabetes. At their first visit following the intervention, 62% of 1,414 patients were at their treatment target. Compared to the pre-intervention period, providers were more likely to increase simvastatin dose for patients not yet at their target ($p < 0.001$).
KEY LESSONS LEARNED: Providers were unlikely to increase simvastatin doses during routine visits for patients not at their LDL-cholesterol treatment target, especially if their patients were close to their target. Following a low-cost educational intervention, providers more aggressively treated cholesterol in high-risk patients, and more patients reached their treatment target.

PATIENT-CENTERED CARE IN A CARVE-OUT WORLD: USING CARE MANAGEMENT TO ENHANCE COORDINATION OF CARE FOR PRIMARY CARE PATIENTS WITH DEPRESSION. M.D. Feldman[1]; D. Lee[1]; A. Wong[1]; M.K. Ong[2]. [1]University of California, San Francisco, San Francisco, CA; [2]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 154628)*

STATEMENT OF PROBLEM/QUESTION: Care management for depressed primary care patients in closed systems has been shown to improve clinical outcomes. However, most patients receive mental/behavioral healthcare from managed behavioral health care organizations (MBHOs) in carve-out systems; the benefits of care management in this model are unproven.
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: As part of the RWJ national demonstration program Depression in Primary Care (DPC), UCSF primary care practices tested the feasibility and effectiveness of care management for depressed primary care patients in a managed behavioral healthcare model. Our objective was to test the feasibility of care management in a carve-out system and improve clinical outcomes as measured by reductions in PHQ-9 scores.
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: A licensed clinical social worker, located offsite at United Behavioral Health (UBH), the MBHO, offered telephonic care management to depressed UCSF managed care patients. Primary care providers (PCPs) at 4 UCSF sites were encouraged to screen all patients for depression with the 2-question screen and PHQ9, that were incorporated into the health maintenance electronic record. Patients with depression were treated by their PCP and referred to the care manager for education about depression and its treatment; exploration of the patient's readiness for therapy; help with referrals for therapy and community resources; counseling regarding self-management goals and activities; and support for a wide range of life issues and crises. The care manager administered the PHQ-9 at each patient contact and collaborated closely with the PCP providing regular updates about patient needs and progress. A psychiatrist consulted regularly with the care manager and was available for telephonic consultation with PCPs. As part of the program, most PCPs completed training in evidence-based depression care and were credentialed as UBH network practitioners, eligible to bill for depression treatment.
FINDINGS TO DATE/EVALUATION OF WEB SITE: Over two years, 81 (74%) of PCPs referred 240 depressed patients for care management. A time in motion study of care management revealed that she spent 1/3 of her time directly speaking with patients, 10% facilitating referrals to specialty mental health care and about 6% communicating with PCPs. On average, the care manger had 6.17 substantive telephone contacts with patients over 6 months. She observed that many patients preferred communicating by phone; she was surprised by the depth of relationships she was able to establish with no face-to-face contact. Initial eligibility was limited to UBH patients. However, PCPs found it too difficult to identify UBH patients and too cumbersome to adapt their standard approach for a small percentage of their patients. Eighty-three percent of total referrals occurred in the last 13 months, after eligibility was expanded to all managed care patients. More than half of patients had serious co-occurring issues: medical, psychiatric, and/or substance-use. Based on preliminary data, enrollees reduced their PHQ9 scores from 14.3 to 8.4 after six months.
KEY LESSONS LEARNED: 1. Off-site telephonic care management is feasible for patients with managed care insurance in a carve-out behavioral health model. 2. To replicate this program, a primary care practice must define a large enough cohort of patients to justify a customized intervention. 3. Program success with a care manager located off site at the MBHO requires that PCPs and patients perceive the program as an extension of primary care.

PROJECT KENYA: MALARIA PREVENTION IN RURAL AFRICA. M. Mattar[1]; M. Stevens[2]; M. Rotblatt[3]. [1]University of California, Los Angeles, Sylmar, CA; [2]Virginia Commonwealth University, Richmond, VA; [3]Olive View/University of California, Los Angeles Medical Center, Sylmar, CA. *(Tracking ID # 157099)*

STATEMENT OF PROBLEM/QUESTION: In Western Kenya on Rusinga Island, nearly one out of two children under the age of 5 dies from malaria infection.
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: Pools of standing water provide an ideal breeding ground for the mosquitoes that transmit malaria, and one of the easiest methods to prevent malaria is to keep water from collecting near homes or gathering places.
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: A team of 10 students from the Medical College of Virginia, along with six doctors and two nurses, traveled to rural Kenya on a medical relief trip. We were able to expand our efforts from simple treatment of malaria to active community prevention. We worked with Werengi Primary School students, discussing malaria transmission and what could be done to prevent it. The session culminated in an illustrative exercise in which the team policed the school grounds for trash that collected standing water. The children were rewarded with Polaroid pictures of themselves and their peers following the exercise. Since most of the children have no photos of themselves, it was the team's hope that their excitement over the photographs would lead them to spread the prevention message to families and friends.
FINDINGS TO DATE/EVALUATION OF WEB SITE: Since this endeavor, physicians and medical students at the Medical College of Virginia have organized an International Relief Group to annually revisit Kenya and other countries in medical need. Through this organization, we hope to gain insight into the outcome of our community interventions, and maintain continuity in this troubled area.
KEY LESSONS LEARNED: Simple methods, such as this one, may be utilized to empower and encourage people to actively address health issues in their community.

REFERRAL WORKFLOW REDESIGN TO IMPROVE COORDINATION OF PATIENT CARE. A. Cervantes[1]; D.P. Newman[1]. [1]Boston University, Boston, MA. *(Tracking ID # 152766)*

STATEMENT OF PROBLEM/QUESTION: Inconsistent processes for communication between primary care and subspecialty practices can lead to low scheduling rates of referrals and high no-show rates.
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: To develop and evaluate a standardized process of subspecialty referrals using the electronic medical record, and a standardized process to audit referrals for completion and feedback to the primary care provider (PCP).
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: We developed a referral process with the following standardized features: 1. Terminology (i.e. referral versus consult, referral status, appointment outcome) 2. Workflow process where referrals are made and documented electronically and routed electronically between PCP and the specialty practice, replacing phone calls, faxing and mail. 3. Feedback regarding outcome of a referral goes directly to referring PCP when the patient appointment is NOT scheduled. 4. Training of physicians to use electronic transmission and staff to track referrals. 5. Staff was provided an audit tool and biweekly database reports for reconciliation, referral status (scheduled versus unscheduled) and appointment outcomes (arrived, no-show, cancelled). 6. Patients were encouraged to schedule their own appointments after the referral was generated. The standardized referral process was implemented in January 2005. We evaluated the pilot of this program among referrals between Primary Care and gastroenterology.
FINDINGS TO DATE/EVALUATION OF WEB SITE: Prior to the intervention, from January through December, 2004, 181 electronic referrals were generated in the Primary Care Clinic for gastroenterology (We are unable to include those referrals submitted in writing). Only 37 (20%) of referrals resulted in a scheduled appointment. 11 of these patients (30%) did not show up to the appointment scheduled for them. From January through December, 2005, 235 referrals were submitted, all electronically. 125 of 235 referrals (53%) resulted in scheduled appointments, significantly higher than prior to the intervention (chi square = 29.9, $p = 0.001$). The proportion of completed appointments (78%) was not significantly higher after the intervention was implemented.
KEY LESSONS LEARNED: There is a compelling need for a standardized workflow process with an audit trail and reconciliation of outcomes for subspecialty referrals. Proper training of staff and all participating providers is imperative for its success. There was a higher rate of scheduled appointments when the workflow was standardized and tracked regularly.

SIGNIFICANT REDUCTIONS IN HEMOGLOBIN A1C VALUES AMONG CHRONICALLY POORLY CONTROLLED DIABETIC PATIENTS AFTER PARTICIPATION IN A NOVEL PRIMARY CARE PROGRAM. D.E. Morrison[1]; E.S. Spatz[1]; J. Stulman[1]. [1]Albert Einstein College of Medicine, Bronx, NY. *(Tracking ID # 150771)*

STATEMENT OF PROBLEM/QUESTION: Can a multidisciplinary primary care intervention using a chronic care model improve diabetes control among inner city, immigrant diabetic patients?
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: To determine whether a novel primary care diabetes program improves hemoglobin A1C (HbA1C) values among chronically poorly controlled diabetic patients.
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: We describe a multidisciplinary program for patients with chronically poorly controlled type 2 diabetes that originated as a quality improvement initiative in an urban academic primary care clinic. Patients referred by their physicians were scheduled

to attend the program, and those who attended were scheduled for follow-up sessions every two weeks over a 2 to 4 month period. Session duration was equal to usual visit duration in the resident primary care clinic, but time was structured differently to allow the patient to interact with multidisciplinary staff. Patients spent approximately 25% of the session with a licensed practical nurse, 25% with a nutritionist, and 50% with a resident supervised by a primary care attending without formal training in diabetes. The multidisciplinary team discussed each patient at the time of the session so that barriers to glycemic control identified by any team member could be addressed. During the 50% of the session that was spent with physicians, visit content differed from usual primary care by exclusively focusing on diabetes.
FINDINGS TO DATE/EVALUATION OF WEB SITE: Entry HbA1C was defined as the latest value from 6 months prior to the initial visit until 2 weeks after the initial visit. Final HbA1C was defined as the first value more than 3 months after the final visit. For patients lost to follow-up or enrolled too recently for a final value, the latest value recorded was used as the final HgbA1C. To date, 104 patients have enrolled. Four have been lost to follow-up, and 11 enrolled too recently for a final HbA1C value. Patients were included in this analysis if they had type 2 diabetes for over one year and 2 consecutive HbA1C values were greater than 8.0%. Of these (n=66), the average number of program visits was 3.6. Mean entry HbA1C was 10.5%, which was a mean absolute increase of 0.3% (p=0.28) from the previous value. Baseline patient characteristics were as follows: 28% Black, 66% Hispanic, 34% not proficient in English, 70% immigrant, 6% uninsured, 69% with only Medicaid coverage. Comparing entry and final HbA1C, the mean absolute reduction in HbA1C was 1.2% ($p<0.00001$). Mean reductions among Hispanic and Black patients were 1.6% ($p<0.00001$) and 0.6% (p=0.23), respectively. There were non-statistically significant reductions in LDL and systolic blood pressure, and a non-statistically significant increase in BMI.
KEY LESSONS LEARNED: Patients with chronically poorly controlled diabetes can achieve significant reductions in HbA1C through a brief, collaborative primary care program of semimonthly clinic visits designed to address diabetes-related care. This required a reallocation of physician, nursing, and nutritionist time, as well as exam room space, to allow all members of the team to discuss each patient at the time of the visit, but no other resources were required. The program was more successful among Hispanic patients than Black patients. Reasons for this difference are unknown and merit further investigation to refine future interventions.

TARGETING DISPARITES IN DIABETES CARE WITHIN A LARGE HEALTH PLAN THROUGH USE OF INDIRECT MEASURESOF RACE/ETHNICTY AND INTERACTIVE MAPPING. J.B. Kim[1]; F. Allen[2]; N. Lurie[3]; A. Overton[2]; M. Oshiro[2]. [1]University of California, Los Angeles, Los Angeles, CA; [2]The RAND Corporation, Santa Monica, CA; [3]The RAND Corporation, Arlington, VA. *(Tracking ID # 151870)*

STATEMENT OF PROBLEM/QUESTION: Lack of enrollee race/ethnicity (R/E) data has hindered health plans' abilities to assess R/E disparities in care. Though some plans have begun to collect this data, it can take years before sufficient data is collected. Even when disparities are demonstrated, it is often unclear to plans how to best use this information. Refinements in indirect approaches to estimating R/E and in geospatial mapping analysis (GMA) can potentially provide plans with an efficient and effective approach to begin targeting disparities.
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: To use indirect measures of R/E to show patterns of disparities in quality of diabetic care in a large health plan. To assess the utility of using GMA to identify and characterize communities that account for a high proportion of the demonstrated disparities, as a tool to efficiently target interventions.
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: This pilot project is part of The National Health Plan Collaborative,sponsored by AHRQ and RWJF,which seeks to improve the quality of health care for racially and ethnically diverse populations. Data for this pilot project come from approximately 125,000 diabetic enrollees from one of the participating commercial plans. We used previously validated algorithms based on geocoding and surname analyses to estimate R/E (Black, White, Asian, Hispanic, Other). Geocoding was performed to the Census Block Group level, which corresponds to a small neighborhood with approximately 1,000 residents. We used geocoding to assign Black race; surname analysis to assign Asian and Hispanic race. Estimates of R/E were then linked to selected diabetic HEDIS measures,stratified and compared by R/E. To assist the plan in interpreting patterns and targeting disparities for potential intervention, we used GMA. GMA is a flexible technique that can combine and visually display multiple types of information about plan members(ex. where they live, neighborhood characteristics, proximity to providers, etc). We used GMA to show plan leadership where diabetic enrollees (overall and within each R/E group) who were and were not receiving indicated care lived. We placed special emphasis on communities that accounted for a large proportions (e.g. >20%) of disparities of plan enrollees from a given R/E group in plan not receiving care.
FINDINGS TO DATE/EVALUATION OF WEB SITE: Sensitivity of the indirect measures (using self reported data as the gold standard) varied considerably by R/E group and region. However,specificity and positive predictive values remained high even when the prevalence of a given group is low. Patterns of disparities identified were consistent with those documented in the literature and observed within other plans,and comparable to estimates based on a subset of approximately 2,000 diabetic plan members for whom self-reported R/E data was available.
KEY LESSONS LEARNED: Indirect estimates of R/E and quality measures derived from administrative data are an efficient and inexpensive way health plans can begin to identify basic patterns of disparities. However, low sensitivity in some regions suggest the need for further refinement and plans should proceed with caution. GMA is a promising approach to visually examine the distribution of residents not receiving indicated diabetes care in high minority and/or low SES communities at the neighborhood level. Combined, these methods can accelerate efforts to target disparities. They may also help foster community specific interventions involving partnerships between health plans and the communities they serve.

THE ARITHMETIC OF CLINICAL PRACTICE: PANEL CALCULATIONS, ACCESS AND SPECIAL CONSIDERATIONS IN THE ACADEMIC SETTING. J.J. Heffernan[1]; K. Brown[2]; S.B. Fazio[1]; L. Fernandez[1]; R.A. Parker[1]; J. Potter[1]; J.A. Sackey[1]; D.J. Sullivan[1]; R.S. Phillips[1]. [1]Harvard University, Boston, MA; [2]Beth Israel Deaconess Medical Center, Boston, MA. *(Tracking ID # 152892)*

STATEMENT OF PROBLEM/QUESTION: Access to care is dependent, among many factors, on reasonable patient panel size. Divisions of General Medicine are often under great pressure to add new patients to existing panel and to increase visit volume. Over time, these pressures promote excessively large panels, poor patient access to primary care providers, increased work not directly related to visits and poor job satisfaction for providers. Calculations utilizing provider session data and average productivity, panel data and average patient visit frequency can quantify panel and identify issues of excessive panel resulting in poor care access.
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: To determine actual and adjusted panel/session for primary care faculty in a hospital-based teaching practice utilizing available data, and to determine a threshold for closure of individual faculty patient panels.
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: We performed several sets of analyses: (1) using average patient visit frequency, average faculty session productivity and work year expectations we determined theoretical estimates of panel per 4-hour practice session for different proportions of shared care (comanagement); (2) using the same basic numbers but also actual visit volumes of faculty, nurse practitioners (NPs), mental health providers (MHPs) and housestaff (HS) we determined a more realistic single estimate of panel per session for faculty; (3) we calculated actual panel/session, adjusted for gender and age.
FINDINGS TO DATE/EVALUATION OF WEB SITE: (1) At an average patient visit frequency of 3.0/year and average faculty productivity of 10 visits/session and 43 weeks of work/year, models of care assuming 25%, 33% and 50% comanagement imply faculty panel/session of 191, 214 and 286 patients/session. (2) Utilizing the same data on visit frequency, productivity and work year, but calculating the actual contributions to total visit volume from NPs, HS and MHPs yielded a realistic faculty panel/session of 234 patients/session. As access was poor at this number, we set a cut-off of 200–225/patients per session as a practical target. (3) Two year panel/session calculations, adjusted for the age and gender mix of each faculty member yielded panel/session numbers for all faculty: range 143–472, median 253, mean 260 patients/session. 26/41 faculty exceed 234 patients/session, 28/41 exceed 225 patients/session and 33/41 exceed 200 patients/session.
KEY LESSONS LEARNED: There are many factors that determine appointment access: panel size, actual demand for care, provider productivity, levels of support staff, schedule templates, return visit frequency, room availability, session availability, shared care, telephonic and other remote management, gender and age mix of patients and special needs populations. Nonetheless, straightforward calculations can determine whether excessive panel size is a factor restricting access. We have used these data to justify offical closure of faculty panels, to guide redistribution of patients and to support aggressive hiring.

THE EFFECT OF MAILING DECISION AIDS AND DIRECT ACCESS TO SCREENING TESTS ON COLON CANCER SCREENING TEST COMPLETION. C. Lewis[1]; A. Tytell Brenner[1]; J.M. Griffith[1]; R. Malone[1]; M. Pignone[1]. [1]University of North Carolina at Chapel Hill, Chapel Hill, NC. *(Tracking ID # 152202)*

STATEMENT OF PROBLEM/QUESTION: Colon cancer screening is underutilized; only about half of eligible adults over 50 complete screening. Barriers to screening include patients' lack of awareness about the risks of colon cancer, providers and patients not being aware when screening is due, patients' lack of awareness about screening options, and difficulty in scheduling colon cancer screening tests among those who intend to be screened.
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: To overcome these barriers we tested the effectiveness and efficiency of mass mailing an intervention (decision aid) plus standing orders in order to increase the utilization of colon cancer screening in primary care practice.
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: Using UNC billing databases and the practice's FOBT database, we identified 2788 eligible patients (2788/5381, or 52% of age-eligible patients) who appeared not to be up to date with screening. We divided these eligible patients in half for intervention and control/wait-list groups. Four waves of mailings are planned with modification of the intervention between mailings. In the first pilot wave, we mailed an intervention packet to 139 patients that included 1) a letter signed by their physician encouraging colon cancer screening; 2) an eligibility survey; 3) a colon cancer screening decision aid in both DVD and VHS format 4) a survey to be completed after reviewing the materials to determine screening intent and 5) return mailing instructions and postage. Telephone numbers to schedule a colonoscopy or flexible sigmoidoscopy or obtain FOBT cards were included in the letter. One month after the initial mailing a reminder letter was sent to those

who had not responded. At two months, a follow-up phone call will be made to determine whether the remaining non-responders have received, read, or used the materials. The main outcome of interest is completion of any colon cancer screening test, as determined by chart and database review for the intervention group and 100 control group patients. Preliminary results from a chart review performed approximately 2 months after the initial mailing is complete and will be repeated at 6 months for the final results.
FINDINGS TO DATE/EVALUATION OF WEB SITE: Of the 139 intervention patients, 48(36%) responded to the initial mailing or the follow-up letter by returning the materials and 5(4%) were returned to sender with no forwarding address. Of those who responded, 18(13%) returned the materials without completing them (non-participants), 18(13%) were found to be up to date with screening, and 12(9%) reported that they were eligible and completed the survey. Among survey respondents, 10(21%) reported watching some or all of the video and 11(23) intended to complete screening. To date based on chart review, we found that 7% (10/134) of the intervention group completed screening after receiving the materials, compared to 4% (4/100) of the control group patients. Costs for this phase of the program included mailing materials ($139), postage ($471), decision aid reproduction ($973) and staff time ($119) Cost per additional patient screened was estimated to be $340.
KEY LESSONS LEARNED: 1) Mailing decision aids directly to patients appears to be an inefficient method to promote colon cancer screening test completion. 2) In our next phase, we plan to mail only the initial letter to patients and have those who are interested request the decision aid materials and/or the screening tests.

THE EFFECT OF THE CANCER HEALTH DISPARITIES COLLABORATIVE ON CANCER SCREENING AND FOLLOW-UP. D.A. Haggstrom[1]; S. Taplin[2]. [1]Cancer Prevention Fellowship, National Cancer Institute, Bethesda, MD; [2]Applied Research Program, National Cancer Institute, Bethesda, MD. *(Tracking ID # 153149)*

STATEMENT OF PROBLEM/QUESTION: Cancer screening rates are lower among vulnerable populations served by community health centers, including minority groups and the uninsured.
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: To increase the following care processes among health center patients: (1) breast, cervical, and colorectal cancer screening, (2) timely notification of screening results, and (3) appropriate follow-up of abnormal screening tests.
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: A multi-institutional quality improvement collaborative (the "Breakthrough Series") was implemented among 16 primary care community health centers in 2003–2005 to meet the program's objectives regarding cancer screening and follow-up. The collaborative used data collected and shared monthly among health centers to set goals for improvement and asses the effect of practice interventions. Practice interventions were drawn from the chronic care model. Comparisons of care processes at the start and end of a 16-month collaborative period were done using chi-squared tests. By the end of 16 months, 29,704 individuals ages 21 and older were eligible for some type of screening.
FINDINGS TO DATE/EVALUATION OF WEB SITE: The following care processes have increased during the collaborative: Pap smear within the last 3 years (39.2% vs. 62.4%, $p<0.001$), screening results sent to patients within 30 days (39.9% to 58.1%, $p<0.001$), and additional evaluation/treatment done within an appropriate time frame (65.5% to 69.4%, $p=0.35$). The following care processes have not increased during the collaborative: mammography within the last two years (36.4% to 36.2%, $p=0.83$) and appropriate screening for colon cancer (35.1% to 28.3%, $p<0.001$).
KEY LESSONS LEARNED: Attention to what care activities take place within the scope of a primary care practice may be useful in predicting what can be measured and improved successfully during the course of a quality collaborative in this setting. Pap test screening may have increased because of the test's availability on-site at primary care practices; mammography and colon cancer screening are commonly performed at another health care location. Notification of test results may have increased because of the high degree of control that primary care practices exert over this process. Primary care practices may not have enough patients with abnormal results to have adequate power to measure changes in follow-up, although for this care process, near 100% compliance may be a reasonable goal. All screening tests occurred within the health centers at a rate below national population averages, even at the end of the collaborative. However, measurement at the health centers occurs among individuals seen at least once in the prior two years so is not always comparable to other national rates reported from telephone surveys or managed care populations. The precision and accuracy of the health centers' self-reported measures, as well as how their method of collection differs from other organizations, needs further clarification to better inform comparisons and planning.

THE FINANCIAL COSTS OF "SNAIL MAIL" TO THE CLINICAL PRACTICE OF MEDICINE. S.V. Joy[1]; K. Udayakumar[1]. [1]Duke University, Durham, NC. *(Tracking ID # 152062)*

STATEMENT OF PROBLEM/QUESTION: What is the volume of mail received by a primary care physician related to patient care, CME events and pharmaceutical promotional materials in a given time period, and what are the costs of such mailings to clinical operations?
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: Technologies to improve methods of communication for physicians continue to expand, with ongoing strategies to utilize and develop tools such as e-mail and electronic medical records for clinical practice. However, the use of standard mail services (also referred to a "snail mail") to deliver patient lab and x-ray reports, letters from consulting or referring physicians, forms to complete for patients to receive services or products, and unsolicited mailings describing and promoting pharmaceutical products remains common in clinical practice. We sought to quantify the volume of snail mail received in a given practice, and to estimate the costs to the practice associated with sorting and distributing this mail to physicians.
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: All mail related to patient care was collected for 1 week. All pharmaceutical promotional mail received within one physicians office mailbox was collected for a 1 month period (August–September 2003). The office assistants recorded the amount of time spent daily to collect, sort and distribute this mail for the 7 physicians in the group.
FINDINGS TO DATE/EVALUATION OF WEB SITE: A total of 306 pieces of mail (average 61 pieces/workday/group) were received that related to patient care for all physicians in 1 week. An average of 310 pieces of mail (62 pieces/workday/group) were received relating to promotion of pharmaceutical products, with the most common promotional material related to the management of depression/mental illness (17%). The office assistants spent an average of 52 minutes per day sorting and collecting all mail, with 14 minutes of this time spent distributing the pharmaceutical promotional material. To collect, sort and distribute all snail mail (as measured by salary/benefit costs of the office assistants time) equated to practice costs of $520/MD/year, with $150/MD/year spent to sort and collect pharmaceutical promotional material. Extrapolating to the 570,000 physicians in the United States equates to a yearly cost to clinical operations of $292 million.
KEY LESSONS LEARNED: A significant volume of snail mail continues to be received by physicians in clinical practice, with a cost to clinical operations. Similar amounts of mail related to patient care and pharmaceutical promotional material were received, with patient care mail requiring more time to sort and distribute. Strategies to promote the use of electronic tools for communication of medical information and to limit unsolicited mailings are likely to be cost beneficial to the practice of medicine.

TOWARDS PATIENT LEVEL RESULTS IN LATIN AMERICA: PILOT STUDY FOR THE ARGENTINE HEALTH CARE COST, UTILIZATION AND OUTCOMES STUDY. J.T. Insua[1]. [1]CEGES/Hosp. Universitario Austral, Austral University, Buenos Aires. *(Tracking ID # 152990)*

STATEMENT OF PROBLEM/QUESTION: Global health, particularly for chronic diseases analysis and management, requires patient level data, provided by crude and basic minimum data set (MDS), usually not available in an extractable form in Argentina and Latin America. An information gap or divide among transitioning and established market economies countries exists. Lack of standardization of costing and budgeting procedures; resource utilization and patient care outcomes data are pervasive. Our purpose was to solve this problem by a project of prospective data collection following basic data set after Health Care Cost and Utilization Project (HCUP), USA. The objective was to generate outcome and cost data in a simple an accessible database for health policy research purposes.
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: To obtain patient level data with mortality and diagnosis, coding, ranking, costs per diagnosis (described as median, 25/75 percentiles and range), obtained from the costing collection instrument and hospital survey in three hospitals.
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: The "Utilización de Servicios , Costos y Resultados de la Argentina (USCR-A)" project, (NGO-Public Sector financed; VIGIA/CONAPRIS/Ministry of Health, Argentina (2 yr. Total Budget: U$ 8000). 3 objectives and components, designed to avoid data fragmentation of the system, were: 1) Hospital survey, modeled after American Hospital Association Survey (AHA), 2) step-down costing method (using WHO CHOICE) and 3) patient level MDS (after HCUP Inpatient data set). A web based application service provider (ASP) was designed.
FINDINGS TO DATE/EVALUATION OF WEB SITE: 6000 discharges were collected with the required data (not presented here) in two Hospitals (1 public/1 Non for Profit), >1.5 years delay occurred. HCUP format principal discharge diagnosis ranking and costs were obtained (ranking of 50 first Diagnosis, their costs, mortality, ALOS). 1 hospital failed data entry at patient level/costing and replaced (private hospital). We expanded the data base with standardized safety, quality and discharge status data. The main obstacles were: 1) non-adherence of hospital directions, public health offices, and lack of efficient public support, 2) lack of resource consumption standard data, 3) only primary diagnosis and primary procedure registra-tion in charts, and need of ICD9CM/ICD10 conversion tables; 4) under-funding to cover the in-hospital costing effort and patient data collection strategy, 5) knowledge divide required to teach even basic costing methods and coder training for research team.
KEY LESSONS LEARNED: The primary objective was met, and first standarized patient patient level outcomes and costs for the country obtained. Hard efforts are needed to solve de information gap in transitioning countries, because managerial training is needed to solve missing basics. A promising, cheap and web based method to solve primary data collection for outcome research at pilot demonstration project is described. Policy decision shoud move fast to patient level data by multicentric, multinational, standarized research NGO based and funded. Hospital data collection costs and activities for a sustainable project need subsidum. This initiative solved non-existing outcomes research, generalized cost effectiveness analysis, and technology assesment data, required for health services performance assessment, sub national health accounts development, health services research and morbidity/outcome data analysis. Generalizable data are now required.

WEIGHT LOSS THROUGH LIVING WELL (WILLOW): INTEGRATING OBESITY TREATMENT INTO PRIMARY CARE. K.M. McTigue[1]; L. Bigi[2]; M.B. Conroy[1]; K. Kelly[1]; J. Riley[1]; M.A. McNeil[1]. [1]University of Pittsburgh, Pittsburgh, PA; [2]University of Pittsburgh Medical Center, Pittsburgh, PA. *(Tracking ID # 156904)*

STATEMENT OF PROBLEM/QUESTION: Although obesity screening and intensive lifestyle intervention is recommended in the primary care setting, evidence-based intervention programs are lacking.
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: We implemented the Weight Loss through Living Well (WiLLoW) program as a quality improvement initiative for promoting weight loss, fully integrated into routine primary care.
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: We designed a delivery system for a group-based adaptation of an efficacious lifestyle curriculum (the Diabetes Prevention Program) in a large University-based primary care practice. Primary Care Provider (PCP) referral to WiLLoW occurs via the electronic medical record (EMR), and includes information on obesity-related diagnoses (e.g. hypertension, diabetes), evaluation regarding safety for moderate physical activity, and orders for obesity-appropriate labwork (e.g. lipid profiles). Participants pay $100 for the first 12 sessions (less than most commercial weight loss programs). Scheduling occurs through routine clinic mechanisms, with new groups initiated approximately monthly. The core curriculum is delivered in weekly group sessions over 12 weeks, with an option to re-enroll in modules of 6 bi-weekly sessions. Each session combines diet and exercise advice with behavioral techniques, and is run by the clinic's nurse educator. With each session, an encounter is generated, indicating attendance to the referring PCP, and weight is recorded in the EMR.
FINDINGS TO DATE/EVALUATION OF WEB SITE: We evaluated the effect of WiLLoW by comparing the change in weight between patients who were referred between 3/1/05 and 9/15/05 and enrolled, and those who were referred but chose not to enroll. We assessed baseline weight and (a) weight at approximately 6-months from baseline, for individuals with weight recorded at that time in the EMR ("6-month analysis"); and (b) the weight closest to 6-months for individuals with at least one follow-up weight during 6 months of follow-up ["last observation carried forward (LOCF) analysis"]. Based on accepted standards, we defined 7% weight loss as clinically significant. Student's t-tests and Chi2 determined statistical significance of the difference in weight change between these groups. From March–November 2005, 146 patients were referred to WiLLoW; 40% enrolled. Here we focus on the 83 patients referred from March-June (those eligible for 6-month follow-up): mean (SD) age was 51.9 (12.7); 86% were female and baseline BMI was 39.2 kg/m2 (7.9). There were no significant baseline differences between enrolled and non-enrolled patients. The "6-month analysis" included 32 individuals (58% of enrollees and 23% of non-enrollees). Their mean (SD) weight change was −6.8 kg (1.8) among those enrolled in WiLLoW and +0.2 kg (1.0) among those not enrolled ($p=0.01$). A 7% weight loss was achieved by 38% of enrollees and 0% of non-enrollees ($p=0.02$). The LOCF analysis included 66 patients (100% of enrollees and 64% of non-enrollees): the mean weight loss among those enrolled in WiLLoW was 5.9 kg more than among those not-enrolled ($p<0.001$) and 25% more of the enrolled group (vs. those not-enrolled) achieved a 7% loss ($p<0.05$).
KEY LESSONS LEARNED: An intensive lifestyle intervention can be integrated into a primacy care practice and promote clinically significant weight loss. Close communication with PCPs and record-keeping through the EMR may facilitate additional physician promotion of healthy lifestyles during routine preventive medicine care. Cost and patient time constraints remain significant barriers.

WIDE STERILE BARRIERS: HOW LONG DOES IT REALLY TAKE?. A.R. Harrington[1]; B.T. Rosen[2]; M.J. Ault[2]. [1]The David Geffen School of Medicine at UCLA, Los Angeles, CA; [2]Cedars-Sinai Medical Center, Los Angeles, CA. *(Tracking ID # 156732)*

STATEMENT OF PROBLEM/QUESTION: One frequently cited reason for omitting Wide Sterile Barriers (WSB) during central line placement is time constraint; however, the amount of time required to utilize WSB for routine line insertion has never actually been quantified.
OBJECTIVES OF PROGRAM/INTERVENTION/WEB SITE: To quantify the time required for an experienced practitioner to apply WSB during central line placement; to compare the time requirement of WSB to other elements of the procedure already accepted as essential to patient care, such as physician documentation, patient education and informed consent.
DESCRIPTION OF PROGRAM/INTERVENTION/WEB SITE: We planned to observe 50 central venous catheter placements by 5 experienced practitioners, and to document the time needed to perform each step of the procedure, including WSB. We defined WSB for the operator as a face mask, head cap, sterile gloves, long sleeved gown, and hand sterilization using 1% chlorhexadine and 61% ethyl alcohol lotion. For the patient, WSB included a full sized drape, small fenestrated drape, ultrasound cover, and site sterilization using 4% chlorhexadine sponge scrub and 2 skin preparation swabsticks consisting of 2% chlorhexadine and 70% isopropyl alcohol. A circulating nurse assisted the physician, and an independent observer timed each step of the procedure.
FINDINGS TO DATE/EVALUATION OF WEB SITE: 38 procedures have been documented thus far, including the insertion of 33 PICCs, 3 non-tunnelled catheters (central lines or dialysis catheters), 1 tunnelled catheter, and 1 PASport. For all routine central venous catheter placements, WSB required an average of 3 minutes 44 seconds. 95% of cases required between 3 minutes 16 seconds and 4 minutes 11 seconds for WSB application, although the time varied from 1 minute 22 seconds to 8 minutes. The average total procedure time was 26 minutes; therefore, WSB composed only a small portion of the total procedure time, making it comparable to other essential steps including physician documentation (3.5 minutes), patient education and informed consent (3 minutes).
KEY LESSONS LEARNED: WSB require, on average, less than four minutes to incorporate into routine central line placements, which is a time requirement comparable to other essential elements of the procedure that are already widely accepted. Given the well-documented benefits of WSB and the relatively small time requirement, it is unreasonable to omit them based solely on time constraints in any non-emergent setting. Furthermore, systems could be developed to incorporate WSB into emergent settings. Knowledge of the necessary time commitment should now encourage practitioners to integrate WSB into all central line placements in accordance with best practice guidelines.

CLINICAL VIGNETTES

"CHRONIC PANCREATITIS: SILENT PATHWAYS TO THE PLEURA". B.M. Kaplan[1]; C. Spagnoletti[2]. [1]University of Pittsburgh Medical Center, Pittsburgh, PA; [2]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 151331)*

LEARNING OBJECTIVES: 1. To list the causes of chronic pancreatitis. 2. To state the common presentations and complications of chronic pancreatitis. 3. To recognize the uncommon complications of chronic pancreatitis, including pancreaticopleural fistula.
CASE: A 46 year old white male with a history of hypertension and back pain for three months presented with six days of worsening mid thoracic back pain described as aching, non-radiating, intermittent, and exacerbated by movement. He endorsed shortness of breath, dry cough and chills, and a seven-pound weight loss over six months. He denied trauma, strenuous activity, night sweats, fever, abdominal pain, nausea, vomiting or diarrhea. His medications included atenolol and ibuprofen. He consumed 4 beers daily for 20 years and denied tobacco use. Physical exam revealed a blood pressure of 120/83, pulse 109, respirations 22, 90% saturation on room air and 100% on 4 liters. He was cachectic without scleral icterus or cervical adenopathy. The left lung had decreased excursion with breath sounds audible only at the apex, dullness to percussion, decreased fremitus throughout entire field, and no wheeze or crackles. The right lung, heart and abdominal exam were unremarkable. Stool was hemoccult negative. CXR showed a massive left sided pleural effusion with mediastinal structures shifted to the right. Pleural fluid analysis revealed green turbid fluid, with a pH of 6.8, total protein 4.7, glucose 8, LDH 385, WBC 6.8 (96% PMNs), RBC 5, amylase 6727, and negative gram stain and culture. Laboratory values were significant for WBC 14 (87% PMNs), Hg 15.9, total protein 7.2, albumin 2.4, LDH 83, amylase 632, lipase 205. Electrolytes, BUN, creatinine and LFTs were normal. The pleural fluid was found to be exudative by Light's criteria (LDH ratio of 4.6 and protein ratio of 1.5). CT abdomen revealed diffuse pancreatic calcifications, pancreatic ductal dilatation consistent with chronic pancreatitis, and a pancreatic pseudocyst. MRCP revealed a pancreaticopleural fistula. The patient was managed conservatively and discharged four weeks later.
DISCUSSION: Approximately 80% of chronic pancreatitis cases are secondary to alcoholism, while the remainder are due to hereditary pancreatitis, pancreas divisum, cystic fibrosis, hyperparathyroidism and ductal obstruction from gallstones, tumor or trauma. Common clinical characteristics include intermittent or chronic epigastric pain radiating to the back, worsened with eating and associated with nausea and vomiting, and symptoms of pancreatic insufficiency including steatorrhea, vitamin deficiency and diabetes. Common complications include mechanical obstruction of the duodenum/bile duct and pseudocyst formation, which occurs in 10% of affected patients. Pseudocyst expansion may produce abdominal or back pain, biliary obstruction, vascular occlusion, infection, or fistula formation into the adjacent viscera, pleural space or pericardium. Pancreaticopleural fistula is uncommon; its presentation is often initially missed secondary to the preponderance of pulmonary manifestations and the absence of abdominal pain. Pancreatic duct disruption from chronic inflammation leads to fistulization. The pleural effusions tend to be large and recurrent, with markedly elevated amylase levels, secondary to the direct pancreaticopleural connection and the negative intrathoracic pressure. Less frequent complications of chronic pancreatitis include pancreatic ascites, splenic vein thrombosis, and pseudoaneurysm formation.

"D.A.R.T.ING" TO PLASMA EXCHANGE FOR HEMOLYTIC UREMIC SYNDROME. D.M. Harris[1]; N.A. Younas[1]; D. Phillibert[1]; A.J. Gordon[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 152340)*

LEARNING OBJECTIVES: 1. Learn the clinical presentation of Hemolytic Uremic Syndrome (HUS) 2. State the tests necessary to diagnose HUS 3. Outline the management of HUS
CASE: A 70 year-old male with history of CRI, CHF, HTN, atrial fibrillation and diabetes presented to an outside hospital complaining of diarrhea. The patient reported ten loose non-bloody bowel movements per day, decreased appetite, nausea and one episode of non-bloody emesis, over the last week. He denied fevers, chills, chest pain and shortness of breath. Initial platelet count, indirect bilirubin, hemoglobin, LDH and creatinine were normal. The patient was diagnosed with gastroenteritis and admitted to a community hospital. He was rehydrated for presumed pre-renal azotemia and treated with antibiotics for a urinary tract infection. Over the next two days, the diarrhea persisted and the patient developed increasing anemia, thrombocytopenia and oligurea. He was transferred to an acute care hospital for further management. On admission, he exhibited increased lower extremity edema, ongoing diarrhea, decreased urine output, and increased confusion. He denied nausea, vomiting, fevers, chest pain, shortness of breath and abdominal pain. The physical examination was

significant for reduced mentation, bibasilar rales, abdominal petechiae, lower extremity edema, and guaiac positive stools. His laboratory findings included decreased platelet and red blood cell counts with increased creatinine, LDH and indirect bilirubin. Both the haptoglobin and reticulocyte count were decreased. The peripheral smear showed occasional schistocytes. The clinical presentation and supporting laboratory findings were consistent with a diagnosis of hemolytic uremic syndrome. After receiving single volume plasma exchange and dialysis, the patient improved clinically and soon discharged to home. Two months later, the patient had recovered completely.
DISCUSSION: HUS represents less than 5% of acute renal failure in adults each year with 40–60% of surviving patients progressing to chronic renal failure. The mortality rate associate with hemolytic uremic syndrome (HUS) was historically 80–100%. Fortunately, with the advent of plasma exchange, the mortality rate has decreased to approximately 20%. While more common in children, the incidence of HUS in the United States each year is seven per ten million. To achieve the benefit of plasma exchange, physicians must recognize the clinical presentation of HUS. A recent diarrheal illness with Shigella or E-coli O157/H7 is associated with this syndrome. Less commonly, fever and neurologic changes may be present in patients. HUS is characterized by microangiopathic hemolytic anemia (MAHA), thrombocytopenia and renal failure. Schistocytosis on blood smear examination is consistent with this diagnosis. Near normal urinalysis is common. Additional evidence of MAHA includes a decreased haptoglobin, increased LDH and unconjugated bilirubin, reticulocytosis and negative Coomb's test. HUS manifestations can be summarized by the acronym D.A.R.T. (DIARRHEA, ANEMIA, RENAL IMPAIRMENT AND THROMBOCYTOPENIA). The mainstay of treatment for HUS is plasma exchange and supportive care including dialysis. Plasma exchange should be initiated promptly, even if clinical uncertainty remains, due to the high morbidity and mortality associated with untreated HUS. Through prompt clinical recognition, focused diagnostic testing and rapid initiation of therapy, patients with HUS have the best chance of recovery.

"I CANNOT SEE!". S. Kuo[1]; L. Lu[1]. [1]Baylor College of Medicine, Houston, TX. *(Tracking ID # 155914)*

LEARNING OBJECTIVES: 1) Review the predisposing factors for endogenous endophthalmitis. 2) Recognize endophthalmitis as an ophthalmic emergency. 3) Understand the treatment of bacterial endophthalmitis.
CASE: A 54 year-old male with history of intravenous drug abuse (IVDA), chronic hepatitis C, membraneous glomerulonephritis with end-stage renal disease on hemodialysis, and multiple perma-catheter infections presented with one day history of fever, chills and pain on perma-catheter entry site. Patient admitted of using his perma-catheter for cocaine injection recently. On admission, his vital signs were temperature 37.2 °C, HR 92, BP 96/55, and RR 20. Physical exam revealed right internal jugular vein perma-catheter entry site with local erythema and tenderness without fluid collection. His WBC was 11K/mm^3. The perma-catheter was removed and the catheter tip was sent for culture. The patient was immediately started on vancomycin. On the second day after admission, the patient complained of acute onset of bilateral vision loss. On exam, the patient had bilateral visual deficits with perception of motion-only except in the left lateral visual field where he could count fingers. The rest of his neurologic exam was unremarkable. Emergent computerized tomography (CT) of the head was done which showed an old left occipital lobe infarct with calcification. An ophthalmologist was consulted. Eye exam revealed cells in anterior chambers with hypopion. Vitreous debris was noted in both eyes. Bilateral endophthalmitis was diagnosed. The patient subsequently received intra-vitreal injection of vancomycin and ceftazidime. On the third day, the patient completely lost his vision. Both the perma-catheter tip and blood cultures grew Staphylococcus aureus which was methicillin resistant. The ophthalmologist recommended that gatifloxacin to be added to vancomycin for better eye tissue penetration. Gradually, the patient's vision improved, and he could detect motion. Transthoracic echocardiogram did not reveal any valvular vegetation. However, on the eighth day of admission, the patient became hypotensive and was transferred to medical intensive care unit and succumbed 2 days later.
DISCUSSION: Staphylococcus aureus is an organism which can cause both disseminated infection and endogenous endophthalmitis. Endogenous endophthalmitis accounts for only 2–6% of infectious endophthalmitis; and 12% of those cases are bilateral. Staphylococcus aureus accounts for about 14% of endogenous endophthalmitis. Bacterial endophthalmitis is a sight-threatening ophthalmic emergency. The predisposing medical conditions for endophthalmitis include diabetes, intravenous drug use, HIV infection/AIDS, autoimmune disease, blood malignancy, alcohol abuse, and asplenia. Our patient had a history of IVDA. Treatment is intravitreal vancomycin and ceftazidime injection. Intravenous vancomycin plus ceftazidime or flouroquinolone are recommended as well. Few recent studies suggested that vitrectomy might improve outcome, but the data remains controversial. Despite the treatment, the outcome is usually poor. Literature review since 1986 showed only 5% patients had complete recovery with 20/20 visual acuity, 27% had count fingers vision, and 68% were blinded. Delay in diagnosis and misdiagnosis might have been associated with poor outcome. Therefore, in the setting of bacteremia, it is critical to include endogenous endophthalmitis in the differential diagnosis of acute vision loss.

63 Y/O FEMALE WITH ACUTE ONSET HALLUCINATION AND TINNITUS. N. Sapkota[1]. [1]John H. Stroger Jr. Hospital of Cook County, Chicago, IL. *(Tracking ID # 155217)*

LEARNING OBJECTIVES: 1. Diagnosing the cause of an acute onset hallucination case based on subtle clinical clues. 2. Timely management based on etiology.
CASE: 63 yo female was brought to the hospital by family as she was acting different and talking to herself. On interview, pt described both visual and auditory hallucinations and also complained of ringing in her both ears. Denied any chest pain, shortness of breath, headache or fever. Review of symptoms was otherwise normal. PMH: She was diagnosed with major depression 2 months ago and was given paroxetine, which she only took for 1 week. She insisted she did not take any medication at all for the past 1-month. EXAM: Pt was visibly tachypnic with respiratory rate of about 30,otherwise normal vitals. She would pause for brief periods during interview to listen to the voices but otherwise scored 30/30 on mini mental status exam. Rest of the general physical exam was completely normal. On neuro exam, she showed some clumsiness with repetitive hand movement bilaterally but was otherwise normal. Investigations: Initial head CT was negative. CBC was normal. ABG showed: PH 7.52 CO2 19.9 O2 93 HCO3 16 Anion Gap: 15 (Respiratory alkalosis with mild anion gap metabolic acidosis) With the constellation of findings of acute hallucination, tinnitus, tachypnea, impaired coordination and the ABG findings in a pt with major depression, salicyclate poisoning was suspected and blood salicyclate level was sent which came back as 49 mg/dl. She was started on bicarbonate drip, had gastric lavage done and was given activated charcoal. Her blood and urine PH were monitored every 2 hours and bicarbonate drip was adjusted accordingly. Potassium levels were monitored every 2 hours and were replaced aggressively. Salicyclate levels were repeated every 4 hours and dropped to below 30 in eight hours. She became completely asymptomatic the next day and spoke to her primary MD and admitted intentionally taking lots of baby aspirin from her husband's medication. Psychiatry was consulted for her depression and attempted suicide.
DISCUSSION: This case illustrates the importance of paying attention to subtle clues and maintaining high degree of suspicion to diagnose any case of poisoning when patient denies it by history. In this case timely diagnosis and appropriate acute management led to favorable outcome. Salicyclate poisoning can be secondary to acute overdose; chronic overdose or delayed toxicity from extended release forms and bezoars formation. It is important to check levels long after ingestion because of the latter phenomenon. Clinical features of intoxication normally occur with levels more than 40 mg/dl but this is very unreliable especially in the elderly. At toxic levels Salicylates act as metabolic poisons by uncoupling oxidative phosphorylation and affect multiple organ systems. Symptoms progress from tinnitus and nausea/vomiting to tachypnea, loss of coordination, hallucination and in severe cases convulsions, stupor, coma, non-cardiogenic pulmonary edema and death. Activated charcoal and gastric lavage are recommended in acute poisoning. The mainstay of treatment is urinary alkalization which can increase renal clearance upto 18 fold. It is also very important to avoid hypokalemia, which decreases renal clearance significantly. Indications for HD include refractory acidosis, seizures, coma, non-cardiogenic pulmonary edema and level more than 100–120 acutely and more than 60 in chronic poisoning.

A CASE OF METASTATIC LUNG CANCER IN A YOUNG PATIENT WITH HIV. S. Spencer[1]; E.M. Tedaldi[1]. [1]Temple University Hospital, Philadelphia, PA. *(Tracking ID # 154033)*

LEARNING OBJECTIVES: 1. Recognize the increased risk of lung cancer in HIV patients 2. Recognize the increased need for smoking cessation in HIV patients 3. Recognize the utility of HIV testing in young patients with metastatic lung cancer
CASE: A 42 year old male with no significant past medical history presented with a chief complaint of left arm weakness accompanied by numbness and tingling. The symptoms had begun spontaneously on the day of admission, but had improved by the time the patient presented to the hospital three hours later. The patient denied any other symptoms including shortness of breath, cough, headache, nausea, vomiting, urinary incontinence, or lower extremity weakness. Social history was significant for a 20 pack year smoking history, but the patient denied any high risk sexual behavior, drug or alcohol use. Vital signs and physical exam were unremarkable except for 4/5 strength in the left arm. All labs tests including a CBC, BMP, and LFTs were within normal limits except the patient had a total protein of 8.4 with an albumin of 4.4. A CT scan of the brain revealed a large hypodensity in the fronto-parietal area with surrounding vasogenic edema. Dexamethasone was begun and further radiologic imaging was ordered. A CT scan of the thorax, abdomen, and pelvis revealed a 3X3 CM perihilar mass in the left lung as well as two hypodensities in the liver. A MRI/MRA revealed three distinct brain lesions with no arterial abnormalities. A biopsy of the lung mass revealed poorly differentiated non-small cell lung carcinoma. A HIV test was conducted despite the patient's denial of risk factors. HIV ELISA and western blot were positive with an accompanying PCR of 27,700. The patient later revealed he was told of his HIV status nine years ago and had previously been on HAART. The patient was not a candidate for surgery or chemotherapy and was begun on palliative brain XRT.
DISCUSSION: HIV has long been known to be associated with Kaposi's Sarcoma, CNS lymphoma, Non-Hodgkin's Lymphoma, and cervical cancer, but there is also a significant increase in the incidence of non-AIDS defining neoplasms. The initial reports of this link described it as a phenomenon that was caused by increased smoking rates in HIV patients, but statistically HIV patients with lung cancer have a shorter pack year history than non-HIV positive lung cancer patients. In addition, lung cancer in HIV positive patients has been shown to occur at an earlier age (38 vs. 68) and is associated with more aggressive clinical behavior and a shortened five-year survival. HAART has not been shown to eliminate this risk and may actually increase the incidence due to increased HIV survival rates. While the pathophysiology is not clear, it may involve an inability of the HIV infected individual to control the proliferation of oncogenic cells.

Screening for lung cancer has traditionally been limited to older patients who have pulmonary symptoms. In HIV patients who smoke, there should be some consideration of doing more aggressive initial screening sans typical symptoms as well as a more comprehensive workup for a primary lung nodule in a HIV positive patient. Finally, young smokers who are in groups that are at high risk for HIV should be counseled more aggressively about HIV testing as well as smoking cessation.

A 49 YEAR OLD FEMALE WITH ERYTHEMA NODOSUM AND ARTHRITIS. C.E. Schulze[1]; B. Singh[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 153974)*

LEARNING OBJECTIVES: Recognize acute sarcoidosis by its clinical presentation, know the criteria necessary for diagnosis, and form a rational approach to management.
CASE: A 49 year old female without significant past medical history presented with fever and and polyarthritis Two weeks prior to admission, the patient developed a dry non-productive cough, followed by left ankle pain and swelling. Ten days later she developed fevers and night sweats, and a week later her acute arthitic symptoms progressed to her wrists and knees, though the left ankle remained the most severely affected. At the time of presentation, the patient also had developed a, tender subcutaneous nodules, on the extensor surfaces of her legs. The patient owned parrots, had exposure to active tuberculosis, and had a history of left ankle trauma. Chest X-ray and subsequent CT Chest showed bilateral hilar lymphadenopathy. Serum markers of inflammation were elevated, with ESR of 89, CRP 7.0, and albumin 2.6. Joint tap showed mild inflammation with leukocyte count of about 2000 per mL, predominantly macrophages. Infectious workup was negative, including C. psittaci. Bronchoalveolar lavage and transbronchial biopsy showed mild chronic inflammation but no granulomas. Pulmonary function testing showed a mild isolated diffusion defect. Treatment with steroids was considered due to the continued functional impairment from the arthritis, but was ultimately withheld.
DISCUSSION: Lofgren syndrome, is the association of sarciodosis with erythema nodosum (EN), polyarthritis, fever, and bilateral hilar lymphadenopathy. The first description of sarcoidosis was in 1877 by the English physician Jonathon Hutchinson, who described multiple, raised, purple cutaneous patches which he attributed to gout. Sven Loefgren, who made important contributions to the understanding of sarcoidosis, described 185 cases of a syndrome of erythema nodosum, bilateral hilar lymphadenopathy, and polyarthritis in 1946. The etiology and pathogenesis of sarcoidosis are unknown though characterized by impaired cell-mediated immunity (including skin anergy) and accumulation of CD-4+Th-1 T cells and macrophages in affected tissues. The diagnosis is clinical and radiographic, though supported by noncaseating granulomas on biopsy. The differential diagnosis includes tuberculosis, other causes of granulomatous disease, lymphoma, and HIV. Accordingly, exclusion of infection is essential and most diagnostic procedures attempt to achieve this aim. The natural history of Lofgren syndrome (and other forms of acute sarcoidosis) is spontaneous remission of constitutional symptoms and EN within six weeks and remission of hilar adenopathy within one year. Treatment with corticosteroids is rarely necessary.

A 53 YEAR-OLD WOMAN WITH FEVER, RASH, MYALGIAS, ARTHALGIAS. V.A. Rodriguez[1]; R. Lee[1]; A.P. Burger[1]. [1]Montefiore Medical Center, Bronx, NY. *(Tracking ID # 154785)*

LEARNING OBJECTIVES: Goals: 1. Recognize Adult Still's disease as a cause of fever, rash and arthralgia 2. Review the treatment of Adult Still's Disease
CASE: A 53-year-old woman with a history of HTN, DM and diagnosed with fibromyalgia 10 months prior to admission presented with complaints of mostly nocturnal fevers to 104°F, severe myalgias, intermittent migratory arthralgias, swelling in her throat which worsened before a fever. Since her diagnosis of fibromyalgia she had 3 similar episodes treated with steroids. She completed a course of prednisone 3 weeks prior. She reported a 5 pound weight loss in the past two months. She vomited once on the day prior to admission, and reported crampy abdominal at that time. Recent travel included a trip to Florida 1 month ago and occasional trips to wooded areas. She reported no sick contacts or recent insect bites. Medications included Venlafaxine, Fentanyl Patch, and Hydroxyzine for fibromyalgia as well as, Metformin, Pepcid, Enalapril, Glyburide. Physical exam was notable for macular rose colored lesions on pressure sensitive areas of the posterior aspects of her arms and thighs. A rose colored lesion in the shape of her hospital patient label was present on her right wrist. She had mild bilateral weakness of her upper extremities, and below the knee. Labs: WBC 26.6 (86% PMN), Ferritin 1510, ESR 70, RF 3.4, EBV IgG 1:160, CRP 22.7, Parvovirus B19 IgG 150, IgM 10. Studies were negative for RPR, ANA, c-ANCA and Lyme ab titer. CT of the Chest, Abdomen and Pelvis were unremarkable. Skin Biopsy showed neutrophilic dermatitis read as consistent with Still's Disease. She was started on a course of steroids and NSAIDs with improvement in her symptoms and was discharged.
DISCUSSION: Adult Still's Disease is a rare phenomenon affecting 1.6 per million persons. It classically presents as an acute illness with fever, arthralgia and rash. Presentations may range from a self-limited disease lasting up to one year in duration, to intermittent flare-ups, to a chronic disease with eventual joint destruction. This case typifies the less common recurrent variant of the disease. Adult Still's Disease is one of the seronegative arthropathies and considered a diagnosis of exclusion. Diagnostic criteria by Yamaguchi et al. require the presence of two major and three minor criteria. The major criteria are: Fever of at least 39 °C lasting at least one week, arthralgias or arthritis lasting at least two weeks, macular or maculopapular, nonpruritic salmon-pink rash present on trunk or extremities and leukocytosis. Minor criteria include sore throat, lymph node swelling, hepato- or splenomegaly, hepatitis, and negative serology for RF and ANA. Ferritin levels are typically elevated and help to make the diagnosis in the appropriate clinical setting. Viral infections, rheumatic diseases, and malignancies must be ruled out. Adult Still's Disease can be a diagnostic challenge to identify owing to its rarity and protean symptoms. In our case the patient was initially given a diagnosis of fibromyalgia. Appropriate treatment for Adult Still's disease includes NSAIDS or high dose aspirin, glucocorticoids, and immunomodulating drugs such as methotextrate, anti-TNF, and cyclosporine.

A BLAST TO THE BONES: SYMMETRIC BONY DESTRUCTION OF THE FINGERS. L.K. Bennett[1]; D.A. Feldstein[1]; C.J. Crnich[1]; K.A. Gutowski[1]. [1]University of Wisconsin-Madison, Madison, WI. *(Tracking ID # 152188)*

LEARNING OBJECTIVES: 1) Recognize the importance of obtaining early bone cultures for the diagnosis and treatment of osteomyelitis. 2) Recognize Blastomycosis as a rare cause of osteomyelitis.
CASE: A fifty-year-old male from Northern Wisconsin with a past medical history significant for pulmonary sarcoidosis presented to urgent care (UC) with swelling and pain of the right 5th digit. He denied any preceding trauma, puncture wounds, or skin changes. He works as a machinist in a metal factory and lives on a farm. A fracture was clinically diagnosed and his finger was splinted. He returned to UC one week later with increased swelling and pain. X-rays revealed destruction of the bone. He was diagnosed with osteomyelitis/cellulitis and treated with a dose of ceftriaxone and oral cephalexin. One month later he had not responded to the antibiotic regimen and was admitted for IV antibiotics. He now developed pain and swelling in the left 5th digit. He denied any systemic symptoms, but the erythema, swelling and bilateral hand pain progressed. Empiric treatment for gout and MRSA was initiated with indomethacin, colchicine, rifampin and vancomycin. His right 5th finger was incised, drained and pinned. No bone or blood cultures were obtained. He was discharged on IV vancomycin and rifampin. Three weeks later his symptoms continued to progress and he was referred to the university hospital. Physical exam at that time revealed erythema, edema and sausage deformity of the bilateral 5th fingers with surgical wound sites that drained seropurulent material. The remainder of the physical exam was within normal limits. MRI and plane films of the hands showed complete destruction of the right 5th digit and he underwent amputation. Pathology revealed fungal organisms and cultures ultimately grew blastomycosis. The swelling and pain improved on amphotericin and the right 5th finger amputation site continued to heal with no further boney involvement.
DISCUSSION: The presentation of acute multifocal osteomyelitis is highly suggestive of hematogenous osteomyelitis, which accounts for 20% of all adult osteomyelitis. Hematogenous osteomyelitis is primarily due to S. aureus, but requires prompt diagnosis with bone biopsy and cultures (including atypical mycobacterial and fungal cultures) in order rule out atypical causes and provide appropriate therapy. In this case initial biopsies would have avoided two months of non-therapeutic toxic medication and may have prevented finger amputation. This highlights the importance of obtaining bone biopsies for prompt diagnosis and effective management, especially in atypical cases. Blastomycosis is a thermal dimorphic fungus endemic to the Midwest and Southcentral/Eastern United States. It is inhaled from contaminated soil and transforms in the lungs to a yeast that can spread hematogenously. Pulmonary infection may be transient and asymptomatic in a large percentage of patients. Skin is the most common extra-pulmonary site followed by osseous involvement. Skeletal presentations occur in 14–60% of cases but are rarely the only site of involvement. Osseous presentations include erythema, swelling, abscess formation, septic joints, osteomyelitis, and lytic lesions of the bone. Most cases have a delayed diagnosis due to a lack of initial bone biopsy and culture. Osseous blastomycosis should be considered in patients from endemic regions, especially farmers and individuals with extensive outdoor exposures.

A CANCER WITH A TWIST. M. Kaikobad[1]; D. Teves[1]. [1]C. J. Zablocki VA Medical Center/Medical College of Wisconsin, Milwaukee, WI. *(Tracking ID # 155911)*

LEARNING OBJECTIVES: 1. Recognize that thymic carcinoma can have unusual presentations, including epigastric abdominal pain. 2. Recognize phrenic nerve paralysis as a complication of thymic carcinoma rather than atypical thymoma, which has important prognostic implications.
CASE: A 72 year-old gentleman presented with a 6-month history of multiple hospital admissions for epigastric pain associated with nausea and vomiting. The pain was dull, intermittent, and not associated with meals. It radiated in a band-like fashion across the upper abdomen to the back and was only relieved by morphine. He had regular bowel movements and occasional reflux symptoms, but denied any hematemesis or melena. He also denied any cough, chest pain, or shortness of breath. He had extensive work-ups which were all completely normal, and was given several different diagnoses including pancreatitis and referred pain from his lower back surgeries. On further evaluation, a routine chest film showed persistent elevation of his left hemidiaphragm, and a "sniff" test confirmed left hemidiaphragm paralysis. Chest CT showed a 2.8×3.7 cm soft tissue mass in the left mediastinal prevascular space, and subsequent whole-body PET scan showed no evidence of metastasis. Mediastinoscopy demonstrated that the mass was attached to the parietal pericardium and left upper lobe lung parenchyma, and encased the left phrenic nerve.

Pathology showed primary thymic carcinoma of adenosquamous histology. After removal of the tumor, the patient's epigastric pain gradually improved.
DISCUSSION: Thymoma is a rare neoplasm classified based on its prognostic implications into benign thymoma, atypical thymoma, and thymic carcinoma. Whereas atypical thymoma is an intermediate form which shows local tissue invasion, thymic carcinoma may metastasize. Thymic carcinoma typically presents with cough, chest pain, dyspnea, or paraneoplastic syndromes. Pleural and pericardial effusions are the most common form of metastatic involvement, but these were not seen in our patient. This patient had an unusual clinical presentation of persistent and intractable chronic epigastric pain for which no other cause could be identified. Despite a wide array of investigations, including endoscopy and abdominal CT, no intra-abdominal cause of his symptoms was found. Also, he had evidence of left phrenic nerve paralysis with elevation of his left hemidiaphragm. This finding has been documented in thymic carcinoma, and not in atypical thymoma. Hence, this case further demonstrates that phrenic nerve paralysis is one of the distinguishing features between atypical thymoma and thymic carcinoma, and has important prognostic implications.

A CASE OF APPENDICEAL MUCINOUS ADENOCARCINOMA RESULTING IN PSEUDOMYXOMA PERITONEI. B.M. Schneeberger[1]; M.A. Schmidt[1]; K. Pfeifer[1]. [1]Medical College of Wisconsin, Milwaukee, WI. *(Tracking ID # 154646)*

LEARNING OBJECTIVES: 1) Demonstrate that appendiceal malignancy should be included in the differential diagnosis of right lower quadrant abdominal pain. 2) Review the prognosis and treatment options for mucinous adenocarcinomas. 3) Recognize that pseudomyxoma peritonei is a condition caused by mucinous neoplasms of various organs.
CASE: A 39 year-old gentleman with no significant past medical history presented with right lower quadrant abdominal pain for one day. This nonradiating pain progressively increased and also worsened with movements. He denied any fever, chills, nausea, vomiting, diarrhea, or weight loss. On initial examination, he was afebrile and hemodynamically stable with a soft, nondistended abdomen and normal bowel sounds. He was tender to palpation in the right lower quadrant with voluntary guarding, but no rebound, masses or organomegaly were appreciated. His CBC and basic chemistries were within normal limits. Abdominal CT showed a pericecal soft tissue mass and mesenteric lymphadenopathy, but the appendix was not definitively identified. The following day, he developed fever, increased pain, and Rovsing's and Psoas signs. He was taken emergently to surgery for a suspected perforation. During surgery, numerous mucinous tumor implants were found attached to the cecum, small bowel, sigmoid colon and peritoneum. He underwent right hemicolectomy, partial small bowel resection and debulking of peritoneal implants. All grossly visible tumors were removed, but 1 to 3 mm peritoneal studding remained. Examination of the surgical specimens found mucinous adenocarcinoma in all samples. Adenocarcinoma was also found in one out of twelve lymph nodes examined. The patient did well following surgery, and intraperitoneal and systemic chemotherapy were discussed.
DISCUSSION: Pseudomyxoma peritonei (PMP) is a poorly understood condition characterized by disseminated intraperitoneal mucinous tumors. This term was previously used as a pathologic diagnosis encompassing both benign and malignant mucinous neoplasms from various organs, thus creating confusion regarding appropriate treatment. Therefore, the term PMP is now properly used as a clinical descriptor and not for tumor classification, prognosis, or treatment. Mucinous adenocarcinomas arise from a variety of primary sites, but the appendix, ovaries, liver and pancreas are most common. These malignancies are usually minimally invasive, coating the peritoneal surface and not penetrating into submucosal tissue. When the primary malignancy involves the appendix, it typically enlarges the appendix until it ruptures and spreads tumor cells throughout the peritoneum. Optimal treatment remains poorly defined because the natural history of the disease is limited. The current consensus is that the most appropriate treatment of appendiceal mucinous adenocarcinoma involves a right hemicolectomy, aggressive peritoneal debulking, and possibly intraperitoneal chemotherapy. Overall, the disease prognosis depends on tumor histology, but the reported 5-year survival for mucinous adenocarcinoma is approximately 25–44%.

A CASE OF CELIAC SPRUE AS IRON DEFICIENCY ANEMIA IN AN ADULT. D.N. Bartov[1]; A.P. Burger[1]. [1]Montefiore Medical Center, Bronx, NY. *(Tracking ID # 154674)*

LEARNING OBJECTIVES: 1. Recognize Celiac Sprue as a cause of iron deficiency anemia (IDA). 2. Understand the various serologies used to diagnose Celiac Sprue.
CASE: A 36-year old Caucasian male with a history of depression was sent to the ED after an outpatient CBC revealed severe anemia. Over the past 6 months he experienced light-headedness,fatigue, and somnolence. His prior exercise tolerance was unlimited, currently he is SOB after walking 2 blocks. During the 3 weeks prior to admission family members noted he looked pale. He reported black stools for the past week and episodically over the previous year. He denied bleeding, rash, or abdominal pain. On exam he was not orthostatic, his pulse was 100 and regular, and he was afebrile. His skin and conjunctiva were pale. There was no lymphadenopathy or hepatosplenomegaly. Stool was heme negative. Labs: Hg 4.9, Hct 19.7, MCV 56.3 (22 months prior Hg 13.4, MCV 87.9), Plt 459, WBC 8.8, ferritin <2.00. Absolute reticulocyte count 48.20, reticulocyte index 0.31, total Fe 9, TIBC 441, LDH 140, haptoglobin 170, lead level 1 ug/dL, albumin 3.9, SGOT 11, SGPT 9. TFT's and serum chemistry were normal. Antigliadin IgA-Ab 21.1, anti-gliadin IgG-Ab 132, anti-endomysial Ab negative, tissue transglutaminase (tTG) 38 (nl<21). Colonoscopy was normal. Biopsy showed duodenal mucosa with mild chronic inflammation not significant for villous atrophy or increased intraepithelial lymphocytes. Celiac Sprue was diagnosed based on antibody data.
DISCUSSION: Celiac Sprue, an autoimmune enteropathy, is typically thought of as a childhood disease presenting with recurrent diarrhea, abdominal pain, and life threatening malabsorption. However, epidemiologic studies show that Celiac Sprue often presents later in life and with non-classic clinical features. The majority of patients are diagnosed between the ages of 10–40, though 20% of people are diagnosed at 60 or older. Celiac Sprue can present with intestinal and/or extra-intestinal manifestations including dermatitis herpetiformis, neuropsychiatric disease, IDA, and thrombocytosis. The prevelance is 1:300 in people of European decent. IDA is the most common presenting sign, and studies of patients undergoing evaluation for IDA show 4–9% have Celiac Sprue. Tissue biopsy of the duodenum is the gold standard for diagnosis. It is recommended that at least 4 samples be taken, due to sampling error this may be negative. Serological evidence may aid in the diagnosis. Anti-endomysial IgA antibodies have nearly a 100% positive predictive value, with a sensitivity of 85–98% and specificity of 97–100%. tTG is more sensitive (95–98%) then anti-endomysial IgA, but is less specific (94–95%). Anti-gliadin IgA and IgG are 75–90% and 65–85% sensitive, 82–95% and 73–90% specific, respectively. When positive they will decrease when patients adhere to a gluten free diet. As with our patient, there is a form of the disease defined as the "potential form" in which duodenal biopsies are negative but serology is positive. This case illustrates that when evaluating a patient with IDA it is worthwhile to consider the non-classic clinical manifestations of Celiac Sprue, and confirm the diagnosis with the appropriate serologic assays and tissue biopsy.

A CASE OF CELIAC SPRUE IN AN ELDERLY DIARRHEAL PATIENT WITH NEGATIVE TISSUE TRANSGLUTAMINASE IGA. R.S. Tang[1]; E. Huang[1]; L. Skinner[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 154238)*

LEARNING OBJECTIVES: Diagnose Celiac Sprue in the geriatric population with negative Tissue Transglutaminase IgA
CASE: An 84 year-old Caucasian female with past medical history significant for Barrett's esophagus, treated Giardia infection, history of cholecystectomy, and hypertension, presented to UCLA Medical Center with a 5-week history of acute on chronic, non-bloody diarrhea associated with nausea and vomiting, decreased appetite, fatigue, and weight loss of 20 pounds over 1 year. Her symptoms did not change with oral intake or fasting. Prior to her hospitalization at UCLA, patient had initially presented to a community hospital and received extensive, but non-diagnostic evaluation including negative stool cultures, negative Tissue Transglutaminase IgA, negative imaging studies. An EGD had shown only mild antral gastritis. At UCLA, her physical exam was remarkable only for cachexia and mild hypertension. She had normal CBC, chemistries, liver transaminases, but low albumin of 1.7. Her serum IgA level was normal, and her repeated Tissue Transglutaminase IgA was negative. A colonoscopy performed at UCLA showed grossly normal-appearing mucosa. Random colon biopsies, however, revealed lymphocytic colitis. An EGD with push enteroscopy also demonstrated grossly normal mucosa. Again, microscopic evaluation of biopsy samples of stomach and small bowel revealed lymphocytic gastritis, and Marsh 3B villous atrophy. These findings were consistent with Celiac Sprue, and patient was started on a gluten-free diet, and given TPN for nutrition augmentation. Prednisone was also started given concern for potential refractory sprue. She was eventually discharged in stable condition.
DISCUSSION: Celiac Sprue is an inflammatory disorder of the small intestine characterized by intestinal malabsorption and diarrhea associated with dietary gluten intake. Microscopic findings of intestinal mucosal inflammation, villous atrophy, and crypt hyperplasia confirm the diagnosis. Celiac Sprue is mostly seen in people of European descent, with a prevalence of 1 in 500 in Austria and Ireland. The prevalence of Celiac Sprue in the US is thought to be lower than that in Europe. The female to male ratio is about 2:1. A bimodal distribution in incidence includes an early peak in the 4th decade, and a later peak in the 6th or 7th decade. Diagnosis of Celiac Sprue in the geriatric population may be particularly challenging given that the clinical manifestations are often subtle and that non-intestinal symptoms often predominate and may mimic other diseases. As was the case in our patient, fatigue, anorexia, weight loss are the most frequent general complaints among the elderly, while diarrhea is the commonest intestinal symptom. Autoantibodies such as Tissue Transglutaminase IgA (sensitivity 90 to 98%; specificity 95 to 97%) are useful in screening, but a negative result does not exclude the diagnosis in a patient in whom a high clinical index of suspicion exists. The diagnostic gold standard is small intestinal biopsy, which confirmed the diagnosis in our patient with negative serologies. A Marsh 3 lesion on biopsy is a classical Celiac lesion. Gluten-free diet is the treatment of choice with a response rate of about 70%. However, elderly patients are more likely to have refractory sprue, and a trial of steroid may be helpful.

A CASE OF GEMELLA MORBILLORUM ENDOCARDITIS. D. Diab[1]; E. Warm[1]. [1]University of Cincinnati, Cincinnati, OH. *(Tracking ID # 154334)*

LEARNING OBJECTIVES: 1) Recognize Gemella morbillorum as an unusual cause of infective endocarditis. 2) Review predisposing risk factors to the development of Gemella morbillorum endocarditis.
CASE: Gemella morbillorum is an unusual Gram positive pathogen that seldom causes infections including endocarditis. We report a case of Gemella morbillorum endocarditis in a male with no prior history of heart disease, intravenous drug use, or malignancy. A 60-year-old African American male with

hypertension, dyslipidemia, and gastroesophageal reflux disease, was brought to the emergency room after being pulled over by the police for erratic driving. He reported a 2-week history of mild confusion, ataxia, frontal headache, visual blurring, and night sweats, as well as a 30-lb weight loss over the past 3 months. The patient denied any focal weakness, fever, chills, prior dental procedures, or intravenous drug use. On physical examination, the patient was febrile with a temperature of 102.6 °F. He had good oral hygiene, a grade II/VI holosystolic murmur heard best at the apex, left-sided homonymous hemianopsia, and left-sided neglect. Laboratory findings revealed an elevated WBC count, anemia of chronic disease, an ESR of 90 mm/hr, and a normal PSA. Head imaging revealed a large R parieto-occipital hemorrhage as well as smaller R frontal and subcortical hemorrhages. Blood cultures grew Gemella morbillorum in 3 out of 4 bottles. Transthoracic echocardiography revealed only mild mitral regurgitation. Transesophageal echocardiography revealed a mass attached to the anterior mitral leaflet consistent with a vegetation as well as a positive bubble study. The patient was found not to be a candidate for mitral valve replacement and was started on IV ampicillin and gentamicin. Repeat blood cultures 10 days later documented clearing of the bacteremia. He improved and was discharged to a rehabilitation facility on IV antibiotics 2 weeks after admission
DISCUSSION: Gemella morbillorum is an indigenous Gram positive coccus that is part of the commensal flora of the oropharynx, the gastrointestinal tract, and the genitourinary tract. On rare occasions, this organism causes infections similar to those seen with the viridans Streptococci, the most common of which is infective endocarditis. There have been few case reports of Gemella morbillorum endocarditis from different parts of the world over the past 20 years, and rare cases have been reported in the USA. The majority of these have been associated with intracardiac or valvular heart disease, intravenous drug use, or colonic malignancy. Other predisposing conditions include diabetes mellitus, steroid therapy, and hepatorenal dysfunction. Our patient had none of these elements and had no preceding risk factors for bacteremia. Despite a negative colonoscopy one year prior, he was rescheduled for one as an outpatient since no other source for this organism could be identified.

A CASE OF ISCHEMIC COLITIS IN A YOUNG MAN. S.M. Mourad[1]; M. Elnicki[2]. [1]University of Pittsburgh, Pittsburgh, PA; [2]University of Pittsburgh School of Medicine, Pittsburgh, PA. *(Tracking ID # 151951)*

LEARNING OBJECTIVES: 1) To recognize the clinical presentation of ischemic colitis. 2) To recognize amphetamine/dextroamphetamine use as a cause of ischemic colitis
CASE: A 27 year old man with history of attention deficit hyperactivity disorder (ADHD) presented to the emergency department with complaints of 2 days of cramping abdominal pain, 24 hours of bloody diarrhea, but no nausea, vomiting, fever or chills. Amphetamine/dextroamphetamine (Adderall) was the only medication he was taking for ADHD. He denied illicit drug abuse, and he is a graduate student. On exam he was afebrile. Abdominal exam revealed positive bowel sounds, mild diffuse tenderness to palpation more prominent in the left lower quadrant, with no guarding or rebound tenderness. A hemeoccult stool test was positive. Laboratory findings included white blood cell count of 8.0, normal liver function tests. Abdominal CT scan revealed thickening of the wall of the descending colon beginning at the splenic flexure and continuing distally to the region of proximal sigmoid colon, findings compatible with colitis. The etiology of the colitis was thought to be infectious versus inflammatory; however the distribution was consistent with ischemic colitis. Stool tests were negative for white blood cells, ova, parasite and culture. Colonoscopy was performed and showed severe colitis with edema, erythema and ulceration in the descending colon. The rectum showed no abnormalities, findings suggestive of ischemic versus inflammatory colitis. Biopsies were obtained and the biopsy results confirmed the diagnosis of ischemic colitis. Hypercoagulable profile was normal. His high dose amphetamine/dextroamphetamine for ADHD was thought to be the likely cause of his ischemic colitis. It was discontinued, his symptoms improved with supportive care by the second hospital day and he was discharged home.
DISCUSSION: Colonic ischemia is the most common ischemic disorder of the gastrointestinal tract. Nonocclusive colonic ischemia most commonly affects the "watershed" areas of the colon that have limited collateralization, such as the splenic flexure and rectosigmoid junction. There are multiple causes of ischemic colitis including major vascular occlusion, mesenteric venous thrombosis, hypercoagulable state and drugs. It usually occurs in patients over age 60. Clinically, ischemic colitis presents with sudden onset of mild crampy abdominal pain, accompanied or followed by bright blood per rectum or bloody diarrhea. The diagnostic test of choice is colonoscopy. Ischemic colitis rarely occurs in young individuals. In this patient the amphetamine/dextroamphetamine (Adderall) is the likely precipitating factor. There have been reported cases of ischemic colitis associated with amphetamines and the mechanism is likely vasospasm. Treatment of ischemic colitis is supportive care, bowel rest and intravenous fluids.

A CASE OF PROPYLTHIOURACIL-INDUCED ANTINEUTROPHIL CYTOPLASMIC ANTIBODY DEVELOPMENT. S. Ralli[1]; D. Martinez[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 150150)*

LEARNING OBJECTIVES: Identify the development of antineutrophil cytoplasmic antibody in patients treated with propylthiouracil for hyperthyroidism.
CASE: A 19 year old female with Graves' disease presented with diffuse arthralgias of her knees, ankles, and wrists. When she was initially diagnosed with Graves' disease four years prior, she was treated with tapazole. Secondary to pruritus, her regimen was switched, two years prior, to propylthiouracil (PTU) 200 mg/day. Physical exam revealed mild hirsutism, bilateral proptosis, nontender thyromegaly, and diffuse tenderness along the affected joints. X-rays of her joints were normal; initial laboratories confirmed a low-normal TSH, high-normal free thyroxine, elevated ESR 68 mm/hr, p-ANCA >1:1280, c-ANCA 1:640, MPO antibody 59 U/mL, and normal rheumatoid factor and proteinase-3 antibody. Propylthiouracil was discontinued, resulting in improvement in her symptoms within a few weeks. Over the next few months, while her thyroid function tests remained stable, her ESR, p-ANCA, c-ANCA, and proteinase-3 antibody levels normalized.
DISCUSSION: Antineutrophil cytoplasmic antibody (ANCA)-positive vasculitis is associated with high morbidity and mortality. Myeloperoxidase (MPO) is a target antigen of neutrophilic granules for p-ANCA, while proteinase 3 (PR3) is a target for c-ANCA. Both markers are classically associated with such debilitating conditions as Wegener's granulomatosis or microscopic polyangiitis. Antithyroid medications such as PTU and methimazole have been implicated in ANCA development; however, the prevalence of ANCA is significantly higher with PTU. The majority of drug-induced ANCA is associated with development of anti-MPO/p-ANCA, compared to anti-PR3/c-ANCA. Approximately 20 to 30 percent of patients treated with PTU have been documented to become ANCA positive; of these patients, nearly one-fifth developed features of vasculitis. Longer durations of therapy have been associated with a higher incidence of ANCA development, from a few months to several years after treatment. There is no significant association between ANCA development and dosage of PTU; however, most reported cases involved treatment with 150 to 300 mg/day. PTU-associated ANCA seems to occur more often in women, though this may be due to a higher prevalence of Graves' disease in women. It is postulated that PTU acts as a hapten, accumulating in neutrophils, becoming oxidized to form the reactive intermediate PTU-sulphonate, which in turn induces T cell sensitization and polyclonal B cell activation, leading to autoantibody (ANCA) development. While many patients are asymptomatic, others may demonstrate features of systemic vasculitis, including arthralgias, purpura, and glomerulenophritis. Diagnosis is made by history, especially a temporal relationship of symptoms with PTU use; p-ANCA or c-ANCA development is confirmatory. Of note, PTU-induced ANCA has not been associated with antinuclear antibody or rheumatoid factor. Treatment consists of discontinuation of PTU; however, if symptoms persist and ANCA titers do not resolve, more aggressive therapy with corticosteroids, cyclophosphamide, and plasmapheresis may be indicated. While it is reasonable to switch to a different antithyroid medication such as methimazole for control of hyperthyroidism, it is noteworthy that the latter is also associated with ANCA positivity, though at a lower rate. Radioablation or surgical removal of the thyroid gland should be considered.

A CASE OF SUSTAINED VENTRICULAR TACHYCARDIA IN A PATIENT WITH COMMOTIO CORDIS AND PROLONGED QT SYNDROME: WHICH CAME FIRST THE CHICKEN OR THE EGG?. P. Cheriyath[1]. [1]University of Tennessee, College of Medicine - Chattanooga Unit, Chattanooga, TN. *(Tracking ID # 151307)*

LEARNING OBJECTIVES: To discuss the entity, "commotio cordis" and the differential diagnosis of arrhythmias in the setting of commotio cordis.
CASE: A 21-year-old healthy Hispanic male came to the ER complaining of a fast heart beat and shortness of breath after a motor vehicle accident 1 week prior. He had no significant family history. Vitals: BP 94/45 mmHg, Pulse 176/min, temp 98.6 °F, oxygen saturation 99% RA. Physical exam was normal except for tenderness without bruising around chest wall, tachycardia and S3 gallop. Hearing was normal. CBC, CMP, ABG,TSH were normal, BNP 696 pg/ml. CKMB index 13.3, CKMB units 5.6 ng/ml, CPK 171 u/l and Troponin were .07 ng/ml. Initial EKG revealed ventricular tachycardia, right bundle branch pattern and left axis deviation. Chest x-ray was suggestive of congestive heart failure, wth no rib fractures. Patient was started on amiodorone and underwent cardioversion. When the heart rate slowed, an EKG revealed long QT interval (QTc 522). Echocardiogram revealed EF of 45%, mild hypokinesis of left ventricle. As patient remained in sustained ventricular tachycardia an EP study done showed inducible sustained monomorphic ventricular tachycardia and long QT syndrome. Patient underwent successful implantation of cardiac defibrillator. Repeat Echocardiogram before discharge showed EF of 70% without hypokinesis.
DISCUSSION: Sudden death due to non-penetrating chest wall impact in the absence of injury to the ribs or sternum and heart is known as commotio cordis. Commotio cordis impacts are typically of low-energy and velocity. Ventricular fibrillation is the most common rhythm observed in commotio cordis followed by non sustained ventricular tachycardia. We hypothesize that the blunt trauma induced sustained ventricular tachycardia in our patient who was predisposed due to his congenital prolonged QT syndrome. The tachycardia together with stunning of the myocardium also resulted in CHF. This case highlights the importance of recognition and prompt treatment of blunt cardiac trauma and the exploration of other underlying abnormalities that may coexist.

A CASE THAT'S HARD TO SWALLOW: SECONDARY ACHALASIA IN AN 85-YEAR-OLD WOMAN WITH NEW ONSET DYSPHAGIA. K.M. Swetz[1]; T.F. Mangan[1]. [1]Mayo Clinic, Rochester, MN. *(Tracking ID # 151343)*

LEARNING OBJECTIVES: 1. Construct an age-appropriate differential diagnosis for dysphagia based on temporal presentation and symptoms. 2. Review the appropriate diagnostic workup of dysphagia based on presentation.
CASE: An 85-year-old female with a negative medical history presented for annual examination, which was unremarkable, with negative screening labora-

tories. She continued in her usual state of health, but over the next six weeks, she noted new onset epigastric pain while swallowing solids greater than liquids. She underwent evaluation of presumed gastroesophageal reflux disease with a barium swallow, which demonstrated both slowed peristalsis and emptying into the stomach, but was otherwise "grossly normal". Pantoprazole and sucralfate failed to alleviate her progressive symptoms. Endoscopic examination revealed distal esophageal stenosis thought to represent achalasia or spasm. Luminal biopsy was obtained and pathology was normal. An endoscopic dilatation was performed. Her dysphagia advanced to both solids and liquids, with resultant weight loss and generalized weakness. A repeat barium swallow was obtained, which showed progressive distal esophageal stenosis with proximal esophageal dilation, raising the question of achalasia. The patient was transferred to our institution for further evaluation. On presentation, a standing column of barium was noted on chest X-ray, as well as aspirated barium in the right lung. Small bilateral pleural effusions were also present. Esophageal manometry was attempted, but could not be performed due to a barium cast in the distal esophagus. A CT chest identified soft tissue thickening in distal esophagus, and bilateral pleural effusions. A thoracentesis was positive for adenocarcinoma. An endoscopic ultrasound revealed periesophageal nodes, biopsies of which were positive for adenocarcinoma. Given her clinical stage at presentation, the patient was placed in hospice care, where she expired 5 weeks after transfer.
DISCUSSION: Dysphagia is a common problem with varied etiologies. Once the differentiation between oropharyngeal and esophageal dysphagia is made, the age of the patient, temporal sequence, and associated symptoms must be considered. Given this patient's age and the brisk pace of symptomatic progression, malignancy was high in the differential diagnosis. The initial workup should include esophagogastroduodenoscopy to an exclude intraluminal mass. Though this patient's endoscopy did not reveal an endoluminal mass, it did suggest the possibility of achalasia. The next diagnostic step is to differentiate primary versus secondary achalasia. Given the patient's age and onset of symptoms, secondary achalasia was felt to be the most likely etiology. Evaluation for secondary achalasia should include CT chest/abdomen or endoscopic ultrasound looking for extraluminal mass lesions, lymphadenopathy, or a lesion causing a paraneoplastic achalasia. The late diagnosis in this patient precluded effective treatment with surgery, chemotherapy, or radiation therapy. This case illustrates the need to appropriately recognize symptoms of dysphagia, particularly when accompanied with pain and rapid progression, in order to institute an appropriate workup in a timely fashion.

A CATH SURPRISE. J.P. Block[1]. [1]Brigham and Women's Hospital, Boston, MA. *(Tracking ID # 153905)*

LEARNING OBJECTIVES: 1. Evaluate imaging modalities to identify unusual contributors to myocardial ischemia or infarction 2. Discuss the prevalence and risk associated with coronary artery aneursyms 3. Identify the etiologies of coronary aneurysms
CASE: A 73 year old woman with a history of chronic obstructive pulmonary disease and hypertension presented with dyspnea at rest and chest tightness ongoing for several hours. She experienced no radiation of pain, nausea or vomiting. She recently had been treated for an upper respiratory infection with antibiotics and a methylprednisolone taper. She had baseline dypnea, but normally she was able to ambulate on flat ground with no symptoms. She was in mild respiratory distress and had an oxygen saturation of 93% on two liters of oxygen. Her chest examination revealed decreased air movement with faint expiratory wheezes. Her cardiac exam was notable for a I/VI systolic ejection murmur noted most prominently at the left lower sternal border. Her laboratory evaluation was normal except for a troponin I of 0.9 ng/ml. Her electrocardiogram showed T wave inversions in leads II, III, and avF. She was treated for a non-ST elevation MI with beta blockers, nitroglycerin, aspirin, clopidogrel, heparin, and integrillin. Her pain soon resolved, and two days later, she was transferred to a tertiary care center for coronary catheterization. Prior to catheterization, she had an echocardiogram showing what appeared to be a large right ventricular aneurysm. On cardiac MRI and subsequent left heart catheterization, this was confirmed to be a 3 cm × 4 cm × 6 cm right coronary aneurysm that communicated with the right ventricle. Proximal to this aneurysm was a 90% discrete lesion, and the right coronary artery was heavily calcified. Flow from the aneurysm into the right ventricle was present. Because the risk of spontaneous rupture was considered high, she underwent a successful surgical resection of this aneursym with a repair of the right ventricular defect and a bypass grafting of the resected area. Pathology of the aneurysm showed severe atherosclerotic disease.
DISCUSSION: Coronary artery aneurysms are rare, found in up to 5% of patients undergoing coronary catheterization for suspected coronary artery disease; prevalance in the general population is unknown. Echocardiography can also identify aneurysms; however, the exact site of the aneurysm may be difficult to determine without functional imaging such as available with cardiac magnetic resonance imaging. Coronary aneurysms are most commonly associated with severe atherosclerotic disease that weakens the vessel wall intima and media, leading to compromise of the vessel wall integrity and subsequent aneurysm formation. Other less common etiologies of aneurysms include congenital abnormalities of the coronary arteries, disorders such Kawasaki's disease (very unusual in adults) or rupture of the sinus of Valsalva, infection of the vessel wall from fungus or syphilis, or coronary artery dissection. These aneurysms are usually asymptomatic; however, patients with coronary aneursyms have a higher risk of myocardial infarction than patients with non-obstructive coronary artery disease without aneurysm. The development of myocardial ischemia or infarction is exacerbated when the aneursym erodes into chambers of the heart leading to coronary steal into the connecting chamber (in the case of this patient, blood did seem to flow into the right ventricle).

A CHRISTMAS WITHOUT POINSETTIA: THE IMPORTANCE OF A DETAILED HISTORY. T. Mantha Bala[1]. [1]University of Tennessee at Chattanooga, chattanooga, TN. *(Tracking ID # 151328)*

LEARNING OBJECTIVES: To educate health personnel regarding the cross reactivity between latex allergy and Poinsettia plants. To share important facts regarding the Poinsettia plants.
CASE: A 50 year old white female was admitted to the hospital during December'04 for evaluation of near syncope. She had a detailed workup, which was negative. She has history of latex allergy and continued to be in a latex free environment during hospitalization. On her third day of hospitalization, she developed diffuse macular rash more prominent on the right side of her neck & arm. The rash was very pruritic. She was not on any medication that could explain the rash. There was no history of shortness of breath, wheezing or rhinorrhea. A thorough investigation was done to identify the cause of her rash with special attention to rule out any accidental exposure to latex. We investigated each object in the room, noting that one of her friends had brought her a Poinsettia plant on the second day of her hospitalization. The plant was on the right side of her bed, and she leaned on the plant whenever she had to reach for the telephone. Parenteral anti histamine relieved the itching and the rash resolved completely after the removal of the plant.
DISCUSSION: Poinsettia is widely used as an ornamental plant during the Christmas season. Typically, they are colored red, pink, white or marbled. Poinsettias are native to Mexico and were not introduced to the United States until 1825. They are part of the Euphorbiaceae family similar to natural rubber latex. Studies conducted by researchers at Medical College of Georgia revealed that 40% of individuals with a latex allergy are allergic to Poinsettia. This is because latex and Poinsettia share several proteins. By means of special tests like gel electrophoresis, immunoblot and immunoblot inhibition two proteins called cross- reactive allergens were identified. These are major and minor latex allergen proteins Hev b 6.01 and Hev b 10 respectively. This case emphasizes the importance of a detailed history including allergies, especially in high risk individuals, and recognizing the cross reactivity of latex allergy other with common foods and plants. It also stresses the importance of patient education, awareness and close monitoring of the environment in people with latex allergy.

A COMMON METABOLIC MASQUERADE. S. Nisar[1]; V. Okwiya[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 154122)*

LEARNING OBJECTIVES: 1. To recognize the presentation of Ethylene Glycol (EG) Toxicity. 2. To recognize EG toxicity as a medical emergency and that prompt treatment can prevent acute renal failure. 3. To recognize that acute renal failure in EG toxicity may present without crystalluria.
CASE: A 50-year old male, without significant past medical history, was transferred from an outside hospital for evaluation of acute altered mental status. Family described observing drowsiness, confusion, agitation and combativeness several hours prior to the patient becoming unresponsive. He was intubated for airway protection. Initial vitals showed a temperature of 36.3, HR 105/minute and a BP of 150/80 mm Hg. Physical examination revealed no evidence of trauma. His neurological exam was significant for no spontaneous movements, lack of response to painful stimuli and absence of DTRs. Pupils were 5 mm bilaterally and minimally responsive to light. The rest of the exam was unremarkable. Initial head CT was significant only for diffuse brain swelling. His laboratory data was remarkable for a pH of 6.9, HCO3 2.0, anion gap of 50, Ca 7.9, K 7.7, osmolar gap of 62, BUN 16 and Creatinine 3.3. A urine toxicology screen was negative. Chest X-ray was normal. 12-lead EKG showed peaked T waves in leads V3-V6. In this clinical setting of an elevated anion gap metabolic acidosis, osmolar gap, hypocalcaemia, negative urine tox screen, methanol, isopropyl alcohol and ethylene glycol levels were obtained. The latter were not detected while EG was found to be 112 mg/dL. Microscopic urinalysis failed to demonstrate calcium oxalate crystals. Immediate treatment with fomipazole was initiated and the patient was placed on hemodialysis for severe metabolic acidosis and hyperkalemia. Metabolic acidosis resolved within 3 hours of treatment. EG levels decreased from 112 MG/dL to 12 and became undetectable 24 hours later. Over several days, patient's mental status improved and he was extubated. He later admitted to the ingestion of home-brewed wine 1–2 days prior to his clinical presentation. On day 12, he was discharged to home with a creatinine of 2.4.
DISCUSSION: An estimated 5000 cases of EG toxicity are reported in the US annually. A chief component of antifreeze, it is either ingested accidentally, as a suicide attempt or consumed as a cheap alternate for ethanol. EG toxicity is a medical emergency and should be suspected in any clinical setting of acute altered mental status, anion gap metabolic acidosis, elevated osmolar gap, inebriation and hypocalcaemia. Expeditious diagnosis followed by prompt initiation of appropriate therapy can prevent considerable morbidity from neurological, cardiac and renal dysfunction. Though not toxic itself, EG is converted by alcohol dehydrogenase to glycolate and oxalic acid. These metabolites are responsible for the metabolic acidosis, CNS depression and cardiovascular instability. Oxalic acid precipitates with calcium leading to hypocalcaemia. Calcium oxalate crystals accumulate within renal tubular cells causing acute renal failure. The presence of calcium oxalate crystals tends to be a prominent feature of EG toxicity. Currently, the percentage of patients presenting without crystalluria is poorly documented. However, the association of acute renal failure and crystalluria in EG toxicity is well established. We

present a classic case of acute renal failure due to EG toxicity that remains atypical due to the absence of crystalluria in a setting of hypocalcaemia.

A COMPLEX CASE OF BACK PAIN: AN EVIDENCE-BASED DIAGNOSTIC SOLUTION. C.T. Simons[1]; P.W. Helgerson[2]. [1]Stanford University, Stanford, CA; [2]VA, Palo Alto, CA. *(Tracking ID # 154866)*

LEARNING OBJECTIVES: 1) To recognize a characteristic clinical presentation of vertebral osteomyelitis and potential pitfalls in diagnostic evaluation thereof. 2) To model the appropriate use of the test characteristics of a common diagnostic imaging test to guide further evaluation of a common clinical problem.
CASE: 86 year old man with history of lower back pain due to lumbar spinal osteoarthritis presented to an outside hospital eleven days after a transurethral resection of a bladder tumor with fever to 105.8, rigors, and a dramatic increase in his baseline back pain. The patient's perioperative course had been complicated by persistent hematuria necessitating Foley catheter irrigation and exchange. Blood cultures at admission revealed extended spectrum beta lactamase producing E. coli. No focus of infection was identified despite an extensive work up, including MRI of the lumbar spine on day 11 of hospitalization, two TEEs, two abdominal and pelvic CTs, WBC scan, aortic MRA, and testicular ultrasound. The patient continued to have daily fever and rigors, pyuria, and extraordinary lower back pain with motion. Blood cultures remained positive through day 21 of hospitalization. The patient was transferred to our hospital for further evaluation. Given a high clinical suspicion for vertebral osteomyelitis despite the prior negative MRI, the decision was made to re-image the patient's spine. A repeat spinal MRI 26 days after original presentation showed osteomyelitis of the first and second lumber vertebrae with possible discitis and extension into the left psoas muscle and associated 5 mm epidural abscess.
DISCUSSION: Vertebral osteomyelitis often presents with nonspecific symptoms, most frequently back pain. The commonality of low back pain in the general population often leads to delays in workup and diagnosis; some studies report an average time to diagnosis of up to 6 months. Such delays increase the chance of neural compromise and spinal deformities. The genitourinary tract is a common source of infection leading to osteomyelitis, primarily via hematogenous seeding. Staphylococcal species are the most common pathogens. However, E. coli is a well recognized cause and should raise suspicion for a genitourinary origin. MRI has become the standard of care to diagnose vertebral osteomyelitis. However, while the literature shows that MR is an excellent test for spinal osteomyelitis well into the disease course, the sensitivity at two weeks may be as low as 55%. In this particular case, osteomyelitis was clinically suspected early in the patient's course, and MRI on day 11 of symptoms was negative for signs of infection. This result led to extensive additional testing. A critical appraisal of the patient's pre-test probability for osteomyelitis and knowledge of the poor test characteristics early in the disease course helped to inform subsequent evaluation and eliminate the need to repeat multiple additional tests. At two weeks, for example, the patient's post test probability of disease given a negative test was up to 38%. This had decreased to 5% at four weeks. In short, recognizing the only modest sensitivity of the test in the acute setting alerted the providers that this test, widely held to be very accurate, was in fact insufficient to rule out a diagnosis of high pre-test probability. Given the improved sensitivity of MR later in the disease course, a second MR was indicated in this patient and, indeed, provided a diagnosis of osteomyelitis.

A DARK HORSE: UNSUSPECTED DIAGNOSIS OF NONFUNCTIONING PITUITARY ADENOMA IN A PATIENT WITH MULTIORGAN INVOLVEMENT SARCOIDOSIS. M. Auron-Gomez[1]; M.Y. Duran-Castillo[1]; R. Raina[1]; J.P. Hanna[1]; S. Khan[1]. [1]Case Western Reserve University, Cleveland, OH. *(Tracking ID # 152843)*

LEARNING OBJECTIVES: A patient with history of multiorgan sarcoidosis was admitted with new neurological symptoms with multiple cranial nerve involvement from a right sellar mass. Biopsy discovered a non-functioning adenoma. The importance of an anatomopathologic diagnosis is emphasized because of possible co-existent simultaneous entities requiring alternative therapies.
CASE: A 68 year-old woman, with diabetes mellitus, hypertension, remotely treated breast cancer and sarcoidosis (pulmonary, cutaneous and hepatic), presented after four days of rapidly progressive right frontal and periorbital headache, associated with right ptosis, diplopia and unsteady gait. Dysarthria, dysphonia, weakness and numbness were absent. Right ptosis, incomplete elevation, adduction, abduction, anisocoria with right mydriasis with minimal pupillary response to light were present. Her right nasolabial fold was mildly depressed. The remainder of the neurological exam was normal. The patient was receiving oral steroids for treatment of cutaneous and pulmonary sarcoidosis. ACE level upon admission was 19 U/L (normal). CT-angio of the head was normal. A brain MRI with gadolinium showed a right parasellar mass extending into the cavernous sinus and Meckel's cave without meningeal enhancement. Her lumbar cistern spinal fluid was clear, colorless and contained 6 WBC's, 101 RBC's, 2% Polys, 44% Lymphocyte, 41% Monocytes, 13% Macrophages, a glucose of 170 mg/dL, and total protein of 100 mg/dL. Initial presumptive diagnosis was neurosarcoidosis. Hormonal profile to evaluate the pituitary axis was normal: T4 7.6 ug/dL, TSH 0.400 uIU/mL, Cortisol, AM 33.7 ug/dL, T4, Free 1.2 ng/dL, Prolactin 6.1 ng/mL, FSH 4.4 mIU/mL, LH 0.96 mIU/mL, GH 1.0 ng/mL, ACTH 43 pg/mL. Due to multiple cranial nerve involvement with a very rapidly progressive course, decompressive surgery was performed. Transphenoidal resection of the tumor successfully decompressed to cavernous sinus and diagnosed a necrotic pituitary adenoma.
DISCUSSION: The likelihood of neurosarcoidosis is high in the setting of multiple organ sarcoidosis and new neurologic findings. Multiple cranial nerve palsies are the most frequent finding occurring in 52% of patients in the largest series of neurosarcoidosis. CSF is usually abnormal with mild lymphocytic pleocytosis and hyperproteinorrachia. Our patient had all these characteristics and the treatment without a biopsy would have been high dose steroids due to the presumptive diagnosis of neurosarcoidosis. Surprisingly, the biopsy result was unexpected and changed the prognosis and management of the patient. Anatomopathologic diagnosis in the setting of CNS involvement in patients with multiorgan sarcoidosis remains critical to therapy as potential alternative diagnoses can co-exist.

A DIABETIC WOMAN WITH A BREAST LUMP. D. Wahner-Roedler[1]. [1]Mayo Clinic, Rochester, MN. *(Tracking ID # 151975)*

LEARNING OBJECTIVES: Alert the clinician to the entity of diabetic mastopathy (diabetic sclerosing lymphocytic lobulitis) when evaluating a diabetic woman with a breast lump.
CASE: A 40-year old nurse was referred by her primary care provider for evaluation of a right breast mass. Pertinent medical history: Diabetes mellitus of 35 years duration, on Insulin pump since 2 years, known diabetic retinopathy. Pertinent findings on physical examination: No lymphadenopathy, palpation of left breast: 1.5 cm firm nodule in the 10 o'clock position under the areola. Imaging procedures: Mammogram: dense breasts, no abnormality seen. Focused ultrasound of the palpable abnormality: ill-defined hypoechoic elliptical area 1 × 2 cm, biopsy advised. Diagnostic Procedure: Ultrasound guided core needle biopsy. Pathology: Densely fibrotic (keloid-like) breast parenchyma with lymphocytic lobulitis, consistent with diabetic mastopathy.
DISCUSSION: Among the wide range of complications of diabetes mellitus, breast tissue involvement had not been included until a report by Soler in 1984. Subsequently, the association between breast disease and long standing type I diabetes mellitus have been described in several publications. However, this clinical disorder is poorly recognized since the breasts are frequently not routinely examined in young diabetic patients. Clinical features: Firm to hard palpable unilateral or bilateral breast masses typically occurring in premenopausal women with a longstanding history of Type I diabetes mellitus, generally, with severe diabetic complications, such as diabetic neuropathy, nephropathy, cheiroarthropathy, or microvascular complications. Mammography: Diabetic mastopathy is associated with radiographically dense, homogeneous breasts, rather than fatty replaced breasts. An irregularly outlined opaque area without spiculation is the only mammographic finding in many cases, while in others the palpable mass is not identified by mammography. Ultrasonography: Sonography of the palpable mass usually demonstrates a hypoechoic, microlobulated mass with indistinct margins and marked acoustic shadowing. The acoustic shadowing is more prominent than with most cancers of the breast. MRI: No series exist; MRI was not used in most of the reported cases. Pathology: The histologic picture includes dense keloid-like fibrosis with lymphocytic ductitis and lobulitis, perilobular and perivascular lymphocytic infiltration. The lymphocytic infiltrate consists predominantly of B-cells. However, the presence of B cell pre-dominant lymphoid infiltrates does not appear to increase the risk of lymphoma or carcinoma. Diagnosis: Fine-needle aspiration biopsy has been reported to yield inadequate cellular material for establishing the diagnosis in many cases, and the diagnosis is usually made by core needle biopsy. Pathogenesis: Unknown; it is postulated that hyperglycemia-induced glycosylation of proteins may lead to the creation of neo-antigens for a subsequent autoimmune reaction. Clinical implications: Diabetic mastopathy is a benign disease without known tendency to malignant evolution. Clinically the lesion simulates cancer. The lesion may recur after excision in the same site or in another location of the ipsilateral or contralateral breast. Physicians should be aware of this entity, prove the diagnosis of diabetic mastopathy by tissue sampling and keep in mind that breast cancer may develop also in diabetic patients.

A DILEMMA OF HEART AND MIND: EPISODIC ATAXIA AND DYSARTHRIA IN A PATIENT WITH REFRACTORY VENTRICULAR TACHYCARDIA. E.L. Leemann[1]. [1]Stanford University, Stanford, CA. *(Tracking ID # 157070)*

LEARNING OBJECTIVES: 1. Recognize amiodarone as a source of unusual and varied neurologic symptoms 2. Expand the differential diagnosis in cardiac patients for acute onset of neurologic symptoms
CASE: A 60-year old man with ischemic cardiomyopathy and refractory ventricular tachycardia despite an AICD and multiple drugs was transferred to this hospital for ablation. Following ablation the patient had ventricular arrhythmia requiring external shocks. He received 150 mg amiodarone intravenously; oral amiodarone at 400 mg TID daily was added to his infusion of 0.5–1 mg/hour. Epicardial patch placement was scheduled. On hospital day nine, the patient developed severe acute dysarthria and ataxia of all limbs. Speech normalized within one hour and limb movements improved, but mild dysmetria, horizontal nystagmus, and saccades persisted. Non-contrast head CT was negative. A similar episode occurred several hours later; head and neck CT angiogram was unremarkable. (MRI was avoided due to the pacemaker.) A two-minute episode of vertigo occurred later that evening. Two more ataxic and dysarthric episodes recurred the next day, along with one episode of oscillopsia, with persistent mild dysmetria and saccades between events. Transesophageal echocardiogram demonstrated no thrombus or patent foramen ovale. Epicardial patch placement was deferred due to neurologic instability. Although these episodes were initially thought to be TIAs, the stereotypic and benign nature of the events in the setting of a negative stroke work-up decreased suspicion for

ischemia. Instead, amiodarone neurotoxicity was considered. Amiodarone drip was discontinued. Oral dose was tapered to 200 mg daily over two days, with improvement in dysmetria. On day 13 an episode of mild ataxia without dysarthria occurred; the patient remained otherwise free of further neurologic events. An epicardial patch was placed, and the patient was discharged to a cardiac rehabilitation facility on day 16 with a normal neurologic examination.
DISCUSSION: Amiodarone, an antiarrhythmic agent used for recurrent refractory tachyarrhythmias, is known for multiple organ toxicities; neurologic side effects have been reported for over 30 years but are somewhat less well described. Commonly reported symptoms of amiodarone neurotoxicity include peripheral neuropathy and gait ataxia. However, case reports have described episodic, unusual neurologic symptoms from amiodarone, particularly at higher doses. The idiosyncracy of these symptoms suggests that amiodarone toxicity may often go unrecognized. Despite amiodarone's long half-life, neurologic symptoms almost invariably improve or resolve within days. Mechanisms of action for neurotoxic effects and for their rapid resolution have been postulated but are not definitively known. The timing of symptom onset, resolution with dose reduction, and negative imaging make amiodarone a likely explanation for this patient's symptoms. Other diagnoses such as basilar migraine were considered but were inconsistent with the chronology of the case. Recognition of amiodarone as the probable cause of this patient's deficits enabled their reversal through dose reduction, fortunately without adverse arrhythmia, permitting epicardial patch placement and discharge from the hospital in sound cardiac and neurological condition. Acknowledgment of this potential for severe episodic neurotoxicity may be critical in the care of cardiac patients with new neurologic symptoms.

A GIANT CAUSE OF CONGESTIVE HEART FAILURE: GIANT CELL MYOCARDITIS. M. Kochar[1]; A. Lopez-Candales[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 151695)*

LEARNING OBJECTIVES: Recognize the clinical presentation and diagnosis of Giant cell myocarditis. Identify the pathological changes that occur in the hearts of patients with Giant cell myocarditis. Recognize the treatment and management of patients with Giant cell myocarditis.
CASE: A college football player with a recent history of streptococcal pharyngitis presented to the hospital with dyspnea on exertion, fatigue and a syncopal episode. His physical exam was significant for hypotension and elevated jugular venous distension. His ECG showed left axis deviation with q waves in leads III and aVF and serum laboratories indicated elevations in BNP and troponin I. Emergent cardiac catheterization revealed elevated right-sided filling pressures with patent coronary arteries. Non-dilated left-ventricular hypertrophy with severely decreased systolic function was observed on echocardiography. The patient was treated in the CCU with standard heart failure therapy while serologies for cardiotropic viruses were exclusionary. His minimal improvement coupled with worsening systolic function by echocardiography prompted an endomyocardial biopsy. The biopsy showed acute myocarditis with focal giant cell transformation, consistent with Giant cell myocarditis. He improved with methylprednisolone and cyclosporine and was discharged after one week. Two weeks later, the patient returned with a tingling sensation in the fourth and fifth digits of his right hand with associated duskiness in color. An echocardiogram showed four mobile clots in the left ventricle which had presumably embolized to his hand. He was admitted for anticoagulation therapy that was successful in resolving the clots and was discharged on maintenance cyclosporine, oral steroids and anticoagulation therapy.
DISCUSSION: Predominantly found in young adults, Giant cell myocarditis (GCM) is a disease characterized by multinucleated giant cell infiltration of the myocardium. It usually presents as congestive heart failure, although it may be more dramatic with progressive hemodynamic deterioration, arrhythmias, or sudden cardiac death. The exact cause of GCM in unknown, however it may represent an antibody cross-reaction after Group A beta-hemolytic streptococcus or Trypanosoma cruzi infection. Diagnosis is based on histology from endomyocardial biopsy in patients with intractable heart failure in the absence of an identifiable cause. Cardiac enzymes may be elevated and ECG abnormalities range from nonspecific ST and T wave changes to Q wave development. GCM must be differentiated from Wegener's granulomatosis, hypersensitivity myocarditis, and sarcoidosis as the treatment and clinical course of these disorders vary. Initial treatment with ACE-inhibitors, anti-arrhythmics and diuretics may improve some of the dysfunction, however, immunosuppressive therapy utilizing combinations of corticosteroids, cyclosporine, azathioprine, and T-lymphocyte suppressive agents are the standard of care. Definitive treatment in patients unresponsive to immunosuppressive therapy or in acute heart failure is heart transplantation. Anticoagulation is essential in patients with severely compromised systolic function and resultant stagnant blood flow. Outcome statistics of patients with GCM report that the median survival from symptom onset to death or transplantation is 5.5 months. Combined immunosuppressive therapy was found to increase time until transplantation or death to 12.3 months relative to those receiving no therapy or corticosteroids alone.

A LIFE THREATENING BACKACHE. D.A. Brokl[1]; I. Rosas[2]. [1]Society of General Internal Medicine, Pittsburgh, PA; [2]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 152678)*

LEARNING OBJECTIVES: 1) Identify the presenting features of acute pyelonephritis. 2) Distinguish emphysematous pyelonephritis (EP) from other urinary tract infections in diabetic patients. 3) Recognize EP as a urological emergency with high mortality, necessitating immediate treatment.
CASE: A 48 year-old female with a past medical history significant for type 2 diabetes mellitus, hypertension and nephrolithiasis presented to her local hospital with a 4-day history of fevers, malaise, and right-sided backache. Her medications included metformin, HCTZ, and a multivitamin. She was found to be febrile, tachycardic, and hypotensive. She was aggressively hydrated with crystalloids but remained in shock necessitating vasopressor therapy. Blood and urine cultures were drawn and she was started on broad-spectrum antibiotics. She was subsequently transferred to our facility for further management. Physical examination on arrival revealed an obese, white female, conversant but hyperpneic with warm extremities and exquisite right-sided costovertebral angle tenderness. Initial labs revealed ketonemia, a blood glucose >500, bicarbonate–14, creatinine–4.7, anion gap–18, and WBC 20,000 with significant bandemia. Her platelet count and coagulation studies were normal. Urinalysis revealed pyuria. Her blood and urine cultures grew Escherichia coli. The patient's antibiotics were adjusted appropriately and she was started on an insulin drip protocol. Once hemodynamically stable, the patient underwent a computed tomography (CT) scan which revealed a considerable amount of gas within the right kidney, consistent with EP. The patient was immediately taken to the operating room where she underwent a right radical nephrectomy. She tolerated the procedure well and was discharged 8 days later to a rehabilitation facility.
DISCUSSION: EP is a gas-producing, necrotizing bacterial infection of the renal parenchyma and perinephric tissues. It is most often caused by E. coli or Klebsiella pneumoniae although occasionally the infection can involve Proteus or Pseudomonas species. Women are affected more often than men, 90% of cases occur in diabetics and the left kidney is affected more often than the right (although the infection can be bilateral). Most patients are febrile and have constitutional symptoms along with back or flank pain on the affected side. Symptoms can occur abruptly or they can evolve over several weeks. Laboratory testing usually reveals hyperglycemia, leukocytosis, elevated creatinine and BUN, and pyuria on urinalysis. An abdominal plain film is often the first study of choice. If air is suspected or identified in or around the tissues of the kidney(s), a CT scan should be ordered to better delineate the extent of infection and to identify any potential obstructing lesions within the genitourinary system. Optimal treatment is controversial but always involves intravenous antibiotics. Adjunctive treatments include percutaneous catheter drainage (PCD) and surgical excision of the affected kidney(s) and surrounding tissue. Some authors have advocated treating patients with either the former or the latter based on certain clinical parameters and the appearance of the infection on CT scan. Patients without clinical response to PCD should receive surgery. Despite these treatments, mortality from EP remains high at 15–40%.

A MAN WITH AN ABDOMINAL MASS - GETTING TO THE GIST OF GIST (GASTROINTESTINAL STROMAL TUMOR). S. Toh[1]; J. Miller[1]. [1]Temple University, Philadelphia, PA. *(Tracking ID # 153804)*

LEARNING OBJECTIVES: 1. Recognize the spectrum of clinical presentations of gastrointestinal stromal tumors (GIST) 2. Learn the diagnostic features of GIST as distinct subset of gastrointestinal tumors 3. Recognize potential novel therapeutic interventions for GIST.
CASE: A 55 yo Nigerian man without PMH presented with a 3 month history of increasing abdominal girth, abdominal pain, nausea, early satiety, fatigue and 5 pound weight loss. He also noted a 6 month history of change in stool caliber–"pencil thin" - with constipation. He was afebrile and physical exam was significant for firm, distended abdomen with diffuse tenderness to palpation without rebound or guarding. An umbilical mass was noted and bowel sounds were present but diminished. CT scan showed a large cystic and solid intraperitoneal mass measuring at least 27 cm (height) by 24 cm (transverse) in the infrahepatic abdomen extending to the umbilicus and pelvis; compatible with carcinoma vs. infectious or inflammatory etiology. PPD and HIV tests were nonreactive. CT-guided biopsy of the large mass revealed spindle cell proliferation consistent with mesenchymal neoplasm. Mitotic count was 11 per high power field. Immunohistochemical staining showed strong positivity for CD 34, smooth muscle actin (SMA), positivity for CD 117 (c kit) and S 100, and negative staining for desmin; leading to a diagnosis of gastrointestinal stromal tumor (GIST). A referral to oncology was made and treatment with Glivec was considered but due to marked obstructive symptoms, he underwent surgery for tumor debulking. Unfortunately, he developed multi-organ failure postoperatively and subsequently expired.
DISCUSSION: GI Stromal Tumors (GISTs) are rare tumors, constituting less than 3% of all GI malignancies. The clinical spectrum at presentation ranges from incidentally detected benign GISTs to large, malignant tumors which cause symptoms due to their size or tendency to ulcerate and bleed. Radiologic findings are nonspecific and definitive diagnosis requires pathological and immunohistochemical analysis. GISTs are now recognized as a distinct subset of mesenchymal tumors that express CD 117 (c-KIT tyrosine kinase receptor) and/or CD 34 antigen. Distinction from smooth muscle tumors, such as leiomyosarcomas, and other mesenchymal tumors is very important because of prognostic differences and therapeutic strategies. The pathogenesis of GISTs involves a gain-of-function mutation in the KIT proto-oncogene, leading to ligand-independent constitutive activation of the KIT receptor. Activation of the KIT receptor induces proliferation and inhibition of apoptosis and subsequent tumor growth. Radiation therapy and conventional chemotherapy have been ineffective, and previously the only proven treatment was surgical resection. Imatinib (STI571 =Glivec) is a new potent, orally available specific inhibitor of KIT which demonstrates a major durable response in more than 60% of patients with metastatic GISTs (often resulting in 70 to 90% reduction of disease bulk). It is possible that the adjuvant and neoadjuvant use of imatinib (e.g.,

rendering initially inoperable tumors resectable) in the overall management approach to advanced GIST may contribute to improved prognosis, and is currently being evaluated in ongoing clinical trials. Our case highlights the importance of early immunohistochemical diagnosis of GIST, refraining from ineffective toxic conventional chemotherapy and early consideration of molecularly targeted therapy specific for GIST.

A MICROANGIOPATHIC ANEMIA IN A 19 YEAR OLD POSTPARTUM WOMEN: IS IT HEMOLYTIC UREMIC SYNDROME (HUS) OR THROMBIC THROMBOCYTENIC PURPURA (TTP) OR HELLP SYNDROME. B.R. Dulin[1]; S.A. Haist[1]. [1]University of Kentucky, Lexington, KY. *(Tracking ID # 153688)*

LEARNING OBJECTIVES: 1) Distinguish HELLP, TTP and HUS 2) Management of complications of a microangiopathic process.
CASE: A healthy 19 year-old female underwent Cesarean-section for severe preeclampsia. Her course was complicated by postpartum endometritis treated with gentamycin and clindamycin. She presented three days after discharge with fever, nausea, emesis, and abdominal pain. There was mild lower abdominal tenderness. WBC was 22,700/cu mm, hematocrit 18.4%, platelets 20,000/cu mm, AST 96 U/L, ALT 23 U/L, and urinalysis revealed 1+protein and 2 RBCs. Abdominal imaging demonstrated air fluid levels consistent with ileus. Initially, the patient was treated with ampicillin, gentamycin, and clindamycin for presumed recurrent endometritis. Three days later the abdominal pain and ileus resolved, however, the patient's platelets and hematocrit continued to decline and she was transferred to the ICU. Further laboratory data revealed >5 schistocytes on peripheral smear, LDH 3,070 U/L, creatinine 2.5 mg/dL, bilirubin 2.2 mg/dL, with normal PT, PTT and Coombs test. The microangiopathic hemolytic anemia was felt to be secondary to either HELLP or TTP. A renal ultrasound showed mild hydronephrosis of the right kidney and increased renal cortex echogenicity. Because of the possibility of TTP, plasmaphoresis was initiated and an ADAMTS13 test was sent (normal). With six plasmaphereses, the thrombocytopenia resolved and continued to improve with a platelet count of 126,000 upon discharge. Ten weeks later, the patient had recurrent thrombocytopenia. At that time, BP was 183/100, there was tenderness in the lower abdomen and laboratory studies were hematocrit 27.2%, platelet count 66,000/cu mm, WBC 6.4/cu mm, creatinine 4.2 mg/dL and urinalysis included protein $\geq$3, large ketones, 5 WBCs, 43 RBCs, and 1+bacteria. Because of presumed TTP or HUS plasmapheresis was begun with improvement in the platelet count. A renal biopsy showed changes consistent with a microangiopathic process. Hemodialysis was initiated and the patient continued to require outpatient hemodialysis without recurrence of her thrombocytopenia.
DISCUSSION: Distinguishing between HELLP, TTP, and HUS can be difficult due to the overlap in laboratory and clinical findings. Some individuals consider TTP and HUS separate disease processes, yet others consider TTP-HUS a spectrum of the same disease characterized by thrombocytopenia and microangiopathic anemia with or without renal involvement. Based on observation studies, 13 percent of all women with TTP-HUS are diagnosed during or immediately after pregnancy. In addition to microangiopathic hemolysis, TTP is associated with neurological abnormalities, fever and renal failure, while HUS is only associated with acute renal failure. TTP is also characterized by deficiency in von Willebrand factor cleaving protease (90%) compared to HUS. In pregnancy with thrombocytopenia and anemia, one must consider HELLP syndrome. HELLP is distinguishable from TTP-HUS based on elevated liver enzymes and quicker resolution after delivery. Additionally, HELLP syndrome can have mildly reduced ADAMTS13 levels. While trying to properly diagnose a patient valuable time can be lost that may result in significant morbidity or mortality. This case highlights the need to initiate treatment rapidly in life-threatening cases, using best clinical judgment prior to a definitive diagnosis.

A NOT SO ROUTINE PHYSICAL. L.M. Skarf[1]; J.E. Hefner[1]. [1]Beth Israel Deaconess Medical Center, Boston, MA. *(Tracking ID # 154781)*

LEARNING OBJECTIVES: 1. Diagnose and evaluate amenorrhea in the primary care setting. 2. Recognize the need for complete medical care and physicals, including pelvic exams, in woman with disabilities. 3. Manage primary amenorrhea in the primary care setting.
CASE: 21 year-old female, wheelchair-user since age 12, presented with no chief complaint for her first physical with an internist. Past medical history was significant for spinal bifida and scoliosis with multiple surgeries between ages 6–18. Review of systems was positive for primary amenorrhea. Physical exam revealed no virulization, normal breast development, normal external genitalia. Speculum exam was unable to reveal a cervix. Bimanual exam revealed a vaginal pouch but no definitive uterine fundus or ovaries, no masses. Laboratory analysis revealed a normal FSH, LH, TSH, prolactin, DHEA, DHEA-S, cortisol and total testosterone level. Chromosomal analysis was XX. Transvaginal ultrasound revealed normal ovaries, right fallopian tube but absent left, rudimentary uterus and no cervix. Imagining studies of the kidneys and collecting system was normal.
DISCUSSION: Primary amenorrhea is defined as absence of menses by age 16. The first step in determining the cause is identifying the presence or absence of secondary sexual characteristics. The most common causes include gonadal dysgenesis, hypothalamic hypogonadism, congenital abnormalities, pituitary disease, androgen insensitivity, congenital adrenal hyperplasia and polycystic ovary syndrome. Congenital abnormalities of the female reproductive organs account for 20 percent of cases and include imperforate hymen, transverse vaginal septum and vaginal agenesis. It is important to recognize that ovarian development occurs independently of that of the vagina, uterus and fallopian tubes. Vaginal agenesis, also known as müllerian aplasia, refers to congenital absence of the vagina with variable uterine development. Vaginal agenesis is usually accompanied by cervical and uterine agenesis, however, 7 to 10 percent of women have a normal but obstructed or rudimentary uterus with a functional endometrium. A vaginal pouch is present as it is derived from the urogenital sinus, not the mullerian duct. Urologic anomalies are common, as the formation of the vagina, uterus and fallopian tubes is closely associated with the development of the urinary system. In women with vaginal agenesis, 25 to 50 percent have urologic anomalies, such as unilateral renal agenesis, pelvic or horseshoe kidneys, or irregularities of the collecting system, thus, imaging of the renal system is imperative. Surgical and non-surgical options are available for treatment and include vaginal dilation and vaginoplasty. Our patient underwent creation of a neo-vagina and has a normal sex life. The patient will be unable to carry her own pregnancy but her eggs may be harvested for pregnancy with a gestational carrier. This case serves to remind internists of the importance of a full gynecologic history and review of systems in women of reproductive age with physical disabilities.

A PUZZLING CASE OF ANEMIA AND LEUKOPENIA. C. Shenoy[1]. [1]Guthrie/Robert Packer Hospital, Sayre, PA. *(Tracking ID # 156437)*

LEARNING OBJECTIVES: 1. To recognize the presentation of copper deficiency. 2. To identify the risk factors for copper deficiency.
CASE: A 56-year-old male was seen by his primary care physician for weakness and fatigue when he was found to have severe anemia and leukopenia. He was immediately referred to a hematologist. The patient was on gastric tube feedings after treatment for oropharyngeal cancer two years ago, involving radical neck surgery, reconstructive surgery and radiation therapy. For the tube feeds, he was using Isosource 1.5 two cans three times a day for about a year, prior to which he was using Jevity. He also had a history of Whipple's surgery for chronic pancreatitis resulting from alcohol use, done 5 years ago. Following this, he had chronic malabsorption with diarrhea in spite of use of pancreatic enzyme supplements. At the hematologist's office, his labs were - white cell count of 1.0 K/uL with a differential of 27% segmented neutrophils, 1% banded neutrophils, 49% lymphocytes, 18% monocytes and 5% eosinophils, hemoglobin of 6.0 gm/dl and a platelet count of 335 K/uL. His red cell indices were - RDW of 19.7%, MCV of 77.8 l, MCH of 21.3 pg, MCHC of 27.4 g/dl. His reticulocyte count was 1.2% with a corrected count of 0.6%. His coagulation studies were normal as were his electrolytes, renal function and liver function tests. His serum iron, total iron binding capacity, ferritin, vitamin B12 and folic acid levels were normal. His erythropoetin level was elevated at 69.9 mU/ml (normal=4.1–19.5). A bone marrow biopsy revealed reduced cellularity at 20–30% with relative erythroid hyperplasia. There was no reticulin, collagen fibrosis, infiltrate or granulomata. Cytogenetic studies ruled out myelodysplatic syndrome. At this point, copper deficiency was suspected and the serum copper and ceruloplasmin levels were drawn. The serum copper was 75 mcg/L (normal=590–1180) and the serum ceruloplasmin was <2.00 mg/dl (normal=25.0–63.0). Copper deficiency was diagnosed and the patient was started on intravenous copper supplementation. Two months after treatment, he had a white cell count of 9.1 K/uL with a normal differential, hemoglobin of 11.0 gm/dl and a platelet count of 353 K/uL. The serum copper was 674 mcg/L. His symptoms of weakness and fatigue had resolved.
DISCUSSION: Copper deficiency is rare. In adults, it has been described in patients receiving prolonged parenteral nutrition without appropriate copper, patients with chronic malabsorption, and those on chronic peritoneal dialysis. It is usually seen as a bicytopenia (anemia and neutropenia with normal platelet count) and can rarely present as a pancytopenia. The anemia can be normocytic or macrocytic. The presence of megaloblastic changes, ringed sideroblasts and hemosiderin deposition in plasma cells has been described. Serum ferritin and erythropoetin levels are usually elevated. These hematological abnormalities are improved within a few months after copper supplementation therapy. Although enteral feeds often contain adequate concentrations of copper, problems with bioavailability may occur, especially in patients with chronic malabsorption, and such patients receiving long-term enteral feeding should be monitored with regard to hypocupremia. Copper deficiency should be considered in the differential diagnosis for hematologic abnormalities like bicytopenia or pancytopenia, especially in the presence of prolonged parenteral nutrition, chronic malabsorption or chronic peritoneal dialysis.

A RARE CASE OF ADRENAL CRISIS INDUCED BY EPIDURAL STEROID INJECTION. S. Ruffin[1]; E. Warm[1]. [1]University of Cincinnati, Cincinnati, OH. *(Tracking ID # 154468)*

LEARNING OBJECTIVES: 1) Recognize intermittent corticosteroid interjections as a potential cause of secondary hypoadrenalism. 2) Discuss the pathophysiolgy of corticosteroid hypoadrenalism.
CASE: It is widely accepted that secondary hypoadrenalism can be precipitated by abrupt termination of long term exogenous glucocorticoid administration. However, steroid injections have rarely if ever been associated with hypoadrenalism. This may be attributed to the low doses and intermittent administration of steroids. We present a rare case of secondary hypoadrenalism in the setting of steroid injections. A 49-year-old African American female with history of hypertension and morbid obesity presented with one week of progressive dizziness, fatigue and hypotension. Her BP log revealed a baseline of 130–150/80–90 with a 3-day incremental decrease to 82/57. Past medical history was significant for bilateral knee osteoarthritis and L-spine DJD treated with steroid injections every 3–6 weeks; the last injection was 10 days prior. Administration of normal saline raised the BP only to 90/57 and she remained clinically orthostatic.

Cortisol level was 2.4 mcg/dl and her BP stabilized after administration of dexamethasone 4 mg IV. ACTH stimulation test revealed secondary adrenal insufficiency and was confirmed by metyrapone test. The adrenal glands were without mass, hemorrhage or atrophy by CT. Pituitary hormone levels, aldosterone and glucose were normal, and MRI was negative for pituitary mass or apoplexy. Treatment with hydrocotisone was initiated and patient was discharged with stable BP. Exogenous glucocorticoids impose a negative feedback on pituitary ACTH and hypothalamic CRH release. ACTH deficiency (secondary hypoadrenalism) results in hypostimulation of the adrenal cortex. Both cortisol and epinephrine are low because cortisol is necessary for medullary synthesis of epinephrine; aldosterone is normal. Secondary hypoadrenalism manifests with severe hypoglycemia due to the lack of gluconeogenic effect of cortisol and hyperglycemic effect of epinephrine. Adrenal crisis is rare since hypotension is precipitated by volume depletion secondary to aldosterone deficiency. The role of glucocorticoid deficiency in hypotension has been attributed to decreased vascular responsiveness to angiotensin II and norepinephrine. Lower levels of epinephrine with resultant elevated norepinephrine may also cause a lower basal systolic pressure with marked increase in heart rate during upright posture, contributing to orthostasis.
DISCUSSION: Our patient presented with ACTH deficiency secondary to steroid injections. The marked hypotension, orthostasis and polydipsia were likely due to her continuation of furosemide and lisinopril, precipitating hypovolemia in the setting of lower basal systolic pressures. Hypoglycemia was noted during the metyrapone test.

A RARE CASE OF FACTOR VIII INHIBITOR ASSOCIATED WITH BULLOUS PEMPHIGOID. A. Mahipal[1]; S. Gupta[1]. [1]University of Connecticut, Farmington, CT. *(Tracking ID # 157042)*

LEARNING OBJECTIVES: 1. Recognize that acquired factor VIII inhibitor can occur in patients with bullous pemphigoid and cause bleeding complications. 2. Review the diagnosis and management of beeding due to acquired factor VIII inhibitor.
CASE: HPI: An 84 year old white female brought in by husband for right sided bluish jaw swelling which he noticed the night before, progressing to involve her neck and chin on the morning of presentation. The patient denied pain, shortness of breath, difficulty swallowing or history of trauma. She had also had an episode of epistaxis recently. PMH: Atrial Fibrillation, Bullous Pemphigoid, CAD s/p CABG, Dementia Medications: Metoprolol, Coumadin, Lipitor, Aspirin, Lasix Physical Examination: BP 112/72,HR 72, RR 18, Os Sats 98% Room air HEENT: PERRL, A large hematoma under tongue causing tongue elevation, large mass in anterior neck and submandibular regions with ecchymosis, tongue mobile with no airway occlusion. No stridor. Laboratory Findings: Hgb 8.6, Hct 26.1, Plt 401, WBC 12.3, PT 15.4, INR 1.7, PTT 104, D-Dimer 319, FDP >20, Fibrinogen 287 She was admitted for work-up of the hematoma. Within 12 hours of presentation, her hematoma rapidly progressed in size, causing airway obstruction requiring intubation. A clotting factor deficiency was suspected and she was given intravenous dexamethasone and recombinant activated factor VII while factor results were awaited. Factor VIII levels were $<1\%$ and the factor VIII inhibitor assay was 29.4 bethesda units (BU), thus confirming the presence of acquired factor VIII deficiency. She was treated with anti-inhibitor coagulant complex containing factor VIII inhibitor bypassing activity, intravenous steroids and cyclophosphamide. Repeat factor VIII levels showed an increase at 8% and the factor VIII inhibitor assay showed a decrease at 1.8 BU after treatment.
DISCUSSION: Acquired deficiency of Factor VIII in non hemophiliacs can occur due to presence of inhibitors which can arise spontaneously in normal elderly individuals, variety of autoimmune disorders like systemic lupus erythematosus, sjogren syndrome, rheumatoid arthiritis; malignancy; drug reactions, pregnancy and post partum states. Our patient had factor VIII inhibitor associated with bullous pemphigoid, which is extremely rare. Significant bleeding complications including hemarthroses, soft tissue hematomas and sometimes fatal hemorrhages can occur. Laboratory diagnosis is a challenge and prolonged aPTT is usually the first abnormality detected on routine studies. Mixing studies are needed to confirm the suspected diagnosis of Factor VIII inhibitor. Effective control of bleeding is required and patients with high inhibitor titres require anti-inhibitor coagulant complex with factor VIII inhibitor bypassing activity. Corticosteroids and Immunosuppressive agents like cyclophosphamide can also be used to control antibody production, as used for the management of our patient. Physicians must recognize the occurence of factor VIII inhibitor in bullous pemphigoid patients to be able to timely diagnose and manage bleeding complications in them.

A RARE CAUSE OF CHEST PAIN IN A YOUNG WOMAN. M. Velagapalli[1]; A. Kalyanasundaram[1]. [1]Geisinger Medical Center, Danville, PA. *(Tracking ID # 156962)*

LEARNING OBJECTIVES: 1) To recognize an uncommmon cause of myocardial infarction 2) To get an overview of the pathogenesis and management of spontaneous coronary artery dissection.
CASE: A 36-year-old white female with a few weeks of anginal-type chest pain presented to an outside hospital after a particularly intense episode of chest pain. Her pain radiated to her left arm and neck, and was associated with diaphoresis and nausea. She had no history of trauma and an otherwise unremarkable medical history. She had no family history of connective tissue disorders and had one child 8 years earlier that was healthy. She has no known risk factors for coronary artery disease. Her vitals were stable and exam was unremarkable. EKG revealed ST elevation in her anterior leads. Her peak CK was 1405, MB was 109, and troponin I was 36.78. She was started on a nitroglycerin and heparin drip and transferred to our institution for further care. Cardiac catheterization revealed a spontaneous dissection at the junction of the proximal and mid left anterior descending (LAD) artery that extended proximally and as well as into the distal LAD with a subtotal occlusion. This was the culprit lesion for the patient's myocardial infarction. Ejection fraction was noted to be 30% with an apical thrombus. She had subsequent PCI with two drug-eluting stents placed with a residual lesion of 0%. Intravascular ultrasound confirmed the presence of spontaneous left anterior descending coronary artery dissection with no atherosclerosis visualized. She had no further chest pain or shortness of breath. She was subsequently discharged home on clopidogrel and coumadin. At a follow-up visit 1 year after stenting, the patient remained asymptomatic.
DISCUSSION: Spontaneous coronary artery dissection (SCAD), also known as dissecting aneurysm or intramural haematoma, is a rare morbid condition described mostly in young, otherwise healthy women, particularly in the puerperium. SCAD is often a postmortem diagnosis in victims of sudden death. Most patients have no known risk factors for coronary artery disease. SCAD has been associated with cocaine abuse, chest trauma and intense physical exercise. Primary disruption of the vasa vasorum and subsequent hemorrhage into the media of the arterial wall has been postulated as a possible mechanism. This leads to development of an intramural hematoma in the media of the arterial wall thereby creating a false lumen. Expansion of this lumen through blood or clot accumulation leads to compression of the real lumen and myocardial ischemia. The outlook for patients presenting with SCAD is often grim. Suspicion of the diagnosis should lead to prompt investigation of the coronaries, followed by appropriate interventional treatment. Although thrombolytic therapy could lyse an occluding clot in the false lumen, fear of expansion of the hematoma often limits its usage. In the case of a well-localized dissected coronary lesion, stenting is generally considered standard therapy. Diagnosis of SCAD should be considered in a young female patient without coronary risk factors that presents with myocardial ischaemia or infarction. It is important to recognize that SCAD occurs even outside the puerperium, as was the case with our patient.

A RARE COMPLICATION FROM PORK. M. Munoz[1]; L. Lovato[2]. [1]University of California, Los Angeles - San Fernando Valley Program, Olive View Medical Center, Sylmar, CA; [2]Olive View Medical Center, Sylmar, CA. *(Tracking ID # 153994)*

LEARNING OBJECTIVES: Learning Objectives: 1. Recognize that self-administered cosmetic surgery is common and can have deleterious effects 2. Recognize Klebsiella pneumonia as a common organism of infection in diabetics
CASE: A 53-year-old diabetic woman presented to the Emergency Department complaining of bilateral cheek pain and swelling for 5 days. The patient also reported intermittent foul smelling discharge from both nostrils and mouth. The patient denied fevers, chills, nausea, vomiting, headache, recent dental work, dental or sinus problems. The patient was afebrile. Significant exam findings included prominent, mildly erythematous cheeks with areas of fluctuance and induration with associated tenderness to palpation. The patient was unable to fully open her mouth due to pain and swelling. Labs revealed a WBC of 11, blood glucose of 390 and normal anion gap. The patient was started on antibiotics. A CT of the face revealed bilateral subcutaneous air and abscesses extending from the nostrils to the mandibles. ENT was called to evaluate the patient and she was taken to the operating room for an intra-oral incision and drainage. Wound cultures grew Klebsiella pneumoniae. On further questioning, the patient admitted to injecting "homemade collagen from pork" into her cheeks for cosmetic purposes.
DISCUSSION: The number of surgical and non-surgical cosmetic procedures performed in the United States has increased over the last few years. In fact, non-invasive and minimally invasive cosmetic treatments are more common than surgical cosmetic procedures. Most of these non-invasive procedures consist of injectable neuromodulating agents, microdermabrasion and filling agents. Given the cost of these interventions, not all members of society can attain them, and people are self-administering substitutes to try to obtain similar results. Unfortunately, these substitutes can have detrimental effects. In this diabetic patient, self-treatment caused severe facial abscesses. Patients should be warned about the dangers of such practices, especially if they are immunocompromised. It is well know that diabetics have increased susceptibility to infection because of defects in immune function, vascular insufficiency, and sensory neuropathy that leads to wound neglect. These defects predispose diabetic patients to purulent bacterial infections. The identification of Klebsiella pneumoniae from wound cultures supports the high incidence of K. pneumoniae infections among diabetics. This case illustrates that self-administration of cosmetic surgery does occur and can have very detrimental effects. The case also provides additional evidence for the association of K. pnuemoniae infection in diabetic patients.

A RARE COMPLICATION OF ROUTINE SCREENING COLONOSCOPY. C. Dahlen[1]; S. Cheng[1]; M. Drummond[1]; S.D. Sisson[1]. [1]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 153416)*

LEARNING OBJECTIVES: 1) To learn the differential diagnosis of hepatic subcapsular fluid collections. 2) To learn the differential diagnosis and current treatment recommendations for pyogenic liver abscesses. 3) To review the risks and complications associated with routine screening colonoscopy.
CASE: A 75-year-old Argentinean male with hypertension and atrial fibrillation on anticoagulation underwent screening colonoscopy with removal of a benign polyp from the transverse colon by hot snare. Three days after the procedure, he

developed fevers and abdominal pain, followed by chills and anorexia. Symptoms persisted over the next four weeks, at which point he presented for medical evaluation. On arrival, he was febrile (temperature of 101.4 degrees Fahrenheit), with a pulse of 125 and a blood pressure of 74/45. Physical examination was significant for abdominal tenderness in the right upper quadrant. Laboratory data were notable for: aspartate aminotransferase 126 U/L, alanine aminotransferase 250 U/L, alkaline phosphatase 212 U/L, gamma glutamyl transferase 148 IU/L, total bilirubin 5.2 mg/dL, and direct bilirubin 2.4 mg/dL. Ultrasound imaging demonstrated a 4 × 6 cm cystic subcapsular fluid collection adjacent to the liver suspicious for abscess versus resolving hematoma. The patient was treated with broad-spectrum antibiotics, including albendazole for possible hydatid cyst. Blood cultures and fluid aspirated percutaneously from the subcapsular lesion subsequently grew out Escherichia coli, confirming the diagnosis of bacterial abscess. The etiology of his abscess was attributed to direct seeding by colonic bacteria during colonoscopy and polypectomy. He was discharged on antibiotics. Follow-up imaging revealed near complete resolution of the abscess and normalization of liver enzymes.
DISCUSSION: The differential diagnosis of a hepatic subcapsular fluid collection includes hematoma or abscess. Hematomas are seen in patients on anticoagulation or with recent abdominal trauma. Pyogenic liver abscesses can arise from biliary tree disease, portal vein infections, systemic infections such as endocarditis, direct extension from contiguous infectious foci, and direct penetrating trauma to the liver. The most common pathogens are gram negative aerobic bacteria such as E. coli and Klebsiella, followed by gram positive aerobes, anaerobes, and microaerophilic bacteria such as Streptococcus milleri. While rare in the United States, liver abscesses of hydatid origin should be considered in patients emigrating from African, Middle Eastern, and South American countries (such as Argentina). While there is currently no standard treatment regimen for liver abscesses, percutaneous drainage in addition to antibiotic therapy has been shown to have similar or decreased mortality when compared to surgical intervention. In our patient, the isolated pathogen and clinical course pointed to the probability of colonoscopy and polypectomy as the main causative event underlying abscess formation. Although perforation, bleeding, and colonic injury are well-recognized as possible complications of colonoscopy, less common complications include infection as well as splenic rupture and small bowel obstruction. Interestingly, the rate of bacteremia associated with colonoscopy is 2–5% with or without mucosal biopsy or polypectomy. As increasing numbers of colonoscopies are performed in the United States, the wide range of procedure-associated complications may be seen with increasing frequency.

A RARE MANIFESTATION OF MULTIPLE MYELOMA. S. Kakani[1]; H. Lazarte[1]; R. Warrier[1]. [1]Creighton University, Omaha, NE. *(Tracking ID # 152886)*

LEARNING OBJECTIVES: (1) Recognize that multiple myeloma can present with extramedullary organ involvement. (2) Recognize that extramedullary multiple myeloma is characterized by specific mutations that portend an aggressive disease and a very poor prognosis.
CASE: A 59 year old white male who was diagnosed five months ago with multiple myeloma with extensive bony involvement, was admitted with acute renal failure. At the time of presentation he denied any symptoms except low back pain which was thought to be due to vertebral involvement. On examination his vitals were within the normal range and his heart and lungs were unremarkable. Significantly however, the patient had matted and indurated lymphadenopathy in the cervical and inguinal regions and impressive right tonsillar enlargement. Examination of the skin revealed a 2 × 2 cm nontender, hard nodule on the upper back. CBC revealed mild anemia with a normal white count and adequate platelets. The metabolic profile was significant for an elevated BUN of 58 mg/dL, a creatinine of 3.7 mg/dL and a serum uric acid of 23.4 mg/dL. Urinalysis with microscopy revealed multiple uric acid crystals.The patient was diagnosed to have acute uric acid nephropathy and was treated with rasburicase with an impressive reduction of uric acid within 24 hours. Histopathological examination of the lymph nodes and tonsil revealed replacement of the architecture by proliferating large plasmablasts with atypia. A bone marrow biopsy showed infiltration of the marrow with numerous large plasmablasts comprising more than 30% of all cells. This was in contrast to a marrow biopsy five months ago which revealed plasma cells comprising of only 5–10% of marrow cellularity. The patient was diagnosed to have a plasmablastic myeloma and was started on chemotherapy. However the patient suffered from a cardiopulmonary arrest after his first dose. He was not resuscitated as per his wishes.
DISCUSSION: Multiple myeloma is a disorder in which plasma cells accumulate in the marrow and produce immunoglobulin ,usually monoclonal IgG or IgA. Common complications include osteolytic lesions, infections marrow failure and renal insufficiency. Multiple myeloma is thought to be confined to the bone marrow, but circulating myeloma cells may disseminate the tumor elsewhere and recognition of extramedullary involvement is important. Three phases of disease progression in multiple myeloma have been described : initial phase, medullary relapse and extramedullary relapse. Extramedullary relapse can present as myeloma cell accumulation in blood, pleural effusion, skin or lymph nodes. Each of these phases is characterized by specific genetic and phenotypic features and extramedullary relapses are specifically associated with point mutations of p53. This form of myeloma has a very aggressive course and poor prognosis

A RECURRENT PAIN IN THE NECK. N. Coleman[1]; M. Guidry[2]. [1]Tulane University, New Orleans, LA; [2]Tulane Health Sciences Center, New Orleans, LA. *(Tracking ID # 156863)*

LEARNING OBJECTIVES: 1. Recognize the clinical presentation of Mollaret's meningitis 2. Understand the link between Mollaret's meningitis and HSV

CASE: A 42-year-old woman presented with two days of generalized headache. The headache was acute in onset and accompanied by nausea, vomiting, neck pain, photosensitivity, and fevers. She had many similar episodes over the past decade. There was no recent travel, exposure to animals or mosquitoes. She had a history of bipolar disorder. She denied a history of migraine headaches. Her vitals signs were normal and she had marked photosensitivity, nuchal rigidity, and a Kernig's sign. There was point tenderness in her lower back and spine. CSF analysis revealed: WBC-790, glucose-36, protein-95; India ink negative; AFB smear negative; Gram stain revealed no organisms. Empiric antibiotics for meningitis were initiated. However, all CSF cultures remained negative. Her old chart revealed an extensive workup for similar symptoms, including a negative HIV test, negative imaging studies of the head, and exclusion of CSF leakage. On further questioning, a history of oral and genital herpes simplex virus infections was discovered. The antibiotics were discontinued, CSF herpes PCR was obtained, and the diagnosis of Mollaret's meningitis was established. She was discharged on prophylactic acyclovir.
DISCUSSION: Mollaret's is a recurrent meningitis characterized by symptom-free intervals. It presents with sudden attacks of high fever and classical physical examination findings for meningitis. CSF analysis typically reveals an elevated protein level with an increase in IgG and IgM fractions, and decreased glucose levels. In the first 24 hours, there is a predominance of neutrophils in the CSF with large activated cells of the monocyte/macrophage lineage termed Mollaret's cells. They are characterized by the irregular, vague outlines of their nuclear and cytoplasmic membranes and by their tendency to undergo rapid lysis while being examined. Recent evidence suggests HSV may be the etiology, and in this case, it was this historical finding that prompted consideration for the diagnosis. Though 80% of cases are linked to genital HSV, most patients do not have evidence of genital lesions at the time of presentation. In most cases, the signs and symptoms disappear abruptly and completely until the next episode, however transient neurological complications occur nearly 50% of the time. Typically complete resolution occurs after years of recurrent attacks. No long term complications are known and no clinical trials comparing treatments exist. Some evidence suggests acyclovir and valacyclovir may be effective prophylaxis and treatment.

A STITCH IN TIME. . .COULD SAVE A LIFE: METASTATIC BREAST CANCER AND THE COST TO THE UNINSURED PATIENT. J.I. Levine[1]; M. Walsh[2]. [1]Hennepin County Medical Center, Minneapolis, MN; [2]HCMC, Minneapolis, MN. *(Tracking ID # 150158)*

LEARNING OBJECTIVES: Recognize that breast cancer is the primary cause of death in women between the ages of 45 and 55 and insurance status makes a difference. Recognize that uninsured women in the 35–49 age range are 60% more likely to die of breast cancer than privately insured women. Understand that uninsured and Medicaid patients generally present with more advanced disease than do privately insured patients.
CASE: Ms. S. is a 48 year old female who presented to HCMC with a three month history of left breast pain and an inadvertent ten pound weight loss. In the week prior to admission, she noted left pleuritic chest pain and a cough productive of white sputum. Physical exam of the left breast revealed a palpable mass. She was previously healthy and had not seen a physician in several years because, as the full-time primary care attendant for her ailing mother, she did not have health insurance. Computed tomography of the chest and abdomen revealed a large mass in the left breast and a large left pleural effusion. Needle core biopsy of the breast mass was performed and yielded estrogen receptor (ER) positive invasive ductal carcinoma. Diagnostic and therapeutic thoracocentesis yielded an exudative fluid containing malignant ER positive cells. Magnetic resonance imaging of the spine revealed numerous metastatic lesions in the cervical, thoracic, and lumbar vertebrae. Imaging of the brain discovered enhancing lesions in the left cerebral hemisphere. After years of deferring medical care, Ms. S. was diagnosed with metastatic breast cancer. She was initiated on a course of gemcitabine and paclitaxel during this hospital admission, responded well to a course of palliative radiation therapy, and was discharged on home oxygen. She succumbed to respiratory failure approximately two months after diagnosis.
DISCUSSION: Breast cancer is the primary cause of death in women between the ages of 45 and 55. A woman's risk of developing the disease during her fourth and fifth decades is approximately one in twenty-five. Uninsured women in the 50–64 age range are 40% more likely to die of the disease than their privately insured counterparts. Additionally, uninsured women between the ages of 35 and 49 are 60% more likely to die than privately insured women. Between one and five percent of women afflicted with breast cancer will be diagnosed with metastatic disease at presentation. While some patients with metastasis live years after diagnosis, the mean survival time is between eighteen and twenty-four months. In 2003, 15.6% of Americans were without health insurance and 6.6 million were women in their forties and fifties. Uninsured women and those covered by Medicaid presented with more advanced disease than did privately insured women ($P<0.001$ and $P=0.01$, respectively). Length of survival after diagnosis was also markedly different. Survival time was shorter for uninsured patients than privately insured patients with local disease ($P<0.001$) and regional disease ($P<0.001$). Strikingly, length of survival after diagnosis was comparable among patients with distant metastases regardless of the type of coverage. Although early detection has increased the overall survival rate, women must have access to medical care for successful detection and management. Women who do not have health insurance and are made to bear the out-of-pocket cost of breast cancer screening may defer physician visits until they are finally faced with the burden of metastatic disease.

A SWOLLEN SCROTUM AND YELLOW EYES:CAN OCCAM'S RAZOR BE APPLIED. F.B. Akanbi[1]; E. Anish[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 153520)*

LEARNING OBJECTIVES: 1) Appreciate Hodgkin's Disease as a potential cause of obstructive jaundice 2) Recognize the common clinical manifestations of Hodgkin's Disease 3) Outline the staging work-up and treatment of a patient with Hodgkin's Disease
CASE: A 32 year-old male presented with abdominal pain, jaundice and a 45 lb weight loss over 4 months. His abdominal pain was crampy, periumbilical and had increased in intensity over 1 month. He noticed worsening jaundice and scrotal swelling in the preceding 2 weeks and reported progressive fatigue and malaise. He denied any fever, chills, night sweats, pruritis or bowel habit changes. PMH included prior non-gonococcal urethritis. He denied tobacco use and reported rare alcohol use. He worked as a janitor, but had no significant chemical exposures. FH was negative for cancer or gastrointestinal disorders. Physical exam revealed normal vital signs. He appeared fatigued and jaundiced with icteric sclera. He had large right-sided cervical lymph nodes. His abdomen was distended and he had marked right upper quadrant tenderness. Shifting dullness was detectable. He had no hepatosplenomegaly. He had scrotal swelling with an 8 × 8 cm firm mass on the right. Initial lab values included WBC-22,000, Hgb-8.5, total bilirubin-4.4, AST-192 and Alk Phos-1805. Amylase and lipase were normal. An abdominal CT revealed a 10.5 × 8.6 cm necrotic mass surrounding the porta hepatis, biliary ductal dilatation, significant peri-portal and peri-aortic adenopathy and moderate ascites. Differential diagnosis included cholangiocarcinoma, testicular or pancreatic cancer, lymphoma, sarcoid and HIV. A subsequent scrotal ultrasound revealed a large, complex hydrocele, but no testicular abnormalities and an HIV screen was negative. An excisional biopsy of the cervical adenopathy and a biopsy of the necrotic abdominal mass both confirmed a diagnosis of Nodular Sclerosing Hodgkin's Lymphoma.
DISCUSSION: Hodgkin's Disease (HD) is the most common lymphoma in young adults. The etiology of HD is unclear, although EBV is frequently implicated in its pathogenesis. The diagnosis of HD is based on identification of the Reed Sternberg cell. Presentation is most often with painless enlargement of lymph nodes in the neck, "B" symptoms (fever, nightsweats and weight loss) and mediastinal lymphadenopathy. Unusual presentations of HD include pruritis, cutaneous disorders, CNS involvement, nephrotic syndrome, hemolytic anemia, hypercalcemia or pain in lymph nodes on alcohol ingestion. Jaundice is an unusual presentation of HD, as it may be mistaken for cholangitis, cholangiocarcinoma or pancreatic cancer. Liver function abnormalities may pose a problem when treatment of HD is being considered, since many of the chemotherapy agents used to treat HD are hepatotoxic and are contraindicated in the setting of liver dysfunction. With our patient, chemotherapy was deferred until XRT and steroids had decreased the size of the obstructing mass resulting in normalization of his LFT's.. Staging in HD is by the Cotswold modification of the Ann Arbor classification and includes criteria regarding the presence of a mediastinal mass, bulky nodal disease and subdiaphragmatic disease. Standard treatment for HD is with ABVD (doxorubicin, bleomycin,vincristine and dacarbazine) and XRT with cure rates as high as 80%. However, due to high relapse rates in cases with advanced stage disease, such as our patient, treatment with more intensive, yet still investigational regimens are often utilized.

A TICK BITE AND PALPITATIONS. E.M. Degoma[1]; A.M. Wilson[1]; E. Price[1]; D.P. Lee[1]; P. Wang[1]; A.C. Yeung[1]. [1]Stanford University, Stanford, CA. *(Tracking ID # 150875)*

LEARNING OBJECTIVES: Recognize the dynamic pseudoinfarction pattern of Wolff-Parkinson-White syndrome
CASE: A 32-year-old man presented to our hospital with a recent episode of palpitations. An ECG at that time demonstrated a narrow complex tachycardia which reverted to sinus rhythm after vagal maneuvers. Three days later, he reported dyspnea and malaise and denied chest pain, palpitations, or syncope. He described no risk factors for coronary artery disease, family history of sudden death, or illicit drug use. Six weeks earlier, while traveling in Africa, he suffered an axillary tick bite, followed by fever and myalgias. Cultures were positive for Rickettsia africae and he received a course of doxycycline with symptom resolution. Physical examination revealed a pulse of 77 beats per minute, a blood pressure of 128/64 mmHg, 2 cm axillary lymphadenopathy and an unremarkable cardiac exam. An ECG showed 2 mm concave-upward ST elevations and Q waves in leads II, III, and aVF, tall R waves in V1 and V2, a PR of 120 ms, and a QTc of 413. An echocardiogram showed normal left ventricular size and function. Angiography revealed normal coronary arteries. Serial troponins and serum inflammatory markers were normal, and an MRI did not show focal myocardial enhancement. Diagnostic evaluation using adenosine was conducted to induce preferential conduction through a suspected accessory pathway. Continuous monitoring revealed a prominent delta wave and widening of the QRS, supporting the diagnosis of Wolff-Parkinson-White. Additional ECGs demonstrated a dynamic pseudoinfarction pattern with one taken while the patient was experiencing pain at his catheterization site demonstrating prominent delta waves and new ST elevations in V5 and V6. Electrophysiologic testing revealed a left posterolateral tract and inducible AV re-entrant tachycardia. After radiofrequency ablation, no evidence of conduction via the accessory pathway was noted. A post-procedure ECG demonstrated resolution of the delta waves and ST elevations.
DISCUSSION: Several clinical entities including myocarditis and early repolarization can present with a pseudoinfarction pattern - ST elevations in the absence of coronary thrombosis. Misdiagnosis may lead to unnecessary invasive testing or inappropriate fibrinolytic use. Focal myocarditis has been described following infection with Rickettsia rickettsi, the causative agent of Rocky Mountain spotted fever, and Rickettsia orientalis, implicated in scrub typhus. Rickettsia africae, an important cause of fever in travelers returning from Africa, has not been associated with cardiac tropism or immune-mediated myocardial injury. In WPW, early activation of the ventricles by an anomalous atrioventricular connection produces a wide QRS with a slurred onset, termed a delta wave. Ventricular depolarization away from a given lead results in a negative delta wave resembling an infarction Q wave. Secondary repolarization abnormalities can produce ST elevations mimicking acute transmural infarction. Prolonging AV nodal conduction through vagal maneuvers or adenosine increases differential conduction over the accessory pathway rather than the His-Purkinje system, widening the fusion beat and accentuating the delta wave. Dependence of AV nodal conduction on vagal tone explains the dynamic nature of the WPW pseudoinfarction pattern. In our patient, adenosine administration and groin pain following catheterization heightened parasympathetic tone and facilitated the diagnosis of pre-excitation.

A TRAGIC CASE OF ESCHERICHIA COLI AND THROMBOTIC THROMBOCYTOPENIC PURPURA: LESSONS IN QUALITY IMPROVEMENT AND COMMUNITY-BASED PATIENT SAFETY. K. Luce[1]; M. Panda[1]. [1]University of Tennessee, Chattanooga, TN. *(Tracking ID # 151480)*

LEARNING OBJECTIVES: Discuss the potential dangers of treating Escherichia coli and other hemorrhagic diarrhea pathogens with antibiotics. Consider the diagnostic and therapeutic challenges of a patient in fulminant thrombotic thrombocytopenic purpura (TTP). Discuss our efforts to investigate a source in the community that led to preventative measures.
CASE: A 30-year-old woman presented to her primary care provider (PCP) with one day of bloody diarrhea, fevers and severe abdominal cramping. She believes the symptoms emerged shortly after consuming an Asian take-out meal that she shared with her husband, although he did not develop any symptoms. Recent history also included a course of amoxacillin for a tooth abscess. The PCP sent stool for Clostridium difficile toxin, enteropathogens and ova/parasites and started empiric treatment with flagyl. Physical exam demonstrated a tachycardic, mildly distressed female with significant abdominal pain. Initial laboratory evaluation was significant for a left-shift leukocytosis, normal creatinine, normal platelet count and no evidence of anemia. An abdominal computed tomography (CT) scan demonstrated findings consistent with diffuse colitis. The patient was hospitalized. On hospital day #2 the presumptive diagnosis of sepsis was made, with worsening renal function (creatinine of 1.6 mg/dL), anemia (hematocrit of 35%) and thrombocytopenia (64,000/mm3). A fluoroquinolone was started. Within twelve hours the patient developed seizures, anuric renal failure (creatinine of 3.6 mg/dL) and evidence of hemolysis and worsening thrombocytopenia. At this time thrombotic thrombocytopenic purpura was considered and plasmapheresis was instituted. On hospital day #3 the patient showed improvement in renal and hematological markers, but suffered more seizures despite being placed on anti-seizure medications. Her neurological status continued to deteriorate into a comatose state, despite continued improvements in renal function and blood counts. CT of the head demonstrated diffuse cerebral edema with findings consistent with extensive, severe anoxic brain injury. Radionuclide brain scan confirmed brain death. Two days after death there was a Food and Drug Administration (FDA) report of an outbreak of Escherichia coli O157:H7 from prepackaged Dole salads dated four days prior to the onset of our patient's symptoms. Laboratory evaluation was unable to confirm this organism, although Shiga toxin (produced by Escherichia coli O157:H7) was found. Moreover, the patient's mother recalls her daughter discarding a prepackaged salad several days prior to her illness because "it smelled rancid". A proactive effort was made to contact the grocery store, which confirmed our suspicion since the only pre-packaged salads stocked were from Dole. The specific details of the FDA warning were discussed with a regional patient safety representative for the grocery store chain and the local health department was notified.
DISCUSSION: A tragic case of Escherichia coli O157:H7-induced TTP resulting in anoxic brain injury and death. As we reviewed possible pitfalls in our case, we recognized that the diagnosis of TTP may have been delayed due to confusing the diagnosis with early sepsis. Moreover, caution should be exercised in giving antibiotics to patients with hemorrhagic diarrhea, since it is suggested that antibiotic treatment may worsen TTP. An example of an effort made to affect community patient safety through proactive investigation.

A TRUE PAIN IN THE BACK: DISSEMINATED TUBERCULOSIS IN AN IMMUNOCOMPETENT PATIENT. P. Cheriyath[1]; S. Amil[1]; H. Gadadhar[1]; J. Oaks[1]. [1]University of Tennessee, College of Medicine - Chattanooga Unit, Chattanooga, TN. *(Tracking ID # 151400)*

LEARNING OBJECTIVES: 1. Discuss the work up and differential diagnosis of chronic back pain. 2. Discuss the occurrence of disseminated tuberculosis in an immunocompetent patient.
CASE: A 48-year-old white male presented with complaints of back pain for 2 years which had worsened over 2 months. The pain was located in the mid and lower back, worsened by movement and not relieved by rest. Review of systems was positive only for a 16 pound weight loss over a month. Past history was only significant for substantial alcohol and tobacco use for 20 years. On examination he had stable vital signs, appeared thin and uncomfortable due to pain. Examination of the lungs revealed bilateral rales. Complete neurological system examination was normal. Examination of the back revealed no visible deformity or swelling, with minimal tenderness around the T12 area. Laboratory values revealed a white cell count of 14,000/cu3 with an absolute neutrophil count of 11.8. HIV status was negative. Thoracolumbar radiographs showed a T12 compression deformity. MRI revealed pathologic compression fracture of T12

vertebral body, lytic lesions involving T11 and T12 vertebral bodies and soft tissue swelling at the same level consistent with a para vertebral hematoma. X-ray and CT scan of the chest showed diffuse reticular interstitial process predominantly at upper lung fields. Bone survey revealed an osteolytic compression fracture of the T12 vertebra. Sputum was positive for AFB. Fine needle aspiration biopsy of T 11 vertebral body revealed fragments of cancellous bone, no granuloma, no malignant cells and acid fast stain was negative. Patient was started on anti tubercular therapy followed by open reduction and internal fixation of spine. Decision was made to closely follow the patient as an outpatient.
DISCUSSION: Spinal tuberculosis accounts for about 2% of all cases of TB. Overall bone and joint infection may account for 10 to 35% of cases of extra pulmonary tuberculosis. It is the most common site of extra pulmonary disease. The differential diagnosis of skeletal TB includes subacute or chronic infections due to organisms such as Staphylococcus aureus, brucellosis, melioidosis, actinomycosis, candidiasis and histoplasmosis, depending upon epidemiologic factors. Metastatic disease to bone should also be considered. Infection begins in the antero-inferior aspect of the vertebral body with destruction of the intervertebral disc and adjacent vertebrae. A negative smear for AFB, a lack of granuloma on histopathology, and failure to culture mycobacterium tuberculosis do not exclude diagnosis. Surgery is a useful adjunct to medical therapy for selected patients who require or can benefit from drainage of an abscess, debridement of infected material, and stabilization of vital structures such as the spinal cord. A six- to nine-month regimen (two months of isoniazid, rifampin, pyrazinamide, and ethambutol followed by four to seven months of isoniazid and rifampin) is recommended as initial therapy for all forms of extra pulmonary tuberculosis. Our case describes a previously healthy man with miliary TB. Persistent complaints of backache, which antedated chest symptoms, positive sputum for AFB resulted in a diagnosis of Pott's disease.

A UNIQUELY SYMBIOTIC RELATIONSHIP: THERAPEUTIC PHLEBOTOMIES FOR THE TREATMENT OF HEREDITARY HEMOCHROMATOSIS USED FOR ALLOGENEIC BLOOD DONATION. B.M. Tonne[1]; R.A. Sacher[1]; G.W. Rouan[1]. [1]University of Cincinnati, Cincinnati, OH. *(Tracking ID # 154371)*

LEARNING OBJECTIVES: 1.Diagnose hereditary hemochromatosis. 2.Prevent long term sequelae of hereditary hemochromatosis. 3.Recognize the potential for blood donation by hereditary hemochromatosis patients.
CASE: A generally healthy 57 year old white male presented as a new patient with no complaints. His past medical history was significant for hypertension, controlled with Benazapril 10 mg daily. His family history was significant for a questionable myocardial infarction in his mother and a brother with hemochromatosis. Review of systems was notable for blood donation about 3 times yearly. Physical exam was unremarkable. Pertinent lab results revealed a normal CBC and LFT's, serum iron of 192 mcg/dL (normal 50–160 mcg/dL), total iron binding capacity of 294 mcg/dL (normal 245–400 mcg/dL), transferrin saturation of 65% (normal 20–55%), and serum ferritin of 667.9 ng/mL (normal 22–322 ng/mL). PCR testing revealed homozygosity for the C282Y mutation of the HFE (hemochromatosis) gene. The patient was diagnosed with asymptomatic hereditary hemochromatosis. He was placed on a therapeutic phlebotomy regimen to remove excess iron and his blood was used for donation.
DISCUSSION: Hereditary hemochromatosis (HH) is the most common identified genetic disorder among Caucasian patients. It is an autosomal recessive disorder caused by a mutation in the HFE gene. The result is excessive intestinal iron absorption and deposition in end organ sites. HH typically becomes clinically evident when total body iron exceeds 20 g (normal 3–4 g), which occurs at age 40–50 in males and later in females. It may manifest as hepatic cirrhosis, hepatocellular carcinoma, diabetes mellitus, arthropathy, heart disease, hypogonadism, skin hyperpigmentation, and hypothyroidism. With early diagnosis, the sequelae of HH are effectively prevented with therapeutic phlebotomy, as in this case. The screening test of choice is the transferrin saturation, which has a sensitivity of 92% and specificity of 93% for HH. Patients with a positive test and all those having a first degree relative with HH should receive confirmatory genotypic testing. It is noteworthy that HH alone is no longer a contraindication to blood donation from otherwise eligible patients. Since 1999, the FDA has allowed collection centers to apply for variances on regulations prohibiting the use of blood obtained from HH patients for donation. A variance requires that therapeutic phlebotomies are provided without charge, even if potential donors are found to be ineligible. However, only a small percentage of centers have applied for and received variances. It is estimated that therapeutic phlebotomies on HH patients may add nearly 3 million additional units of blood each year to the average yearly donation pool of 15 million units. Therefore, this underutilized resource could greatly augment the national blood supply by as much as twenty percent.

ACQUIRED VISCERAL ANGIOEDEMA AS A CAUSE OF CHRONIC ABDOMINAL PAIN. E. Maldonado[1]. [1]Lehigh Valley Hospital, Allentown, PA. *(Tracking ID # 156964)*

LEARNING OBJECTIVES: Recognize visceral angioedema as a cause of chronic episodic abdominal pain. Recognize the clinical and diagnostic clues of the disorder. Identify medical conditions associated with acquired angioedema.
CASE: A 75-year-old woman presented with a 6-year history of episodic, diffuse abdominal pain. The pain was described as severe and "crampy". It was abrupt in onset and self-limited. Associated symptoms included watery diarrhea and nausea. Symptoms were unrelieved by bowel movements, antispasmodics, acid suppressants and a trial of a lactose free diet. Past medical history was not contributory. Medications included pantoprazole, ferrous sulfate and calcium citrate. The patient required several hospital admissions. During the 2nd and 4th hospitalizations contrast abdominal CT scans were obtained and revealed colon and small bowel wall edema as well as mesenteric ascites. Outpatient studies included upper and lower endoscopy, abdominal MRA and ultrasound, DESIDA Scan, upper GI series, and an ECG all of which were unrevealing. Laboratory studies were normal. At one point, the patient presented with sudden onset of swelling of the lips without airway compromise or abdominal symptoms. Family and allergy history were reviewed and complement levels were ordered. These revealed C4 <1.3, C2- 5.4, C1q- 8, which was suggestive of a diagnosis of acquired angioedema. During her fourth admission, complement levels were C4 <1.3, C2- 4.3, C1-INH functional- 29 and quantitative- 9 confirming the diagnosis.
DISCUSSION: Angioedema is the result of dermal extravasation of fluid leading to localized edema. It is due to the release of inflammatory mediators that increase vascular permeability. Skin, gastrointestinal tract and respiratory tracts are most commonly involved. It rarely presents as isolated as visceral edema. Angioedema can either be idiopathic or induced. Two rare entities result from deficiency of C1 esterase inhibitor (C1-INH): hereditary angioedema (HAE) and acquired angioedema (AAE). In AAE type 1 there is increased destruction of C1-INH whereas in AAE type 2 autoantibodies against C1-INH leading to its inactivation. AAE occurs in patients with rheumatologic conditions and B-cell lymphoproliferative malignancies, such as leukemia, T-cell lymphoma, multiple myeloma and essential cryoglobulinemia. It has also been reported with carcinoma, infections and vasculitides. Without mucocutaneous manifestations and/or a family history, the diagnosis is a difficult one to make. It requires a high index of suspicion and the exclusion of other disorders. The literature on visceral angioedema consists mostly of case reports. The most common symptoms included abdominal pain, nausea, vomiting and diarrhea. Physical findings included diffuse abdominal tenderness with or without rebound, hypoactive bowel sounds, severe hypotension and cutaneous swelling. Significant CT findings were thickening of the small-bowel wall with increased contrast enhancement; depiction of more layers of the small-bowel wall than normal, prominent mesenteric vessels, ascites and fluid accumulation in the small bowel or together in the small bowel and the colon. Low serum levels of C4 and C1-INH or diminished C1-INH functional activity established the diagnosis. A low level of C1 could differentiate AAE and HAE as this is found in the acquired form but not in the hereditary type.

ACUTE ADULT PARVOVIRUS B19 INFECTION PRESENTING WITH ARTHRALGIAS, OLIGURIA AND EDEMA WITH MINIMAL CREATININE ELEVATION. H.F. Ryder[1]; C. Block[1]. [1]Dartmouth College, Lebanon, NH. *(Tracking ID # 153041)*

LEARNING OBJECTIVES: 1) Recognize human parvovirus B19 as a cause of oliguria without concomitant creatinine elevation. 2) Identify distinguishing clinical features of acute adult parvovirus B19 infection.
CASE: A 35-year-old insulin-dependent diabetic man was admitted to the general medicine service for oliguria, proteinuria, and renal insufficiency of five days duration. He had been otherwise healthy until three weeks prior when he had an upper respiratory infection. He had recovered completely but then presented to an outside hospital with nausea and vomiting. He had fevers, chills, and diarrhea; he also noted right hand and wrist pain. He was oliguric and became grossly edematous. His serum creatinine level increased from 1.0 mg/dL to 1.3 mg/dL and he was transferred to our institution. On transfer, physical exam was remarkable for 2+pitting edema of upper and lower extremities and non-blanching petechiae on the eyelids. Urine analysis showed proteinuria (protein >300 mg/dL, urine protein/creatinine ratio <0.5 mg/day), hematuria, renal cell casts, and granular casts. Renal ultrasonogram was unremarkable, bladder scan revealed no urine retention but bilateral pleural effusions were found on right upper quadrant ultrasound and confirmed by chest CT. Total complement Ch50 was low at 29 u/ml, (normal range 30–75); as was complement factor C3, 67 mg/dL; (normal range 90–180). Complement factor C4 was normal. Parvovirus IgG titer was 3.67 (normal 0–1.10) and IgM titer was 8.13, suggesting recent infection. Over the course of his five-day hospital stay, the patient received IV furosemide with increase in his urine output and eventual normalization of his serum creatinine to a baseline of 1.0 mg/dL. Kidney biopsy was not performed due to normalizing creatinine. Plain films of the right wrist and hand were unrevealing and pain and swelling gradually resolved. His edema had almost completely resolved on discharge; he continued to be nauseated but did not vomit. Six months after his hospitalization his symptoms had completely resolved.
DISCUSSION: Human parvovirus B19 (PVB19), a non-enveloped single-stranded DNA virus and member of the erythrovirus genus, was discovered in 1975 in the serum of asymptomatic blood donors. It is best known as the cause of erythema infectiosum or Fifth disease, a benign, self-limited exanthematous illness of childhood. Other commonly reported presentations include hydrops fetalis, transient aplastic crisis and symmetrical polyarthropathy. It has been thought that most cases of PVB19 in healthy adult hosts are asymptomatic, however a review of the literature has revealed a substantial number of cases of adults with generalized edema, proteinuria, hematuria, hypocomplementemia with normal renal functions. Patients typically develop generalized edema within 2 weeks of flu-like symptoms. The clinical characteristics of patients with PVB19 include acute nephritic syndrome, hypocomplementemia and spontaneous recovery. Clinical manifestations of acute glomerulonephritis (systemic edema, proteinuria, hematuria and hypertension) without evidence of impaired renal functions may be a common presentation of acute adult infection with PVB19. Acute, symptomatic PVB19 in the adult population may be underdiagnosed and should be considered in the differential diagnosis of acute nephritic syndrome.

ACUTE APPENDICITIS WITH AN ATYPICAL PRESENTATION AND EQUIVOCAL CT SCAN. F.Y. Lin[1]; G.H. Tabas[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 157117)*

LEARNING OBJECTIVES: 1. Recognize a patient with an acute surgical abdomen despite confounding history and radiographic findings. 2. Review diagnostic methods in acute appendicitis.
CASE: A 33-year-old male with a history of irritable bowel syndrome (diarrhea variant) and illicit substance use was admitted for severe abdominal pain starting 12 hours prior to admission. His pain originated from the right side of his abdomen before generalizing diffusely. He described his pain as constant, with sporadic exacerbations. The pain increased with movement, making the subsequent ambulance ride to the emergency room difficult. Following the onset of pain, he experienced nausea, emesis, and subjective fever. He ate pizza just prior to the onset of symptoms and reported being hungry during the interview. The patient presented similarly 18 months ago, when he was diagnosed with irritable bowel syndrome after a normal endoscopy, colonoscopy, and CT of the abdomen and pelvis. On exam, the patient appeared to be in mild distress due to pain, and was lying still and supine. Vitals signs were: BP 120/90, temperature 36.6, pulse 78, respiratory rate 20, and weight 90.6 kilograms. His abdomen was grossly distended and diffusely tender to light palpation, with guarding and hypoactive bowel sounds. Psoas sign was negative. Rectal exam including stool guaiac was negative. Initial CT of the abdomen and pelvis showed an appendix with borderline diameter, partially opacified with contrast, without signs of inflammation, and unchanged from 18 months ago. WBC was 6.6 with 63% neutrophils, ALT 92, and lipase 395. A urinalysis revealed 1–5 rbc, 1–5 wbc, and a urine toxicology screen was positive for amphetamines/methamphetamines, marijuana, and opiates. High clinical suspicion for acute appendicitis led the medical team to repeat a CT scan of the abdomen and pelvis. This study was preliminarily read as unchanged, but on further review revealed inflammation of the appendix and surrounding fatty tissue. The patient underwent laparoscopic appendectomy revealing a necrotic, perforated appendix.
DISCUSSION: The diagnosis of acute appendicitis combines clinical, laboratory, and radiographic findings. CT scanning has become an accepted diagnostic modality–it is easy to obtain, and has good sensitivity, specificity, and accuracy (83–97%, 93–98%, 92–97% respectively). Typically, enteral or rectal contrast plus IV contrast is used. Enteral or rectal contrast opacifies the terminal ileum and cecum, and subsequently assesses the appendix. A diseased appendix usually prevents contrast material from filling it due to inflammation and edema. IV contrast enhances the wall of the appendix, revealing wall thickening or stranding. The filling of our patient's appendix with contrast was misleading. "Classic" clinical findings individually lack sensitivity and specificity. For example, a recent review quotes the following sensitivities and specificities: fever (67, 69%), ilio-psoas sign (16, 95%), nausea (58–68%, 37–40%), vomiting (49–51%, 45–69%), pain before vomiting (100, 64%), and anorexia (84, 66%). Despite the success of CT imaging in the work-up of acute appendicitis, timeliness of the diagnosis still requires that findings on imaging be combined with our history, physical, and laboratory findings.

ACUTE BILATERAL PARESTHESIAS WITH ABNORMAL EKG IN AN INTERNATIONAL TRAVELER. N.B. Mehta[1]; A. Atreja[1]. [1]Cleveland Clinic Foundation, Cleveland, OH. *(Tracking ID # 154650)*

LEARNING OBJECTIVES: 1. Assess the differential diagnosis of sudden onset diffuse sensory symptoms 2. Recognize the neurologic side effects of commonly prescribed anti-malarial drug mefloquin 3. Recognize the importance of educating international travelers regarding side effects of anti-malarials
CASE: Initial presentation: A 41-year-old previously healthy male a few days after his arrival to India, woke up with tingling in the ulnar distribution of his left arm and neck and lightheadedness. He had no chest pain, dyspnea or nausea. There was a family history of CAD. Only medication was mefloquin. Examination was unremarkable. Serial EKGs showed persistent T inversions in V2 to V5 and aVL. An echocardiogram was normal. Serial cardiac enzymes were normal. A CT angiogram was normal. That night he developed loose stools and also got recurrence of symptoms in the right arm. A neurology consultation revealed a normal exam but raised a concern for cervical myelopathy. MRI of the C-spine and posterior fossa was unremarkable. A work up for metabolic abnormalities including serum electrolytes, magnesium, ionized calcium, vitamin B12 and TSH was normal. At this point the symptoms almost completely resolved and further work up was not deemed necessary. Subsequent course: About a week later, the symptoms reappeared. This prompted a reevaluation of possible precipitating factors revealing that he had taken a weekly dose of mefloquin the day prior to the onset of his symptoms on both occasions. Review of literature revealed multiple neurologic side effects of mefloquin including sensory polyneuropathies. Mefloquin was discontinued with no further recurrence of symptoms. EKG a month later showed persistent T wave inversions.
DISCUSSION: The initial presentation of left arm paresthesia, lightheadedness and neck symptoms with EKG changes was concerning for acute coronary syndrome. The negative enzymes and CT angiogram, ruled this out. Alternatively neurologic conditions like TIA, neuropathy or radiculopathy were possibilities. Once the symptoms spread to the opposite side myelopathy was a prime consideration but a normal MRI ruled that out. Guillian-Barre syndrome was a possibility especially with the history of diarrhea and EKG changes. The subsequent course though was not consistent with this (resolution of symptoms with recurrence a week later). Multiple sclerosis, mononeuritis multiplex, brachial neuritis and thoracic outlet syndrome were all in the differential. Here the temporal association made mefloquin the most likely cause of the symptoms. While mefloquin can cause EKG changes, T wave inversions have not been described and in this case they were probably pre-existent. The symptoms caused severe anxiety and inconvenience to the patient and his family during their vacation. Increasing global travel has led to patients seeking health recommendations from their internists. Mefloquin is commonly used for malaria prophylaxis. Since the 1980s about 15 million travelers have used mefloquin for malaria prophylaxis. 1/3 of travelers using mefloquin reported neuropsychiatric adverse effects. 6% of all mefloquin users reported at least one adverse event serious enough to require medical advice. Generalists need to be more aware of the side effect profile so that they can educate patients and prevent undue anxiety, inappropriate work up and wrong diagnoses.

ACUTE HEPATITIS C IN THE OUTPATIENT SETTING. C.P. Crosland[1]; R.A. Benjamin-Johnson[1]. [1]Brigham and Women's Hospital, Boston, MA. *(Tracking ID # 151892)*

LEARNING OBJECTIVES: 1. Diagnose acute hepatitis in the outpatient setting 2. Counsel patients regarding prevention of transmission 3. Know whom to treat in the acute phase
CASE: 24 year old previously healthy male presented to ER with several weeks of malaise and one week of icteric sclerae and dark yellow urine. He denied abdominal pain, recent travel, high risk sexual behavior, medication use, alcohol use or IV drug use. Exam was notable for icteric sclerae and jaundice without abdominal tenderness or hepatosplenomegaly. LFTs revealed a pattern consistent with hepatocellular damage (ALT 1980, AST 988, total bilirubin 3.0 and direct bilirubin 1.6). Abdominal ultrasound was normal, and patient was referred to PCP for follow-up. Viral hepatitis was suspected. Hepatitis serologic studies were sent, including: hepatitis A IgM and IgG, hepatitis B surface antigen, antibody and core antibody, and hepatitis C antibody. To reduce risk of transmission, the patient was counseled: a) to maintain good hygiene with frequent hand washing to minimize transmission of hepatitis A, spread by fecal-oral route; b) to avoid intimate contact including kissing and intercourse as well as sharing of tooth brushes, razors and drinking glasses to minimize transmission of hepatitis B; and c) to avoid sexual intercourse and any blood to blood contact to prevent transmission of hepatitis C. Test results were negative for hepatitis A and B, but hepatitis C antibody was reactive. Hepatitis C viral load was 24,077 IU/ml. Arrangements were made for GI evaluation, for viral genotyping and consideration of treatment. Patient was also offered hepatitis A and B vaccines and HIV testing. Unfortunately, patient was lost to follow-up after failing to return to clinic despite repeated attempts to contact him.
DISCUSSION: Viral hepatitis commonly presents in the outpatient setting, so it is important for primary care doctors to know which tests to order to distinguish among the common types. While awaiting diagnosis, it is also important to counsel patients regarding prevention of transmission. In this case, acute hepatitis C was diagnosed. Though chronic hepatitis C infection is fairly common, affecting approximately 2.7 million people in the US, diagnosis in the acute phase is uncommon, since the majority of people infected with hepatitis C have either no or mild symptoms. When acute symptoms are present, as in this case, they often consist of jaundice, malaise and nausea. While up to one quarter of patients with acute hepatitis C spontaneously clear the virus, those with symptoms being the most likely, the majority will go on to develop chronic hepatitis C. Studies have shown that treatment of hepatitis C during the acute phase has a high rate of cure (90%), while treatment of chronic hepatitis C has lower cure rates (50%), though this varies with genotype. Patients are often observed closely in the first three months, and interferon therapy is usually reserved for those patients who do not clear the virus spontaneously. In all patients, regardless of initiation of antiviral therapy, HIV testing should be offered, and vaccination against hepatitis A and B should be provided to minimize future risk of fulminant hepatitis. In this case, consideration of hepatitis C in the differential diagnosis of acute hepatitis, despite lack of known risk factors, allowed for diagnosis during the acute phase, providing an opportunity to obtain early and effective treatment.

ACUTE MENINGOCOCCAL MYOCARDITIS. H.G. Lo[1]. [1]Brigham and Women's Hospital, Wellesley, MA. *(Tracking ID # 154319)*

LEARNING OBJECTIVES: Recognize atypical clinical features in a case of Neisseria meningitidis.
CASE: A 29-year-old man with no prior medical problems suddenly developed generalized weakness and fatigue, shortly followed by diffuse headache, nausea, vomiting, stiff neck, myalgias, arthralgias, and photophobia, without dyspnea, palpitations, or chest pain. Headache and nausea persisted the following morning. At presentation to the emergency department, the patient had petechiae in the left antecubital fossa which spread to the palms and soles of all extremities and across his abdomen. Social history was significant for tobacco use and travel to Mexico two months ago. He denied living in close, crowded quarters or having recent sick contacts and had received a documented meningococcal vaccination eight years ago. On admission, the patient was febrile, and WBC levels were elevated in both the blood and cerebrospinal fluid. A non-contrast head computed tomography revealed no acute pathology, but an electrocardiogram revealed PR and ST segment changes suggestive of pericarditis. Serum troponin and creatine kinase levels were markedly elevated. The patient was started on empiric ceftriaxone, vancomycin, doxycycline, and dexamethasone, with cultures pending. Transthoracic echocardiography did not reveal a pericardial effusion, a compromised left ventricular ejection fraction or segmental wall motion abnormalities. A CH50 complement analysis revealed no deficiency. On hospital day three, cerebrospinal fluid cultures remained negative, but blood cultures revealed Neisseria meningitidis serogroup B, and antibiotic coverage was narrowed to ceftriaxone with dexamethasone. This treatment resulted in defervescence with resolution of rash, neurological symp-

toms, and EKG changes. Levels of troponin, creatinine kinase, and WBC trended downwards, and he was counseled to stop smoking and eventually discharged on oral ciprofloxacin.
DISCUSSION: Neisseria meningitidis is a life-threatening illness and a leading cause of bacterial meningitis and sepsis in the US. Early diagnosis and treatment is crucial, but can be complicated and delayed by an atypical presentation. While nausea, nuchal rigidity, and rash suggested Neisseria meningitidis, a clear diagnosis was hindered by uncharacteristic neurological and cardiac findings in a vaccinated adult. Particular attention must also be paid to the strain of meningococcus. Serogroup B, which is not covered by the meningococcal vaccine, poses a deadly threat to the young and immunocompromised, and all close contacts need to be treated to avert a deadly outbreak.

ACUTE MYOCARDITIS DIAGNOSED BY CARDIAC MRI. S. Toh[1]; J. Miller[1]. [1]Temple University, Philadelphia, PA. *(Tracking ID # 153763)*

LEARNING OBJECTIVES: 1. Recognize that the clinical presentation of acute myocarditis can mimic acute coronary syndrome. 2. Recognize the difficulties in diagnosing myocarditis and the utility of MRI as a non-invasive tool for the evaluation of inflammatory heart disease such as myocarditis.
CASE: A 19 yo man with no PMH presented three hours after waking from sleep with substernal chest pressure associated with dyspnea, diaphoresis and nausea. The pain was not positional, and he had no associated orthopnea or PND. This was preceded four days earlier by URI symptoms, diarrhea and fever. On exam, he was afebrile. Cardiac exam was regular without murmurs, rubs or gallops. The rest of his exam was unremarkable. An EKG showed inferolateral ST elevation. Cardiac biomarkers peaked at CK 660 U, CK-MB 94 ng/ml, troponin I of 11 ng/ml six hours later. He was admitted to the CCU with suspected acute pericarditis versus viral myocarditis. However, elevated cardiac enzymes along with focal EKG findings made it difficult to exclude an acute, inferolateral myocardial infarction. Aspirin, beta-blocker, heparin and antiplatelet therapy were given. Coronary angiography showed normal coronary arteries. His cardiac enzymes trended to normal levels. Serologic tests for enterovirus, HSV, CMV and atypical bacteria were all negative. Gadolinium-enhanced cardiac MRI (CMR) showed delayed uptake of contrast with a subepicardial and intramyocardial patchy pattern that spared the subendocardium and was localized to the posterior and lateral regions, highly suggestive of myocarditis. He was discharged home after 4 days in stable condition.
DISCUSSION: Myocarditis is inflammation of the myocardium in response to various infectious, chemical or physical agents. The diagnosis of acute myocarditis can often be clinically difficult. Although acute pericarditis or viral myocarditis was epidemiologically more likely in our patient, the rise in cardiac markers as well as the regional distribution of the ST elevations made it difficult to rule out acute coronary syndrome. The difficulty in diagnosing myocarditis lies in the absence of specificity and sensitivity of the diagnostic techniques used. Systematic biochemical measurements are not diagnostic and an increase in cardiotropic virus antibodies only reflects a response to a recent viral infection, not active myocarditis. Endomyocardial biopsy, considered the diagnostic gold standard, is associated with a risk of perforation as well as with sampling errors due to the focal involvement of the myocardium, which reduces its diagnostic sensitivity. CMR can be used to identify patients with active myocarditis in the setting of suspected myocardial infection or new onset heart failure. Accumulation of contrast in the myocardium occurs as a consequence of myocyte membrane breakdown resulting from the inflammatory process. Myocarditic infiltrations tend to occur in a peculiar pattern, predominantly in the lateral wall, originating from the epicardial surface of the ventricular wall, but never in the endocardium; whereas in MI, the contrast enhancement is seen in the subendocardial border in a coronary distribution. An intriguing observation is that the contrast was localized to the epicardial portion of the inferolateral wall of our patient, correlating to the distribution of the most severe ST elevations seen on the EKG. Whether the extent of myocardial damage as measured by CMR, correlates with long term outcome measures remains to be investigated.

ACUTE RENAL FAILURE ASSOCIATED WITH LEGIONELLA PNEUMONIA IN HEART TRANSPLANT PATIENT. G. Sharma[1]; J. Miller[1]. [1]Temple University, Philadelphia, PA. *(Tracking ID # 153826)*

LEARNING OBJECTIVES: 1. Review the risk factors associated with Legionella pneumonia. 2. Review the multi-organ manifestations of Legionnaire's disease. 3. Review the current guidelines in diagnosis and treatment of Legionella pneumonia.
CASE: A 54 yo man s/p heart transplant 10 years ago, HTN, DM and chronic renal insufficiency with creatinine (Cr) of 2.2 mg/dl presented with 4 days of fevers, dyspnea and diarrhea. He was febrile to 101.5°F with pulse 64, BP 114/75, RR 20 and O2 sat 92% on RA. He had decreased breath sounds on the right side with bibasilar crackles on lung exam. Labs were notable for Na of 129 mmol/L (N = 135–145 mmol/L) and WBC of 17500/mm^3 with 10% bands. CT scan of the thorax showed large right lower lobe infiltrates. The patient was treated with ceftriaxone and azithromycin. Over the next 48 hours, the patient improved symptomatically but developed acute renal failure(ARF). His BUN/Cr rose from 25/2.8 mg/dl to 120/13.3 mg/dl (N = 10–20/0.7–1.4 mg/dl). Urinalysis showed blood and muddy brown granular casts.Pulmonary-renal syndrome and rhabdomyolysis were ruled out by negative antineutrophil cytoplasmic antibodies ,anti-glomerular basement membrane antibodies and normal creatinine phosphokinase respectively. The patient's acute hepatitis panel,cryoglobulins were also negative but Legionella urine anitgen assay to exclude atypical pneumonia was pending. The patient was dialyzed and his renal function gradually recovered to baseline. Blood, stool, urine and sputum cultures from admission were all negative. Azithromycin was continued for 14 days during which his urinary Legionella antigen assay came back positive. Although no renal biopsy was performed, the patient's renal failure was thought to be a manifestation of Legionella infection superimposed on chronic nephrotoxicity of immunosuppressants
DISCUSSION: Legionella pneumonia causes 15% of community acquired pneumonias. It is associated with chronic lung disease, immunosupression, exposure to contaminated potable water source and aerosol machines in hotels, hospitals and cruise ships. Legionnaires' disease is a multisystem illness with pulmonary and GI complications including watery diarrhea with serum sodium <130 mmol/L, myocarditis, pericarditis, prosthetic valve endocarditis and central nervous system complications such as lethargy, stupor etc.ARF seen in 15% of cases with a significant mortality of 50%. ARF is manifested by azotemia, hematuria or proteinuria. Although the pathogenesis of ARF is not clear, renal biopsy usually reveals acute tubular necrosis. Sputum culture, direct fluorescent antibody testing in sputum or blood and urinary antigen assay are methods for diagnosis. Urinary antigen test is fast, easy to obtain, stays positive even after antibiotic therapy with specificity of 100% and sensitivity 79%. However, it detects only Legionella pneumophila serogroup 1, missing other serogroups that may cause infection. Azithromycin or fluroquinolones are the drugs of choice and duration of therapy is 10–14 days. Legionnella pneumonia is overtreated and underdiagnosed but with the introduction of rapid urinary antigen assays this trend can be reversed. Broader and faster antigen assays are the future of earlier diagnosis.As current methods of diagnosis take weeks, treatment should be started based on clinical suspicion.

ADVENTURES OF A TRAVELLING CATHETER: HYDROTHORAX FOLLOWING SECONDARY MIGRATION OF A CENTRAL VENOUS CATHETER. B. Arora[1]; S. Ketha[1]; F.Q. Ain[1]; P. Matmari[1]; R. Jindal[1]; P. Koneru[1]; H. Friedman[1]. [1]St. Francis Hospital, Evanston, IL. *(Tracking ID # 155931)*

LEARNING OBJECTIVES: 1. To recognize the importance of radiographic follow-up of central venous catheter placement. 2. To recognize that secondary migration is a potential complication of central venous catheters. 3. To recognize that hydrothorax and hemothorax are rare but important complications of central venous catheter migration.
CASE: An 83-year-old woman with a past medical history significant for dementia and diabetes was brought to the emergency department with a history of decreased responsiveness for a few hours. Initial work up revealed hypotension (BP:90/60), hyperglycemia (blood sugar of 700), ketonemia and an anion gap metabolic acidosis. A diagnosis of diabetic ketoacidosis was made. As the patient did not have a good peripheral venous access, a central venous catheter was placed in the right internal jugular vein. Chest radiograph done immediately afterwards showed that the tip of the catheter was located in the superior venacava.The patient was started on an insulin drip and I.V.fluids through the right internal jugular triple lumen catheter. During the next three hours her blood sugar came down to 450 and her blood pressure improved. However the next accucheck done an hour later showed a blood sugar of 600. Insulin drip rate was increased but the blood sugar didnot decrease. Also, blood could not be drawn from the central venous catheter. Hence a follow up chest radiograph was ordered which showed complete opacification of the right hemithorax. The catheter tip was no longer in the superior venacava. A diagnosis of hydrothorax due to secondary migration of the central venous catheter was made. The catheter was removed and a chest tube was put in which drained 1800cc of serous fluid.
DISCUSSION: Secondary migration of a central venous catheter is an unusual complication that often goes unrecognized. We report a case of delayed onset hydrothorax following central venous catheterization. To date there have been very few case reports of this complication having occurred after central venous catheter placement Our case involved the right internal jugular vein percutaneous insertion site. Chest roentgenogram performed immediately demonstrated that the catheter tip was juxtaposed against the superior vena cava wall. Although the catheter functioned well for several hours, we believe that it migrated secondarily, resulting in delayed perforation of the vessel and extravasation of infused fluid into the pleural cavity. To avoid this complication we recommend that central venous catheters be checked routinely for position, with the catheter tip being parallel to the vessel wall. This case emphasizes the fact that hydrothorax can occur long after successful catheter insertion, and it demonstrates the need to have continued suspicion of the possibility of this occurrence.

ADVOCATING FOR A PATIENT WITHOUT DECISION-MAKING CAPACITY OR A SURROGATE DECISION-MAKER. D.R. Sanchez[1]; P.W. Helgerson[2]. [1]Stanford University, Stanford, CA; [2]Palo Alto VA Medical Center, Palo Alto, CA. *(Tracking ID # 154724)*

LEARNING OBJECTIVES: 1. Identify how to approach the acute medical care of patients lacking both decision-making capacity and a surrogate decision-maker. 2. Recognize the importance of prospectively documenting a patient's wishes with respect to end-of-life care and identifying a surrogate decision-maker.
CASE: An 81 year old man with dementia and multiple cardiovascular comorbidities had been living in an extended-care facility for two years when he experienced a fall with resultant hip pain and concern for fracture. Upon further work-up a urinary tract infection was found and a chest CT revealed a seven centimeter right lower lobe density eroding into the patient's thoracic vertebrae, most likely a malignancy or large abscess. At the time of admission the patient was alert but disoriented and not able to participate in discussions of his care,

reflecting his deterioration from mild to moderate dementia documented one month prior to a state of agitated delirium. Conservative therapy to control delirium with neuroleptics and treat infection with broad-spectrum antibiotics was met with gradual decline in his condition. A clinical decision about whether to initiate more invasive diagnostic and therapeutic measures versus initiating palliative care was necessary. Attempts at identifying a surrogate decision-maker proved difficult as he had been estranged from his family for 57 years. A sister with Alzheimer's was identified, but she could not contribute meaningfully to the decision-making. The medical team was thus compelled to make decisions based on his previously expressed wishes concerning aggressive treatment and end-of-life care. The patient had a documented DNR/DNI status, and discussions with his primary care doctor revealed his articulation for comfort care in the past when he was failing to thrive after a right lower limb amputation. As this was the best judgment of his wishes in the current, analogous situation, the decision was made by the medical care team and nursing staff to institute a palliative care regimen including further control of pain and delirium. The case was discussed with the chair of the bioethics committee at the VA who agreed that the treatment plan was in accordance with existing VA policies.
DISCUSSION: The patient who lacks decision-making capacity and has no surrogate decision-maker is placed in a vulnerable position when confronted with end-of-life issues. In such cases, the previously stated wishes of the patient, in all forms available, must be sought and honored. If these wishes are unknown, all reasonable efforts to locate a surrogate decision-maker must be made. Once these avenues have been exhausted, it is left up to the medical team to provide care that they deem to be in the best interest of the patient. If a consensus is not reached within the medical team, including nursing and ancillary services, the hospital ethics committee is a valuable resource to provide guidance of associated ethical principles, institutional policies, and act as a patient advocate if necessary. Physicians, both in the primary care clinics and at hospital admission, have an obligation to prospectively identify patients whose medical condition puts them at-risk for losing capacity to participate in their medical decisions. Initiating end-of-life care discussions to document the patient's wishes as well as identifying surrogate decision-makers is paramount to ensuring that patients retain the ability to guide their care in accordance with their wishes.

AFRICAN TICK BITE FEVER: AN UNCOMMON DISEASE PRESENTING WITH COMMON SYMPTOMS. A. Patnaik[1]; A. Virk[1]. [1]Mayo Clinic, Rochester, MN. *(Tracking ID # 157045)*

LEARNING OBJECTIVES: 1. Recognize clinical features of African tick-borne illnesses in non-native settings 2. Diagnose and treat African tick-bite fever based on characteristic skin lesions
CASE: A 52-year-old male carpenter from Minnesota presented to the Emergency Department with a six-day history of fever, headache and myalgias. The pt had returned from a three-week safari trip to Sub-Saharan Africa three days ago. He sustained multiple thorn puncture wounds while hunting wild animals in the forests of Zimbabwe. He denied drinking unboiled or unbottled water or unpasteurized dairy products or ingesting any uncooked meat products. He also denied mosquito, tick or insect bites or swimming in fresh waters or exposure to sexually transmitted diseases. He had visited the travel clinic three months prior to his trip and was up-to-date on all required vaccinations and underwent chemoprophylaxis for malaria. Upon his return to the US, the patient presented to his primary care physician with flu-like symptoms and rash. He was started on cephalexin for presumed cellulitis, but continued to deteriorate over the next two days. The patient was febrile but hemodynamically stable upon arrival to the floor. Examination of the skin revealed two black eschars with surrounding non-blanching erythema over the left deltoid and left lateral ankle, respectively, with no surrounding lymphangitic streaking or lymphadenopathy. The patient had bright red conjunctiva and cardiac examination revealed grade I/VI crescendo-decrescendo murmur in the aortic area. Laboratory investigation revealed an absence of leukocytosis and blood, urine, stool cultures and multiple malarial thick-and-thin smears were all negative. Despite the broad differential diagnosis for this particular febrile illness, the travel history and physical findings were quite suggestive of African tick bite fever. The patient was treated with a two-week course of doxycycline and clinically improved over the next few days.
DISCUSSION: ATFB (African Tick-Bite Fever) is caused by Rickettsia africae, a pathogen transmitted by infected cattle ticks (Amblyomma hebraeum) in rural areas of southern Africa. ATFB is generally a mild disease with non-specific flu-like symptoms such as fever, headache and myalgias in greater than 80% of patients. Since the average incubation period for ATFB is six days, it is easy for patients to acquire illness in Southern Africa and then manifest their first symptoms of illness after traveling to another destination several thousand miles away. Multiple ulcerated skin lesions called tache noires are hallmarks of the illness. The diagnosis is usually made on clinical signs and symptoms following travel to an endemic area, and often confirmed by serology, antigen detection or PCR usually one two weeks after the onset of illness and treatment has begun. Skin biopsy can also be used to detect rickettsiae in endothelial cells using immunofluorescence or immunoperoxidase methods. Patients are typically treated with doxycycline 200 mg per day for 7–15 days. Alternative agents include chlorampenicol and fluroquinolones. This case illustrates the importance of taking a good travel history in patients presenting with non-specific symptoms suggestive of an infectious illness. The findings also underscore the importance of vectorborne illness as a topic of pretravel health-care counseling and post-travel diagnosis for patients returning from sub-Saharan Africa.

AGAINST ALL ODDI'S. N. Kumar[1]; S. Bajaj[1]; S. Konrad[1]; K. Pfeifer[1]. [1]Medical College of Wisconsin, Milwaukee, WI. *(Tracking ID # 153835)*

LEARNING OBJECTIVES: 1. Recognize the clinical and family history pattern suggestive of hereditary pancreatitis. 2. Emphasize the importance of maintaining a comprehensive approach to patient care free of bias from previous clinical assessments and reimbursement agencies.
CASE: A 25 year-old African-American gentleman with a four-year history of multiple admissions for abdominal pain presented with recurrence of epigastric pain radiating to the back and associated with nausea and vomiting. As with previous episodes, his symptoms were precipitated by consumption of high fat foods and not accompanied by diarrhea, hematemesis or melena. During prior hospitalizations, he was found to have elevated levels of amylase and lipase, pancreatic edema on abdominal CT and normal EGD/ERCP findings. After 2–3 days of conservative management, his symptoms would resolve. Since his initial presentation was related to alcohol consumption, he was diagnosed with alcoholic pancreatitis, and subsequent discharge diagnoses included chronic pancreatitis and alcohol abuse. However, he reported only moderate alcohol use prior to his first admission and rarely consumed alcohol afterwards. He eventually sought care at our institution where more thorough review of his family history revealed that his father and two brothers also developed recurrent bouts of pancreatitis in early adulthood. This raised the possibility of hereditary pancreatitis, but his insurance provider refused to pay for relevant genetic testing. After a total of 11 admissions over a 5-month period, he presented to our care with similar complaints, an examination notable only for epigastric tenderness, and normal diagnostic studies except for elevated lipase and amylase levels. Following protracted negotiations with his insurance provider, we were allowed to perform genetic testing, which was normal except being heterozygous for the R122 H mutation of the cationic trypsinogen gene (PRSS1). Compelled by this information, the patient was able to make appropriate lifestyle changes and required only one brief admission for pancreatitis in the following 3 months.
DISCUSSION: Hereditary pancreatitis (HP) is a rare disease characterized by early-onset pancreatitis and its complications. Though uncommon, one study found that 19% of patients with a diagnosis of idiopathic pancreatitis had a genetic cause. Mutations of several different genes, including PRSS1 and those encoding cystic fibrosis transmembrane conductance regulator (CFTR) and pancreatic secretory trypsin inhibitor (PSTI or SPINK1), are known causes of HP, but about 70% of cases are due to PRSS1 mutations. HP due to PRSS1 mutation is inherited in an autosomal dominant manner with approximately 80% penetrance. Only about 100 families worldwide have been identified with this disease that leads to pancreatic autodigestion from increased trypsin activity inside the pancreas. The lifetime risk of pancreatic cancer is 40% and is even higher in patients who smoke. Apart from symptomatic treatment, pancreatic cancer screening and tobacco and alcohol abstinence, no specific therapy is currently available. Similar to our patient, many patients with HP go undiagnosed for years and suffer from discriminatory assumptions about their lifestyle and behavior. It is imperative that clinicians maintain an unbiased, comprehensive clinical approach to patients with pancreatitis in order to detect this disease which can impact entire families.

ALLOPURINOL HYPERSENSITIVITY: DIFFICULTIES MANAGING GOUT IN THE CHRONICALLY ILL. N. Burwick[1]; K. Ford[1]. [1]Beth Israel Deaconess Medical Center, Boston, MA. *(Tracking ID # 157092)*

LEARNING OBJECTIVES: 1. Recognize the importance of a potentially fatal adverse reaction to allopurinol. 2. Review the treatment of chronic gout in those with co-morbid illness.
CASE: A 34 year-old female presented to clinic with complaint of intense pruritus and generalized lethargy over the past week. She also noted low-grade fever to 100.5 as well as nausea and abdominal pain. Her past medical history was notable for insulin-dependent diabetes mellitus, hyperlipidemia, hypertension and gout. On examination, she had a temperature of 100, blood pressure 100/60 and heart rate of 85. She was noted to be somnolent with diffuse abdominal tenderness, without rebound or guarding. Her skin was dry with scaly rash and linear excoriations. Initial laboratory studies revealed acute hepatitis with AST 1206, ALT 1293, total bilirubin 584 and alkaline phosphatase 2.2. She was in acute renal failure with a creatinine of 3.1 (baseline 1.2–1.3). Leukocyte count was 12,900 with 6.1 percent eosinophils. Abdominal ultrasound revealed normal hepatic vasculature, with no ductal disease, ascites or hydronephrosis. Hepatitis A, B and C, ANA, anti-smooth muscle antibody, CMV, monospot, HSV 1 and 2, and VZV serologies were negative. Liver biopsy was performed and demonstrated extensive hepatocellular necrosis with lobular and portal inflammation consisting of lymphocytes, numerous plasma cells, eosinophils, and neutrophils. These findings were felt to be most consistent with a drug-mediated reaction. On review of her medical records it was noted that allopurinol had been prescribed recently but was discontinued 10 days prior to admission due to a rising creatinine. Allopurinol hypersensitivity syndrome was the presumptive diagnosis and the patient was treated with a course of prednisone. She had gradual resolution of symptoms and was discharged to home two weeks after initial presentation.
DISCUSSION: Gout is a common medical problem, affecting more than 1% of the general population. It is a source of severe joint pain for many patients. Although gout is readily treatable, management is often complicated by co-morbid illness. Renal insufficiency, hypertension, hyperlipidemia and obesity are all associated with hyperuricemia and gout. The most commonly used urate-lowering drug is allopurinol. It has been shown to be cost effective for those patients who have 2 or more attacks of gout per year. However, side effects are not uncommon and include a rare life-threatening allopurinol hypersensitivity

syndrome. This syndrome is dose-dependent and includes fever, eosinophilia, rash, hepatic and renal dysfunction and has a mortality rate of approximately 20%. In the majority of reported cases, the development of this syndrome was associated with the use of standard (200 to 400 mg per day) doses of allopurinol in patients with underlying renal insufficiency. Concomitant diuretic therapy has also been reported in nearly 50% of cases. Although alternative agents such as the nonpurine selective xanthine oxidase inhibitors may prove helpful in difficult to treat cases, patient education and careful patient selection remain important components of management. Prior to initiating therapy, patients should be made aware of possible adverse reactions to allopurinol, including the potentially fatal hypersensitivity syndrome. If therapy is initiated, a lower dose of 50 mg per day should be used in those with underlying renal insufficiency.

ALTERED MENTAL STATUS AND MUSCULAR RIGIDITY DUE TO ANTIPSYCHOTIC MEDICATIONS. M. Krishnan[1]; P. Sherchan[1]; K. Ghanta[2]; J. Joseph[1]; D. O'Brien[2]; B. Gordon[1]; H. Friedman[2]. [1]St. Francis Hospital, Evanston, IL, Evanston, IL; [2]St. Francis Hospital, Evanston, IL. *(Tracking ID # 157039)*

LEARNING OBJECTIVES: 1) Recognize altered mental status and muscular rigidity as side effects of antipsychotic medications. 2) Suspect neuroleptic malignant syndrome when any two of the four cardinal clinical features, mental status change, rigidity, fever, or dysautonomia, appear in the setting of neuroleptic use.
CASE: 52-year-old African American male presented with a chief complaint of difficulty in walking. 5 months prior to admission, he had undergone an uneventful right hip arthroplasty and had poor follow up for physical rehabilitation. His medical conditions included HIV, hypertension, schizophrenia and asthma. His medications were Indinavir, Efavirenz, Oxandrolone, Risperidal 8 mg daily (started 25 days back), Citalopram 40 mg daily and Xanax. On the second day of admission, he appeared to be slightly lethargic, slow in speech, but alert, oriented to time, place and person with no neuromuscular deficits. On the third day of admission, the nurse noticed that he was not following verbal commands and notified the MD. On examination, the patient was lying supine on bed; head turned to right, with eyes deviated upwards to the right. He was not responding to verbal or painful stimuli. Lead pipe rigidity was noted in bilateral lower extremities. His fists were clenched. His jaw was clenched. Plantar reflex was flexor bilateral. 6 hours later, he extended his tongue out of his mouth for about 10 minutes. His vitals were essentially normal. Stat CT of the brain with and without contrast did not reveal any bleed, infarct or other pathological findings. Stat EEG was negative for seizure. His blood picture including metabolic panel was essentially normal. Urine toxicology screen was unremarkable. Suspecting the presentation as a possible side effect of the neuroleptic medication, blood CK was ordered, which revealed a value of 2113 IU/L. Benztropine 2 mg IV was then administered. Within 30 minutes of injection, patient began responding to verbal commands and tone improved to normal in lower extremities.
DISCUSSION: Neuroleptic malignant syndrome (NMS) is a life threatening neurologic emergency associated with the use of neuroleptic agents and characterized by a distinctive clinical syndrome of mental status change, rigidity, fever, and dysautonomia. Changes in either mental status or rigidity could be initial manifestations of NMS and are significantly more likely to be observed before hyperthermia and autonomic dysfunction [1]. One study reported that in an analysis of 340 cases, 70% of patients followed a typical course of mental status changes appearing first, followed by rigidity, then hyperthermia, and autonomic dysfunction [1]. Some case reports document delay in the appearance of fever of more than 24 hours, leading to initial diagnostic confusion [2]. Important considerations in the differential diagnosis include meningitis, encephalitis, systemic infections, heat stroke, and other drug-induced dystonias. Diagnostic testing includes tests to rule out the above conditions and laboratory evaluation of metabolic sequelae of NMS, especially elevated plasma creatinine kinase. Anticholinergic drugs can reverse the muscular rigidity and altered mental status side effects of antipsychotic drugs. [1] Velamoor, VR, Norman, RM, Caroff, SN, et al. Progression of symptoms in neuroleptic malignant syndrome. J Nerv Ment Dis 1994; 182:168. [2] Levenson, JL. Neuroleptic malignant syndrome. Am J Psychiatry 1985; 142:1137

AMIODARONE ASSOCIATED ACUTE RESPIRATORY DISTRESS SYNDROME FOLLOWING NON- CARDIO THORACIC SURGERY. U. Yalavarthy[1]. [1]University of Tennessee, Chattanooga, TN. *(Tracking ID # 151334)*

LEARNING OBJECTIVES: 1. Consider Amiodarone toxicity in the differential diagnosis of post operative acute respiratory distress syndrome (ARDS). 2. Review the spectrum of Amidarone associated pulmonary toxicity.
CASE: A 66 year old female with a history of stage III C primary peritoneal carcinoma who had undergone exploratory laparotomy, bilateral salpingoopherectomy, segmental resection of distal colon, partial omentectomy and six cycles of chemotherapy 5 years ago, presented with elevated CA-125 on a routine follow up. Subsequent CT scan revealed recurrence of the carcinoma. She also had a history of atrial fibrillation which was rhythm controlled on 200 mg of Amiodarone daily for 15 years. She had no respiratory symptoms and the initial chest X ray at presentation was clear. She underwent an exploratory laparotomy with cyto reductive surgery of lymph nodes. Following exploratory laparotomy and tumor resection the patient was stable, extubated and transferred to the floor on her home medications. On post operative day 2 the patient became short of breath and hypoxic. Chest X-ray revealed extensive bilateral air space infiltrates suggestive of pulmonary edema. EKG, B-natriuretic peptide and cardiac enzymes were normal. Echo revealed normal LV function. CT thorax revealed ground glass opacities consistent with pneumonitis. Gallium scan of the lungs revealed intense uptake of Gallium within the lung parenchyma exceeding hepatic uptake consistent with active pulmonary inflammation. BAL revealed 50% alveolar cells and macrophages with cytoplasmic vacuolation. Transbronchial biopsy revealed organisizing pneumonitis with foamy macrophages consistent with Amiodarone effect. The patient was treated with steroids in addition to respiratory support and cessation of Amiodarone. Her condition continued to deteriorate and the family elected to withhold resuscitative measures. She expired secondary to respiratory failure.
DISCUSSION: Amiodarone induced pulmonary toxicity has been described mostly in patients receiving large doses of the drug over prolonged periods. In the perioperative setting, Amiodarone induced pulmonary toxicity is usually seen in cardiac surgical patients who have received large doses of Amiodarone for arrhythmias over prolonged periods. In this report, we describe the onset of rapidly progressive pulmonary toxicity leading to ARDS following noncardiothoracic surgery. Gallium scan indicated an intense inflammation in the lungs consistent with pneumonitis. BAL and bronchoscopy findings were consistent with Amiodarone associated pneumonitis. Our literature review did not reveal any reported case of Amiodarone associated ARDS in a non cardio thoracic surgical setting. Though the development of ARDS in this patient can be multifactorial, it emphasizes that Amiodarone should be avoided or used judiciously in patients undergoing any type of surgery after careful consideration of the risk benefit analysis.

AMYLOID ANGIOPATHY RESULTING IN RETROPERITONEAL HEMATOMA AS THE PRESENTING SYMPTOM OF PRIMARY AL AMYLOIDOSIS. A.B. Jeffers[1]; P. Kandiah[1]; T. Quinn[1]; K. Saeian[1]. [1]Medical College of Wisconsin, Milwaukee, WI. *(Tracking ID # 154071)*

LEARNING OBJECTIVES: 1. Recognize spontaneous retroperitoneal hematoma secondary to amyloid angiopathy as an early presentation of amyloidosis. 2. Diagnose amyloidosis based on electrophoresis, immunofixation, free light chain assays, and biopsy.
CASE: 59 year-old man presented with severe epigastric pain, radiating to the umbilicus and associated with nausea and vomiting. He was in mild distress with normal vital signs. Examination revealed a tender but soft abdomen, palpable epigastric fullness, and no organomegaly or bruits. US and CT revealed a mass suspicious for pancreatic neoplasm, while MRI showed it to be consistent with a retroperitoneal hematoma superior and anterior to the pancreas. EGD revealed diffuse gastritis, and a visceral arteriogram showed no aneurysm. He had a reduced hematocrit, elevated lipase and INR, and normal AST/ALT, BUN/creatinine, bleeding time, PTT, and vWF panel. He was discharged with outpatient follow-up. Six months later, he presented with ascites and leg edema. CT showed the hematoma to be contracting, but now visible were splenomegaly, esophageal varices, and umbilical vein recanalization. Hepatic and portal veins were patent. US showed diffusely decreased liver attenuation. The patient was then referred to our center, where laboratory evaluation revealed hypoalbuminemia, nephrotic range proteinuria, elevated alkaline phosphatase, and mildly elevated AST. Ascitic fluid was hazy with 182 WBC/ml (3% PMN's), a total protein of 0.4 and albumin of <1.1. Portosystemic pressure gradient was 19 mmHg. A transvenous liver biopsy stained positive with Congo red with compression of the hepatocytes but no inflammation or necrosis. A bone marrow biopsy revealed normocellular marrow with 5% monotypic plasma cells expressing lambda IG light chain. Urine and serum protein electrophoresis did not reveal monoclonal peaks. However, direct assay of serum kappa and lambda light chains showed substantial elevation of lambda chains. The patient was diagnosed with primary AL amyloidosis. In retrospect, amyloid angiopathy is suspected as a cause of his initial presentation of spontaneous retroperitoneal hemorrhage. Treatment with steroids, chemotherapy, and autologous stem cell transplantion (SCT) was planned but never completed due to rapid deterioration of liver and kidney function. The patient died one month after the diagnosis of amyloidosis was made.
DISCUSSION: Amyloidosis is characterized by the extracellular deposition of protein fibrils organized in characteristic beta-pleated sheets. It may be systemic or localized and affect multiple organ systems. In AL amyloidosis, amyloid proteins result from excess production of IG light chains, often in association with multiple myeloma. While no definitive cure exists, the disease process has been reversed in select patients with high-dose chemotherapy and autologous SCT. The toxicity of this therapy, however, makes it a poor choice for patients with advanced multi-system disease. It is therefore important to diagnose AL amyloidosis early. Common presentations include nephrotic range proteinuria, restrictive cardiomyopathy, hepatomegaly, and peripheral neuropathy. Bleeding problems, when present, are often gastrointestinal or cutaneous. This case illustrates spontaneous retroperitoneal hematoma preceding the diagnosis of amylodosis by 6 months, likely secondary to amyloid angiopathy. One other case of amyloidosis presenting with retropancreatic hematoma mimicking tumor has been reported in the literature.

AN AGGRESSIVE EXCHANGE FOR THROMBOTIC THROMBOCYTOPENIC PURPURA. J.M. Slomka[1]; D. Meisner[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 153988)*

LEARNING OBJECTIVES: 1) To recognize the initial presentation of a patient with Thrombotic Thrombocytopenic Purpura (TTP). 2) To describe the role of aggressive plasma exchange for a patient refractory to daily plasmapheresis and steroids.
CASE: A 25 year-old previously healthy male presented with a 3-week history of rash. The rash had initially started on his axilla and groin and subsequently

spread to his entire body. He also noted hematuria of 2 weeks duration, hematochezia, constipation, subjective fevers, fatigue and a sudden onset of right arm numbness. At the onset of the rash, the patient had developed a sore throat and was treated with amoxicillin/clavulanate. Physical examination was significant for a diffuse petechial rash with no other abnormalities noted. Initial laboratory studies included a platelet count of 9,000, hemoglobin and hematocrit of 8.9 and 25.9, respectively, an LDH of 4894 (normal upper range is 600), creatinine of 1.4 and WBC count of 33.2. Schistocytes were observed on peripheral smear. The patient was given a clinical diagnosis of TTP and started on daily 1 volume plasma exchanges with an initial improvement in platelets. After one week, however, the patient's platelet count dropped from 149,000 to 31,000 and LDH increased from 817 to 1693. The patient was changed to cryosupernatant plasmapheresis and IV steroids were added. His platelet count continued to decline. On hospital day 10, the dose of plasmapheresis was increased to one volume twice a day and the Solumedrol dose doubled. The patient's platelets gradually rose and peaked at 112,000 on day 19. However, a subsequent downward trend down prompted the pheresis to be increased to 1.5 volume exchanges on day 20, along with the administration of 2 separate doses of vincristine shortly thereafter. Ultimately, with this therapy, his platelets normalized and the steroids were able to be tapered. On day 30, the patient was discharged with a platelet count of >150,000. He was scheduled for pheresis as an outpatient 3 times a week.
DISCUSSION: TTP may present with a pentad of features: thrombocytopenia, microangiopathic hemolytic anemia, neurologic signs and symptoms, renal function abnormalities and fever. The majority of patients do not have the entire classical pentad, and most have the dyad of low platelets in a setting of hemolytic anemia without any obvious clinical cause. The Hemolytic Uremic Syndrome (HUS) component of TTP occurs when the major presenting sign is acute renal failure without neurologic symptoms. This particular case is an example of TTP, as the patient had fulfilled the entire pentad. The underlying etiology of TTP has been proposed to be from the accumulation of unusually large von Willebrand factor (ULVWf) multimers which are not degraded properly due to either absent or diminished activity of the VWf protease, ADAMTS13. These multimers attach to platelets thus resulting in platelet aggregation. The goal of treatment is to clear the ULVWf multimers through plasma exchange. Approximately 15% of patients require twice daily plasmapheresis secondary to poorly responsive TTP along with the addition of methylprednisolone or prednisone.

AN ANCIENT DISEASE IN A NEW ERA: A FORGOTTEN CASE OF TETANUS. J.A. Kasher[1]; S. Basiratmand[1]. [1]Olive View/University of California, Los Angeles Medical Center, Sylmar, CA. *(Tracking ID # 155859)*

LEARNING OBJECTIVES: 1. To recognize the continuoing presence of tetanus as a serious, deadly disease. 2. To emphasize the importance of routine tetanus immunization boosters in tetanus prevention.
CASE: A 54 year old roofer presented with total body stiffness 3 days after puncturing his arm on the roof. Even though immunized as a kid, he reportedly never had any immunization boosters for tetanus because his doctor told him that tetanus has been "eradicated". Patient's symptoms appeared 2 days after the puncture, when he noted diffuse body weakness. The next day, his body "froze". He Could not move his body or his jaws. He could not arise from his bed when he woke up, yet was able to vocalize enough noise to get attention of his neighbor who helped bring him to a medical facility. He received initial treatment with penicillin and "an injection" in an outside facility but presented to our medical center with severe muscle stiffness and locked jaw 10 days after his punture wound. He was given tetanus IgG, Penicillin, Flagyl, and Clonazepam with marked improvement the next 3 days. He was discharged after 3 days with no residual stiffness. On a follow up visit a month later he was symptom free.
DISCUSSION: Tetanus is currently a rare disease in United States. According to the CDC's surveillance data for years of 1998 to 2000 there were average of 43 reported annual cases of tetanus in United States. Tetanus maybe rare but it hasn't been "eradicated", and should not be forgotten. There has been a dramatic decrease in the incidence of tetanus in the U.S. due to a successful vaccination program. The spores of bacterium Clostredium Tetani continue be present in the soil and will germinate under the right conditions. Upon spore germination, these gram positive bacteria produce the neurotoxin tetanospasmin. Tetanospasmin blocks the action of inhibitory neurons causing uncontrolled muscle spasm and autonomic instability leading to tetanus. In generalized tetanus, there is total body spasm including spasm of facial muscles causing closure of the jaws producing the grimace known as "risus sardonicus" (sardonic smile). The diagnosis of tetanus is a clinical one and its treatment involves administration of benzodiazepines, tetanus immune globulin, and antibiotics. Metronidazle is considered the antibiotic of choice and seems to have comparable or better efficacy than penicillin for treatment of tetanus. However, prevention is the best management strategy for this disease which carries mortality of up to 50%. Immunity against tetanus wanes over time and a booster is recommended every ten years for every adult unless there is a history of allergic reaction. It remains the responsibility of all physicians to not forget about this deadly disease, and to recognize the importance of offering tetanus immuniztion boosters every 10 years as part of routine health maintenance to all their patients.

AN ATYPICAL PRESENTATION OF NEUTROPHILIC ECCRINE HIDRADENITIS. Y.S. Guerra[1]. [1]John H Stroger Jr. Hospital, chicago, IL. *(Tracking ID # 154816)*

LEARNING OBJECTIVES: 1-Recognize the clinical features and histological criteria of neutrophilic eccrine hidradenitis 2-Recall the association of neutrophilic eccrine hidradenitis with malignancy 3-Distinguish between neutrophilic eccrine hidradenitis and Sweet's syndrome
CASE: 51 years old female patient was admitted due to multiple skin nodules and fever. She had been well until 4 days before admission, when she started having multiple red looking skin nodules predominantly on the extremities and neck. Patient indicated that some of the lesions appeared on bruised areas from a fall two days prior. She also reported subjective fevers. Past medical history is significant for type 2 diabetes mellitus, and 2 weeks prior to hospitalization she was diagnosed with acute myeloblastic leukemia (AML-M1). She has no allergies, smoking or alcohol use. On physical exam she had temperature of 102.3, blood pressure of 125/61, heart rate of 122 and respiratory rate of 12. The skin nodules and plaques, ranging from 0.5 cm up to 4.5 cm, were distributed proximally in upper and lower extremities, neck and upper thorax, one lesion over her left periorbital area. Most of them were tender to palpation, non fluctuating, erythematous, and a few had small ecchymosis overlying them (from previous trauma). There was no lymphadenopathy. Cardiopulmonary, abdominal and neurologic exam were essentially normal The complete blood count showed white count of 13200/ul (differential of 3% of neutrophiles, 7% of lymphocytes, 4% of monocytes and 86% of blasts), a hemoglobin of 9.8 g/dl, and a platelet count of 65000/ul. A basic metabolic profile showed hyperglycemia of 298 mg/dl. Two sets of blood cultures drawn on admission were negative after 5 days. Chest X ray showed no active disease. Skin biopsy obtained showed superficial and deep perivascular, and periadnexal mixed cell collection of neutrophiles and lymphocytes which is consistent with neutrophilic eccrine hidradenitis.
DISCUSSION: This case features an atypical presentation of neutrophilic eccrine hidradenitis. This disease is part of the neutrophilic dermatoses, a group of idiopathic inflammatory disorders. It is strongly associated with malignancies (90% of cases), especially hematological ones, AML being the most frequent, with 64% of the cases. 84% of the 51 cases reported in a recent review were receiving chemotherapy, typically cytarabine or anthracyclins, but there are 3 cases described in AML patients before any chemotherapy. Our patient clinical presentation is consistent with that of the latter. The fact that some of the lesions presented on traumatized skin (a phenomenon referred to as pathergy) has being reported in the past. The distribution is habitually on upper trunk, face, and upper limbs or a distal disposition affecting only the extremities. Fever is a frequent finding on admission, but due to the high frequency of neutropenia in these patients it's still unclear if there is a true correlation or not. The conclusive diagnosis is obtained through histology. The classical finding of degeneration of eccrine glands with an associated inflammatory infiltrate replete with neutrophiles usually in and around the eccrine coils differentiates it from Sweet's syndrome where the infiltration is more diffuse. Perivascular infiltrates (usually with a mixture of lymphocytes) as seen with our case have been reported previously in this condition.

AN ATYPICAL PRESENTATION OF POLYMYOSITIS. S. Domsky[1]; Z. Szep[1]. [1]Temple University, Philadelphia, PA. *(Tracking ID # 155803)*

LEARNING OBJECTIVES: 1. Recognize the variable presentation of polymyositis 2. Review the diagnosis and management of polymyositis
CASE: A 52 year-old previously healthy female presented with 1 week of fever, productive cough, mild dysphagia, and myalgias. She denied sick contacts, and reported traveling to Atlanta from Philadelphia one month ago. On exam, her vital signs included a temperature of 101, HR 109, RR 18, BP 112/66, 100% on RA. Her exam was only notable for bibasilar crackles, 2+LE edema, and 4/5 muscle strength of her proximal legs with diffuse muscle tenderness. Her CXR showed a possible early left lower lobe infiltrate. Laboratory studies revealed a normal chem 7 and LFT's, but her CBC showed a WBC count of 23,700 (81% neutrophils, 8% bands), hemoglobin of 9, and 513,000 platelets. Ceftriaxone and azithromycin were started. The patient remained febrile to 102 F with a persistently elevated WBC count on antibiotics. By hospital day four, her myalgias and weakness progressed, leaving her unable to walk independently or lift her arms above her head. A CAT scan of the chest revealed bibasilar interstitial thickening with ground-glass infiltrates. Antibiotics were changed to doxycline. All cultures, as well as serologies for HIV, hepatitis A-C, Rickettsia, Ehrlichia, Leptospirosis, Legionella and Bartonella remained negative. Creatine kinase (CK) was persistently elevated at 600's-800's, aldolase markedly elevated at 38.8 (ref <8.7), myglobin 309 (ref <80), sedimentation rate was 47, ferritin 1104, ANA and anti-jo-1 negative; fibrinogen and LDH were elevated at 688 and 455 (ref 100–190), respectively. On hospital day twelve, antibiotics were stopped, and she was started on 60 mg of prednisone daily. Within 48 hours, she regained full strength of her upper extremities and her ability to ambulate greatly improved. A MRI of the thighs and subsequent quadriceps biopsy done on prednisone showed nonspecific abnormalities. At follow-up two months later, her aldolase and CK were normal, and she had regained full strength without myalgias on 40 mg of prednisone daily.
DISCUSSION: Polymyositis is an idiopathic T-cell mediated inflammatory myopathy, usually presenting as symmetric, proximal muscle weakness. Myalgias occur in a minority of patients. Differential diagnosis of muscle weakness include infection, inclusion-body myositis, non-inflammatory myopathies, muscular dystrophy, amyotrophic lateral sclerosis, chronic graft-versus-host disease, and myasthenia gravis. Other atypical signs and symptoms of polymyositis include fever, dysphagia, heart failure, and interstitial lung disease (ILD). Laboratory abnormalities usually include elevated CK, aldolase, LDH, and aminotransferase. Myositis-specific autoantibodies are present in only a minority of these patients. Diagnosis is often made with a biopsy of affected muscle, with an MRI as a useful adjunct. Early treatment has been associated with a favorable response. Glucocorticoids are first line therapy for polymyositis, with

at least near-complete remission of weakness in 25–65% of patients. Azathioprine and/or methotrexate are often used as adjunctive therapy, with IVIG, cyclosporine, or tacrolimus reserved for resistant disease. A diagnosis of polymyositis has been associated with a twofold increase in cancer, thus age-appropriate screening is essential. Familiarity with the variable presentation of polymyositis is important, as prompt diagnosis is associated with a better outcome.

AN INTERESTING CASE OF PRIMARY PYOGENIC LIVER ABSCESS. M. Gigorian[1]. [1]University of Tennessee--College of Medicine, Chattanooga Unit, Chattanooga, TN. *(Tracking ID # 151325)*

LEARNING OBJECTIVES: 1. Discuss the common causes of liver abscess. 2. Recognize Klebsiella liver abscess as a distinct entity and its association with diabetes mellitus. 3. Recognize the usefulness of cultural and travel history.
CASE: A 73 year old Filipino female with Type 2 diabetes, immigrated to US 2 years ago and presented with fever for one day, weakness & fatigue for 3 months. She denied nausea, vomiting, abdominal pain. No recent travel. The patient appeared ill, was febrile, hypotensive and tachycardic. Physical examination was unremarkable, abdomen non tender. Pertinent data: WBC 16,200/mm3, 81.1% neutrophils, HB 9 g/dL, HCT 26.3%, alkaline phosphatase 113 U/L, AST 107 U/L, ALT 77 U/L, HbA1c 8.1%.Work-up revealed Klebsiella Pneumonie bacteremia and a multiloculated 7 cm hepatic abscess. CT guided drainage of abscess showed purulent material and culture grew Klebsiella Pneumonie. She received parenteral cephalosporins followed by oral quinolones for 6 weeks. Repeat CT abdomen demonstrated more than 50% reduction in size of abscess. Patient showed significant resolution of signs and symptoms.
DISCUSSION: Pyogenic liver abscess is rare and presents with varied clinical manifestations. Most patients do not have symptoms directly referable to the right upper quadrant. Common etiologies include suppurative cholangitis or pylephlebitis, arising from abdominal/pelvic infection. In the US, most liver abscesses are either polymicrobial or caused by Ecoli. Klebsiella liver abscesses are more common in South East Asians and more strongly associated with diabetes. Solitary abscesses are more frequent in the Klebsiella group. Another distinct feature is its higher propensity to metastasize to the eyes, brain and joints. Management includes drainage and antibiotics until CT scan shows resolution. In most patients the source remains indeterminate, as in this case. An understanding of the differences between polymicrobial and Klebsiella liver abscesses is important for the proper management. Physicians should have a high index of suspicion of K.pneumoniae hepatic abscess in their diabetic patients with fever and elevated liver enzymes since often, no localizing signs are present.

AN INTERESTING CASE OF SYSTEMIC MASTOCYTOSIS. M.R. Gavin[1]; P. Daniels[1]. [1]Mayo Clinic, Rochester, MN. *(Tracking ID # 154039)*

LEARNING OBJECTIVES: 1. Recognize urticaria pigmentosum as a cutaneous manifestation of mastocytosis 2. Assess the bone marrow biopsy results of a patient with systemic mastocytosis 3. Diagnose systemic mastocytosis
CASE: A 64 year old white female was admitted to the General Medicine inpatient service from the outpatient clinic for evaluation of pancytopenia, a fifty pound unintentional weight loss and progressive cognitive impairment and lethargy. Her symptoms had been progressing over twelve months. Systems review was positive for skin lesions on the arms, face and trunk that were not pruritic and present for an indeterminate period of time. She had not been evaluated by a physician in fifteen years. Physical exam findings included a cachectic, slightly jaundiced appearing individual, the presence of violaceous macular lesions of varying size on the arms, face and trunk that were non-blanching, a palpable spleen tip, bilateral inguinal lymphadenopathy, and a large non-reducible ventral hernia. Initial lab work was significant for the following: hemoglobin-5.1, WBC-1.9, platelets-59, low B12, normal iron studies, and a peripheral smear showing occasional macrocytes, dacrocytes, and elliptocytes. A CT of the chest, abdomen and pelvis revealed hepatosplenomegaly, retroperitoneal and inguinal lymphadenopathy, and an abdominal wall hernia containing portions of both large and small bowel. A bone marrow biopsy was performed and the results were consistent with systemic mastocytosis; hypercellular (95%), granulocytic and megakaryocytic hypoplasia, 70% replacement of the marrow by atypical mast cells most of which were positive for expression of CD117, CD25 and tryptase. Notably, the mast cells were negative for CD2 expression.
DISCUSSION: Mastocytosis is a rare disease. It is defined as the excessive proliferation of mast cells. It is broadly subdivided into cutaneous mastocytosis and systemic mastocytosis. The clinical presentation of mastocytosis depends on the extent of disease and the tissues involved. Most patients present with symptoms related to the release of mast cell mediators. These include flushing, pruritis, syncope with aspirin ingestion, diarrhea, heartburn, irritability, and depression. Interestingly, our patient did not complain of these symptoms. She did have physical findings common to mastocytosis. The most common cutaneous manifestation is urticaria pigmentosum. Other common physical findings of systemic involvement include lymphadenopathy and hepatosplenomegaly. The diagnosis of mastocytosis is based on the biopsy of affected tissue. The major criterion for establishing the diagnosis is demonstrating the presence of infiltrating mast cells positive for CD2 or CD25. The minor criteria are detecting atypical mast cells, demonstrating an elevated serum tryptase level, and identifying a point mutation of codon 816 of c-kit in affected tissues. Diagnosis requires one major and one minor criterion or three minor criteria. The bone marrow is often involved in systemic mastocytosis. The bone marrow sample of our patient showed an absence of CD2 expression on the atypical mast cells. This finding is often associated with the presence of a non-mast cell hematologic clonal disorder. There is no curative treatment for systemic disease. Treatment is aimed primarily at symptomatic relief and chemical debulking in cases of severe disease.

AN UNUSUAL CASE OF LYMPHADENOPATHY. K. Moorthi[1]; P. Radhakrishnan[2]. [1]Reeves County Hospital District, Pecos, TX; [2]St. Josephs Hospital and Medical Center, Phoenix, AZ. *(Tracking ID # 154063)*

LEARNING OBJECTIVES: 1. Castleman's disease should be considered in the differential diagnosis in HIV+patients with generalized lymphadenopathy 2. Lymph node biopsy should be considered in HIV+patients with generalized lymphadenopathy 3. Treatment of Castleman's disease includes antiviral therapy with ganciclovir
CASE: A 42 year old HIV+patient presented with a 2 month history of fever, night sweats, and fatigue. He denied cough, dyspnea, chest pain, or skin rash. He was diagnosed to be HIV+ a year ago when he presented to his physician with excessive weight loss, and has been on HAART since. His most recent CD4 count was 680/cmm. On examination he was found emaciated. He had cervical, axillary, and inguinal lymphadenopathy. He also had hepatosplenomegaly. Laboratory examination revealed anemia (Hb 9.2 g/dL). He had acute renal failure (Cr 3.7 mg/dL). An abdominal ultrasound revealed bilateral hydronephrosis. Adominal CT scan showed paraaortic and retroperitoneal lymphadenopathy, with compression of both the ureters causing bilateral hydronephrosis. Serological tests demonstrated infection with HHV8. IL6 levels were elevated. Biopsy was performed on a cervical lymph node and revealed abnormal follicles with atrophic germinal centers, and hypervascular interfollicular tissue. Immunologic studies and cytogenetics failed to reveal lymphoma. Given the constellation of clinical findings and the biopsy Castleman's disease was diagnosed. Bilateral percutaneous nephrostomies were performed to relieve the obstruction, and the patient was treated with ganciclovir. The patient initially responded to the ganciclovir with partial resolution of lymphadenopathy. However, despite continued treatment the lymphadenopathy recurred and the patient succumbed to fulminant sepsis, 2 months after the initial diagnosis.
DISCUSSION: Castleman's disease is a benign, non-clonal disease of the lymphnodes. There is a follicular hyperplasia of lymph nodes with abnormally increased interfollicular vascularity. Castleman's disease can be classified as unicentric or multicentric, based on clinical and radiological findings. Unicentric Castleman's Disease is usually a slow growing solitary mass typically located in the mediastinium or mesentery. There are no constitutional symptoms. In 90–95% cases surgical resection is curative and usually there is no progression to lymphoma or association with other tumors. The prognosis is excellent with a 5 yr survival of close to 100%. In multicentric Castleman's Disease there is usually widespread lymphadenopathy with in some instances hepatosplenomegaly. Systemic symptoms including severe fatigue, night sweats, fever are typically present. These symptoms are typically driven by overproduction of interleukin 6. Multicentric Castleman's Disease runs a more aggressive course and can progress to non-Hodgkin's lymphoma. HIV+ patients with Multicentric Castleman's Disease have more frequent plasmacytic disease and the clinical course is less favorable. Multicentric Castleman's Disease often requires systemic therapy including the anti-viral ganciclovir in HIV+and HHV8+disease, combination chemotherapy (e.g. CHOP). Other therapies include anti-IL6 therapy. The diagnosis of CD is based upon a thorough clinical evaluation that includes a detailed patient history, laboratory studies, including IL6 and ESR, CRP, histopathology of affected lymphnode(s) and a variety of imaging techniques (CT scan, MRI and more recently PET-scanning).

AN UNUSUAL CASE OF SHOULDER PAIN IN A 72-YEAR-OLD FEMALE. M. Runchey[1]; E. Rouf[1]. [1]University of Kansas, Kansas City, KS. *(Tracking ID # 154113)*

LEARNING OBJECTIVES: 1) Recognize when to consider avascular necrosis (AVN) of the shoulder joint as a complication from long-term corticosteroid use. 2) Recognize common risk factors for AVN in the primary care setting
CASE: A 72-year-old white female presented to general medicine clinic complaining of pain and decreased range of motion in her right shoulder. The pain started one month earlier after she had been working in her garden. She denied any trauma. She denied any prior history of rheumatologic disease of her shoulder. There had been no relief of her symptoms with NSAIDS. Her past medical history was significant for Crohn's disease, iron deficiency anemia, pernicious anemia, and osteoporosis. Her medications included infliximab, multivitamins, and parathyroid hormone injections. Physical exam of her right shoulder was significant for anterior shoulder tenderness and decreased strength and range of motion on flexion, extension, and abduction. The patient was clinically diagnosed with adhesive capsulitis and referred to physical therapy which did not relieve her symptoms. Two months later she saw a rheumatologist who felt her exam might be consistent with subacromial bursitis. She received a steroid injection into the bursa. Although she had temporary relief of pain, she presented to clinic one month later with the same complaints. Examination remained unchanged. An MRI of her shoulder was obtained to rule out rotator cuff pathology and frozen shoulder given her persistent pain and exam findings. MRI was consistent with AVN of the humeral head. Of note, the patient had reported at her initial visit that she had taken prednisone for Crohn's disease in the recent past. The diagnosis of AVN of the shoulder was not initially considered as her clinical presentation suggested a rheumatologic disorder. The patient failed conservative treatment and was referred to an orthopedic surgeon for surgical management. She underwent a hemiarthro-

plasty of the right shoulder and completed physical therapy. The patient is now doing well with resolution of pain and significantly improved range of motion in her right shoulder.
DISCUSSION: Shoulder pain is a common complaint in primary care clinics. The majority of cases can be explained by degenerative joint disease, rotator cuff injury, or other musculoligamentous strain or sprain. However, when there is a history of steroid use, clinicians should always consider AVN in the differential diagnosis. AVN develops when there is a decrease in blood flow to an area of bone. It is much more common in the femoral head than the humeral head. It is thought that corticosteroids cause microscopic fat emboli to lodge in the endarteries of bone thereby causing decreased blood flow, bone death, and necrosis. Studies have shown that the risk of AVN increases with the cumulative oral corticosteroid dose rather than the daily dose. Other risk factors for AVN seen commonly in the primary care setting include alcohol use, cigarette smoking, hyperlipidemia, and gout. Sickle cell disease, HIV, chronic renal failure, and systemic lupus erythematosis also pose significant risk. Current treatment options for AVN include conservative management, consisting of physical therapy and anti-inflammatory medications, or surgery. Many patients respond well to conservative therapy and this should be the first-line treatment.

AN UNUSUAL CASE OF VERTEBRAL OSTEOMYELITIS IN A YOUNG HEALTHY ADULT. N. Jain[1]; D. Patel[1]; K.J. Pfeifer[1]. [1]Medical College of Wisconsin, Milwaukee, WI. *(Tracking ID # 151206)*

LEARNING OBJECTIVES: 1. Recognize unusual presentations of Group B beta-hemolytic Streptococcus infection in adults. 2. Identify risk factors for vertebral osteomyelitis due to Group B Streptococcus.
CASE: A 39-year-old African-American gentleman with no significant past medical history initially presented to an outside hospital with left-sided chest pain radiating to his left arm and neck. Myocardial infarction was excluded by serial cardiac enzymes, and a chest CT was obtained to rule-out pulmonary embolism. CT showed a prevertebral C7-T1 soft tissue mass measuring 4.5x1.2 cm as well as multiple lymph nodes in the upper mediastinum. He was discharged from that hospital with close outpatient follow-up. Two days later he presented to our institution with right hand weakness and pain in his left shoulder, scapula and both arms. The patient also had difficulty writing and performing other daily activities with his right hand. He had no recent fevers, headache, dizziness, vision changes, weakness in the lower extremities or IV drug use. The patient was afebrile and hemodynamically stable on admission but had decreased motor strength and mild sensory deficits in his right arm. No tenderness was appreciated over the cervical spine. IV corticosteroids were started on admission to empirically treat spinal cord inflammation related to his previously identified prevertebral mass. Subsequent workup included neck MRI which showed extensive abnormal enhancement of the C7-T1 vertebral bodies as well as the prevertebral and epidural space. Abnormal enhancement extended into the neural foramina bilaterally at C7-T1 and on the right at T1-T2. EMG was consistent with C8-T1 acute radiculopathy, and WBC scan, echocardiogram and blood cultures were negative. Open surgical biopsy of the prevertebral mass showed mixed acute and chronic inflammatory changes consistent with osteomyelitis. Culture of the biopsy specimen grew Group B beta-hemolytic Streptococcus. Fungal culture and stains for acid-fast bacilli were negative. The patient's symptoms improved significantly during his hospital course, and he was discharged on day 11 with systemic antibiotics for a total of six weeks.
DISCUSSION: Group B beta-hemolytic Streptococcus is a major cause of sepsis and meningitis in neonates and pregnant females. However, the incidence of invasive infections from this pathogen in nonpregnant adults is increasing. The most common clinical manifestations of invasive infection in nonpregnant adults include skin and soft tissue infection, urosepsis, pneumonia and peritonitis. Risk factors for invasive disease include diabetes mellitus, malignancy, HIV, decubitus ulcers, neurogenic bladder and cirrhosis. Vertebral osteomyelitis due to Group B Streptococcus has been reported, but vertebral osteomyelitis in nonpregnant adults without predisposing risk factors is exceedingly rare. Management of vertebral osteomyelitis requires a multidisciplinary team approach involving infectious diseases and neurosurgery. This unusual case of vertebral osteomyelitis in a previously healthy patient illustrates that Group B Streptococcus should be included in the differential diagnosis of pyogenic vertebral osteomyelitis irrespective of immune status and predisposing factors.

ANTIPHOSPHOLIPID ANTIBODY SYNDROME. M.G. Parikh[1]; E.H. Green[2]. [1]Montefiore Medical Center, Bronx, NY; [2]Albert Einstein College of Medicine, Bronx, NY. *(Tracking ID # 152820)*

LEARNING OBJECTIVES: Recognize the clinical and diagnostic features of antiphospholipid antibody syndrome.
CASE: S.M. is a 21 y.o. male who presented with a two-day history of progressively worsening left groin and thigh pain and difficulty walking. The pain was described as sharp, shooting-like, and worse with weight bearing. He denied any fevers, shortness of breath, or arthralgias. One day prior to onset of symptoms, S.M. reported accidentally stepping on broken glass. The patient denied any past medical history or the use of medications. Family history was negative for hematologic or rheumatologic disease although his mother did report multiple miscarriages. Social history was negative for tobacco, alcohol, or illicit substances. Physical examination was notable only for 1+pitting edema of the left lower extremity extending up to the groin with a localized area of warmth and tenderness in the left groin region and normal peripheral arterial pulses. Initial laboratory data revealed a normal CBC, CHEM-7, and liver function panel. The anticardiolipin IgG level was elevated at 153.9 IU/mL (normal=0–14 IU/mL) and lupus anticoagulant was positive. The levels of antithrombin III, protein C total antigen, and protein S total antigen were within normal range. A lower extremity duplex ultrasound was positive for a large left lower extremity deep vein thrombosis (DVT) extending up to the proximal deep femoral vein. S.M. was discharged on pain medication and anticoagulant therapy. However, he returned to the hospital one day later with severe left sided pleuritic back pain and shortness of breath. A spiral CT scan of the chest with contrast revealed bilateral subsegmental pulmonary emboli. Patient subsequently underwent placement of a temporary inferior vena cava filter and thrombolysis of his left lower extremity DVT and was advised to continue anticoagulation.
DISCUSSION: The antiphospholipid antibody (APLA) syndrome is an autoimmune condition associated with venous or arterial thrombosis. It is characterized by the presence of autoantibodies against phospholipids or phospholipid-binding protein cofactors and one or more signs or symptoms of vascular (arterial or venous) thrombosis or recurrent failed pregnancy. The prevalence in previously young healthy persons such as S.M. is estimated to be 1–5% and is often associated with SLE, infection, or drugs. Although the pathophysiology of APLA syndrome remains uncertain, several hypotheses have been proposed which involve activation of the vascular endothelium by intrinsic immunomodulators such as cytokines or oxidants. The diagnosis of APLA syndrome is often difficult because of the high prevalence of positive laboratory tests (3–10%) in unaffected individuals. Definitive diagnosis of APLA syndrome requires the presence of at least one clinical criteria (vascular thrombosis or pregnancy complication) and at least one laboratory criteria (anticardiolipin IgG or IgM antibodies or lupus anticoagulant antibodies) measured on two or more occasions at least six weeks apart. The management of patients with thromboembolic phenomenon and APLA syndrome is long-term anticoagulation with warfarin to maintain an international normalization ratio (INR) at least between 2.0–3.0 or with low-molecular weight heparin. In this case, S.M. was confirmed to have an elevated anticardiolipin IgG level six weeks after and diagnosed with APLA syndrome. He will likely require lifelong anticoagulation to prevent recurrent thrombosis.

ARSINE GAS EXPOSURE AND TOXICITY-A CASE REPORT. C. Lenza[1]. [1]University of Medicine and Dentistry of New Jersey, New Brunswick, NJ. *(Tracking ID # 156855)*

LEARNING OBJECTIVES: 1. To recognize the presenting symptoms of arsine gas toxicity. 2. To effectively manage patients exposed to arsine gas.
CASE: This is a report of a 47 year old male who presented to the emergency room of a teaching hospital approximately six hours after a known occupational exposure to arsine gas. The patient was employed as a chemist at an institution which specialized in manufacturing industrial gases. He was exposed to an unknown but significant quantity of the gas after an equipment malfunction. He presented with complaints of fatigue, hematuria, and mild abdominal pain. Physical examination revealed significant jaundice. Initial laboratory results showed a hemoglobin level of 11.4, and a creatinine level of 1.0. Total bilirubin level was elevated at 10.3. Additional labs were consistent with a hemolytic anemia. The patient was started on IV fluid hydration with sodium bicarbonate for urine alkalinization and had hemoglobin and creatinine levels monitored. He noted the onset of a headache on day two of admission, which resolved. Hemoglobin and creatinine levels remained stable. Bilirubin levels also improved. On day four of admission he was discharged home.
DISCUSSION: Arsine is a colorless and odorless gas that is a derivative of arsenic, and arsine toxicity is a rarely reported event. Most arsine exposures occur occupationally in the electronics (semiconductor) and metal refining industries. The classic triad of presentation is that of hematuria, abdominal pain and jaundice. Almost all reports of persons exposed to arsine gas are secondary to occupational exposure. The most common route of toxicity is inhalation. Renal and hematologic manifestations are the most concerning effects of arsine toxicity. Arsine also effects the cardiovascular, pulmonary, and nervous systems. Exposure to the gas causes instability of the red blood cell membrane, leading to massive hemolysis and anemia. The major cause of renal toxicity is secondary to heme pigment nephropathy, which can progress to acute renal failure. Important other clinical manifestations are dyspnea, muscle weakness and headache. The treatment of patients exposed to arsine in supportive. To date, studies have not shown any benefit to the use of chelating agents such as British antilewisite (BAL). The cornerstone of treatment involves aggressive IV fluid hydration and urine alkalanization to prevent heme pigment induced nephropathy. Nephrology consultation early in the course of management is suggested. Severe hemolysis from arsine toxicity may require exchange transfusion. Prognosis varies in relation to the length and intensity of exposure, as well as the presence of underlying premorbid conditions. The most recent data available have found a 25% mortality for those patients who develop renal failure after arsine exposure. Arsine has also been identified as a possible chemical warfare agent, as it was briefly evaluated for this purpose during World War I. Recent concerns have arisen over its use as a small scale agent in bioterrorist attacks. An important clue is the reported garlic odor that is present in many cases of arsine and arsenic exposure. Although unlikely, the presentation of multiple patients seeking medical care with findings suggestive of arsine exposure should raise the suspicion of a possible chemical agent attack.

ASCITES, NOT ALWAYS A SYMPTOM OF LIVER DISEASE. H.H. Kim[1]; A. Cooperman[1]; A. Uchiuji[1]. [1]University of California, Los Angeles, Sylmar, CA. *(Tracking ID # 152901)*

LEARNING OBJECTIVES: - Recognize ascites as a manifestation of constrictive pericarditis - Recognize sequelae of pediatric cardiac surgery - Diagnose and manage constrictive pericarditis

CASE: A 38 yo Caucasian woman presents to urgent care clinic complaining of progressive abdominal distension and diffuse abdominal pain for five months. The patient described the abdominal pain as dull aching with intermittent sharp, stabbing pain lasting a few minutes at a time. The patient denied fever, nausea, vomiting or other gastrointestinal symptoms. She denied ETOH use, tattoos and blood transfusions. She had presented to several other urgent care clinics and was told she had ascites and liver disease. Past surgical history was notable for repair of a ventricular septal defect and pulmonary debanding with reconstruction during childhood. On exam, the patient was afebrile, hypertensive at 153/63 and bradycardic at 59. The exam was significant for jugular venous distension, abdominal distension with a fluid wave and hepatomegaly. Cardiac examination revealed a harsh, holosystolic murmur along the 3rd and 4th intercostal spaces and a basal midsystolic ejection murmur. Laboratory testing including CBC, chemistries, hepatic enzymes and hepatitis serologies were all within normal limits. EKG revealed sinus bradycardia with occasional PAC's. The patient underwent echocardiography and cardiac catheterization, which revealed hemodynamics consistent with constrictive pericarditis as well as a residual small VSD.
DISCUSSION: The patient's ascites, abdominal distension and pain were the result of systemic venous congestion and splanchnic engorgement from constrictive pericarditis. Patients presenting with right-sided heart failure are frequently evaluated for primary liver disease before constrictive pericarditis is diagnosed. Constrictive pericarditis is characterized by restrictive ventricular filling due to a calcified pericardium and can be caused by prior cardiac surgery, collagen vascular disease, pericarditis, infection such as tuberculosis or may be idiopathic. The main presenting clinical features include dyspnea, marked systemic venous congestion with hepatomegaly and ascites, and peripheral edema. The patient's childhood surgery for congenital heart disease predisposed her to the development of constrictive pericarditis. As findings on echocardiography were suggestive of constrictive pericarditis, cardiac catheterization was performed that confirmed the diagnosis with elevated right and left ventricular diastolic pressures as well as a dip and plateau or "square root" configuration on LV and RV pressure tracings. Medical management includes diuretics and additional treatment of any underlying disease. Our patient's ascites resolved with diuretics, but because this disease is usually progressive, the patient was also referred for definitive treatment with surgical pericardiectomy and concomitant repair of her VSD.

ASSUAGING THE UNEXPLAINABLE. K.M. Stoner[1]. [1]Medical College of Wisconsin, Milwaukee, WI. *(Tracking ID # 154127)*

LEARNING OBJECTIVES: 1) Recognize the typical features and recall the Diagnostic and Statistical Manual of Mental Disorders IV (DSM-IV) criteria used to diagnose somatoform disorders. 2) Describe an evidence-based, cost effective management strategy for patients with somatoform disorders that reduces the risk of iatrogenic harm, improves functioning and alleviates symptoms.
CASE: 31 y/o female presented to the ER with 2 days of fevers and 4 years of nausea and vomiting. The nausea and vomiting had started during pregnancy, never resolved and worsened with onset of fevers. She denied medication use. ROS was diffusely positive. Exam was normal other than temperature of 103F. Labs revealed hypokalemia and leukocytosis. Urinalysis was consistent with infection. She was admitted for treatment of pyelonephritis. Past history included headaches, pseudoseizures, prescription narcotic addiction, lumbago, abdominal pain and a recent disability application for fibromyalgia. Somatization disorder was diagnosed based on DSM-IV criteria including 4 pain, 2 gastrointestinal, 1 pseudoneurologic (pseudoseizures), and 1 sexual (vomiting throughout pregnancy) symptom. Symptoms started before age 30 and caused functional impairment. Records confirmed that these symptoms were medically unexplained. A lumbar MRI, lumbar puncture, 5 endoscopies, and video-EEG were normal. She had been evaluated in 3 ERs and by 5 subspecialists. She worried about her health. She felt physicians approached her with a dismissive attitude and provided unsatisfying explanations. Fevers resolved on hospital day #3. The diagnosis of somatization disorder was disclosed. She was relieved to learn, that despite their chronicity her symptoms did not indicate medical deterioration and acknowledged that stress exacerbated them. Her discharge instructions included: • Monthly follow up with her family physician • Avoidance of medications with potential for serious side effects or addiction • Consideration of the risks of diagnostic procedures with her family physician • Replacing her diary detailing her symptoms with one describing relaxation methods or coping skills that brought relief. Although supported by clinical trials, she declined a course of cognitive behavioral therapy or SSRI. She asked the medical team to review somatization disorder with her husband. She has not returned to the ER and is seeing her family physician regularly.
DISCUSSION: A 2005 study reported that somatization accounts for $256 billion a year in medical care costs. A 1990 study estimated that 20% of the US medical budget was spent on patients who somatize. The prevalence of somatization disorder is 2.7%. However, the prevalence of undifferentiated somatoform disorder (1 non-feigned, unexplained symptom lasting 6 months that impairs function) is much higher. One study revealed that 33% of patients in a primary care waiting room have high somatic concern. Despite the prevalence, cost, and iatrogenic morbidity of somatoform disorders there is little emphasis on their management in medical education. Studies have demonstrated the effectiveness of the strategies described above. However, medical physicians are often unaware of these trials which are frequently published in psychiatric journals. The litigious nature of our society compounds the problem by encouraging physicians to consider somatoform disorders only after all other diagnoses have been eliminated. Medical school curriculums should include instruction on the management of somatoform disorders.

ATRIAL MYXOMA IN A PATIENT PRESENTING WITH SYMPTOMS OF CONGESTIVE HEART FAILURE. K.M. Setoodeh[1]; A. El-Bialy[1]. [1]Olive View/University of California, Los Angeles Medical Center, Sylmar, CA. *(Tracking ID # 154635)*

LEARNING OBJECTIVES: 1. Recognize the possibility of atrial myxoma in the differential diagnoses of heart failure in a patient with no cardiovascular history and new-onset CHF.
CASE: A 63 year-old woman with a history of asthma, hypertension and heavy tobacco use presented with progressive bilateral lower extremity edema, dyspnea on exertion, orthopnea and paroxysmal nocturnal dyspnea for three weeks. She denied chest pain, constitutional symptoms or prior cardiovascular disease. The patient was tachypnic with a respiratory rate of 28 and her oxygen saturation was 65% on room air (improved to 98% on 4L oxygen). Vital signs were otherwise stable. She had jugular venous distension to the angle of the jaw. Cardiac exam revealed a right ventricular S3, right ventricular heave, and a laterally displaced PMI. Her lungs had bibasilar crackles and mild wheezes. She had 3+bilateral edema to the knees. EKG revealed biatrial enlargement, poor R-wave progression and nonspecific ST-changes. First Troponin was 0.16 and decreased subsequently. She was diagnosed with new-onset CHF, admitted to the medicine service and improved significantly with diuresis. She was initially placed on a heparin drip, aspirin and clopidogrel for possible NSTEMI. Cardiology performed a TTE and subsequent TEE, which demonstrated a 5.9 × 5 cm, pedunculated, mobile atrial mass consistent with a large atrial myxoma traversing the tricuspid valve. The right atrium and ventricular were significantly enlarged and the pulmonary artery pressure was 59. Left ventricular function was preserved. Coronary angiography demonstrated clean coronaries, and the patient underwent cardiac surgery for resection of the mass.
DISCUSSION: Atrial myxoma is the most common primary benign heart tumor. Most cases occur in women and are sporadic. The most frequent site is the left atrium near the fossa ovalis. Ninety percent are solitary and pedunculated, while multiple tumors are usually limited to the rare familial type. Constitutional symptoms, due to the production of IL-6, are the most common presenting symptoms. Symptoms from heart failure due to involvement of the mitral or tricuspid valve or from systemic emboli also can occur. Sudden death from complete occlusion of a valve or from coronary or systemic emboli can occur, but fortunately is rare. Atrial myxoma should always be considered in new onset CHF in a patient without cardiovascular history or with constitutional symptoms. It can usually be diagnosed through TTE. Complications such as CHF and arrhythmia should initially be treated medically; however cardiac surgery for tumor resection should be done as soon as possible. Surgery is highly successful and, except for the familial type, reoccurrence rates are extremely low.

ATRIAL MYXOMA PRESENTING AS CHF. Z.K. Siddiqui[1]; M. Kochar[1]; M. Cunnane[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 152528)*

LEARNING OBJECTIVES: 1. To recognize CHF as a presenting symptom of atrial myxoma and to recognize that atrial myxoma can mimic a variety of other disorders. 2. To describe uses and limitation of common imaging modalities in diagnosis of atrial myxoma 3. To recognize the urgency required in management of atrial myxoma.
CASE: Ms. D.M. is a 74 year old female with HTN, CAD, breast cancer and DVT who presented with 3 weeks of worsening SOB and orthopnea after a 4–5 hour car ride and dietary indiscretions. She denied PND or lower extremity edema. Physical exam revealed no JVD or pedal edema; cardiac exam revealed no murmur and pulmonary exam was normal. EKG showed NSR and no ischemic changes. CXR showed minimal bilateral pleural effusion and mild pulmonary vascular congestion. BNP was 271and D-dimer was greater than 1000. Patient improved with IV lasix. PE protocol CT scan showed normal pulmonary vasculature and an opacity in the left atrium that was read as "likely due to blood/contrast level". A TEE revealed a 6 cm left atrial mass attached to interatrial septum by a thin stalk that prolapsed into left ventricle producing pseudomitral stenosis consistent with left atrial myxoma. PA pressure was 71 mmHg and left ventricle function was normal. She underwent resection of the mass with pathological confirmation. Echocardiogram after surgery revealed a PA pressure of 30 mmHg.
DISCUSSION: Primary cardiac tumors have an incidence of 0.001–0.030% on autopsy. Of these, atrial myxomas are the most common and constitute 50%. They are benign, but they may embolize and recurrence can occur in familial forms. 75% of the myxomas occur in left atrium and most often they are solitary. Multiple myxoma may be hereditary, in which case family members should be screened. Symptoms are non specific and only 6–12% of the patients are clinically suspected to have atrial myxoma. Obstructive symptoms (CHF, syncope and near syncope) occur in 75% and most commonly mimic mitral stenosis as these tumors prolapse through the mitral valve. Patients may have diastolic murmur preceded by a tumor plop (TP) that may be confused with an opening snap. A 40 year case series reported a 15% rate of TP finding, interestingly, all detected before 1989. The presence of cardiac signs delays diagnosis as these may be explained away by presence of hypertension and CAD. Tumors are reported to embolize in 33% of the cases, most often to CNS causing stroke or fusiform aneurysms that can hemorrhage. Systemic constitutional symptoms may resemble collagen vascular disease, vasculitis or malignancy. Multiple organ emboli with systemic symptoms mimic endocarditis. TEE is the diagnostic test of choice and a mobile mass attached by a thin stalk to the interatrial septum in left atrium is considered diagnostic. MRI can provide similar information as well as can diagnose other cardiac tumors and provide information about other intra-thoracic processes. Routine CT scans have poor resolution and incidentally intracardiac detected filling defects on CT are likely to be thrombi, the most common intracardiac mass. Treatment for atrial myxoma is relatively urgent surgical removal because of high risk of embolization, though, unlike

atrial thrombus, no data is available about risk of embolization over a given time period.. Distal emboli require surgical removal. Prognosis is good, though recurrences rarely occur.

ATRIAL SEPTAL ANEURYSM CAUSING RECURRENT STROKE–A LONG WAY TO GO. R. Jindal[1]; B. Singh[1]; B. Arora[1]; H.J. Freidman[2]. [1]St. Francis Hospital, Evanston, IL, Evanston, IL; [2]St. Francis Hospital, Evanston, IL. *(Tracking ID # 154795)*

LEARNING OBJECTIVES: 1. To recognize the importance of atrial septal aneurysm with patent foramen ovale as a significant cause of recurrent stroke. 2. To recognize importance of performing Transesophageal echocardiogram in patients presenting with cryptogenic stroke. 3. To recognize the importance of enrolling stroke patients with PFO with ASA in clinical trials to assess efficacy of secondary prevention.
CASE: 50-year-old female was admitted through Emergency room with the complaint of headache. She admitted to having an episode of left sided numbness 5 days prior to admission, which lasted 2 hrs and resolved spontaneously. Her past medical history was significant for hypertension and hypothyroidism, both well controlled with medications. Physical examination was essentially normal with no focal neurological deficit. Initial routine labs were normal. A CT scan of the head showed a 1.5 cm hypo density in right parietal lobe consistent with acute ischemic stroke. Transthoracic echocardiogram, carotid doppler, EEG, venous doppler of lower extremities and coagulation studies were done and were normal. Transesophageal echocardiogram with saline bubble study was done to evaluate the cause of stroke and showed aneurysm of interatrial septum with atrial septal defect and patent foramen ovale. Patient was anticoagulated and referred to cardiothoracic surgeon for possible surgical intervention.
DISCUSSION: Cryptogenic stroke, which constitute 30–40% of all strokes, is defined as stroke with no identifiable cardioembolic or large vessel source, and in a distribution that is not consistent with small vessel disease. The combination of PFO and ASA, which is seen in 14–18% of stroke patients confers an increased risk for subsequent stroke (but not death) compared with other cryptogenic stroke patients without atrial abnormalities. Thus PFO with ASA constitutes a significant potentially modifiable risk factor for secondary stroke prevention. Role of PFO alone in causation of stroke is controversial. Transesophageal echocardiography (TEE) is the most sensitive test in detecting PFO with ASA and is the diagnostic modality of choice. Treatment options for PFO with ASA include either medical therapy (with Aspirin or Warfarin) or surgical or percutaneous closure. The optimal therapy of patients with a PFO and ASA who have had a cerebrovascular event is not well defined because definitive controlled trials specifically addressing this issue have not been completed. At present there is insufficient evidence to evaluate the efficacy of surgical or percutaneous closure compared with medical therapy. Therefore, all patients with cryptogenic stroke (especially patients younger than 55 years of age) should undergo TEE for possible PFO with ASA and if positive should be enrolled in a clinical trial to assess efficacy of various treatment options for secondary prevention of stroke.

AUTOIMMUNE PANCREATITIS MIMICKING A PANCREATIC NEOPLASM. E. Tsai[1]; W. Wassef[1]. [1]University of Massachusetts Medical School (Worcester), Worcester, MA. *(Tracking ID # 150599)*

LEARNING OBJECTIVES: Recognize the clinical and diagnostic features of autoimmune pancreatitis
CASE: A 62-year-old woman with a seven month history of abdominal discomfort, steatorrhea, and newly diagnosed diabetes presented to the hospital with acute epigastric pain and jaundice. The patient did not have any risk factors for pancreatitis: she did not consume alcohol; serum calcium and triglyceride levels were normal; she tested negative for the cystic fibrosis transmembrane conductance regulator (CFTR) mutation. Serum hepatic function tests were elevated in a pattern consistent with obstructive cholestasis (total bilirubin 7.1; alkaline phosphatase 1494; AST 119; ALT 146); amylase and lipase levels were normal. Abdominal CT scan revealed a bulky, enlarged pancreas with a heterogeneous mass in the pancreatic head associated with intrahepatic biliary ductal dilatation. EUS was non-diagnostic. Due to the high suspicion for pancreatic malignancy, the patient was referred for a pancreaticojejunostomy. At surgery, dense inflammation and sclerosis of the pancreas and extrahepatic biliary tree were found. Biopsy revealed a marked fibrosis and a lymphoplasmacytic inflammatory infiltrate, consistent with autoimmune pancreatitis. Immunohistochemistry demonstrated IgG4-positive cells. Oral prednisone therapy was started at 40 mg daily. Within two weeks of the initiation of steroids, the patient had symptomatic relief and liver function tests were normalizing.
DISCUSSION: Autoimmune pancreatitis (AIP) has been described most prominently in Japan, but this disease entity is gradually being recognized worldwide as a potential etiology of chronic pancreatitis in patients without risk factors or a hereditary component. Clinical features include recurrent attacks of acute pancreatitis, abdominal pain, jaundice, weight loss or new-onset diabetes. On radiologic imaging, a diffusely enlarged "sausage-shaped" pancreas is commonly seen with irregular stricturing of the pancreatic and occasionally the biliary duct. ERCP findings may include narrowing of the main pancreatic duct and the distal common bile duct, which may raise suspicion for a pancreatic head mass or tumor. Since clinical and radiographic findings alone may not be sufficient to distinguish AIP from pancreatic cancer, definitive diagnosis often requires tissue biopsy. Histologically, AIP is characterized by an infiltration of lymphoplasmacytic plasma cells and fibrosis in the pancreas. Since these plasma cells may bear immunoglobulin G4, the serum IgG4 level may be elevated. However, in a large fraction of cases, the IgG4 level is normal, contributing to the difficult diagnosis. AIP may be associated with other autoimmune disorders such as rheumatoid arthritis or Sjogren's syndrome; therefore, autoantibodies may be present. The mainstay of AIP therapy is corticosteroids. Oral prednisone at 20 to 40 mg/day offers symptom abatement and stricture improvement, which may parallel a decline in serum immunoglobulin (total and class 4 IgG) level and liver chemistries. AIP should be considered in the differential of pancreaticobiliary disease; this may identify patients who may benefit from corticosteroids without subjecting them to extensive pancreas surgery.

BE STILL MY HEART! A SHOCKING DIAGNOSIS IN A 54 YEAR OLD MAN WITH NON-ISCHEMIC CARDIAC ARRESTM. Muchmore[1]; P. Helgerson[2]. [1]Stanford University, Palo Alto, CA; [2]Palo Alto VA Health Care System, Palo Alto, CA. *(Tracking ID # 153365)*

LEARNING OBJECTIVES: 1. Generate an appropriate differential diagnosis for non-ischemic causes of ventricular fibrillation. 2. Recognize Type I Brugada syndrome and understand the appropriate therapeutic options as well as the implications of the diagnosis.
CASE: A 54 year old Caucasian man with schizophrenia, bipolar affective disorder, and dyslipidemia was observed by a bystander in a movie theater to suddenly collapse. CPR was initiated by a physician in the theater prior to the arrival of the paramedic team. The patient was noted to be pulseless at the onset of CPR and further, by the paramedics, to be in ventricular fibrillation. This rhythm resolved to normal sinus after three consecutive shocks with an automated external defibrillator. After transport to the hospital and stabilization, initial ECG was read as normal sinus rhythm with a right bundle branch block (RBBB). The patient had a peak CK of 3724 U/L and a peak troponin of 0.8 mcg/L. Coronary angiogram and echocardiography demonstrated no coronary artery disease or structural heart disease. Additional history revealed a report of two previous syncopal episodes of unknown origin. Medications were olanzapine and lamotrigine. The patient denied use of supplements or illicit drugs. Family history was negative for sudden death or heart disease. The patient was transferred to our institution for implantation of an automated implantable cardioverter-defibrillator (AICD). Further review of the ECG revealed a pattern consistent with Type I Brugada syndrome. The patient remained asyptomatic during his hospital stay, and an AICD was implanted prior to discharge. The patient planned to have his family members screened for Brugada syndrome.
DISCUSSION: The vast majority of sudden cardiac deaths caused by ventricular fibrillation are due to myocardial infarction. The differential diagnosis of sudden cardiac death in the absence of structural heart disease includes drug-induced arrest/medication reaction, electrolyte abnormalities, long and short QT syndromes, Wolff-Parkinson-White syndrome, and Brugada syndrome. Brugada syndrome is uncommon, with a prevalence of less than 1% in epidemiological studies. The classic ECG pattern of Brugada is pseudo-RBBB with ST segment elevation in leads V1 through V3. Clinical manifestations are nine times more common in men than women and more common in Southeast Asian populations. The pathophysiology is related to a defective myocardial sodium channel gene (SCN5A) in most patients, with variably penetrant autosomal dominant inheritance. However, the syndrome is clearly heterogenous since the characteristic ECG findings can be seen with early right ventricular dysplasia, cocaine abuse, and certain psychotropic drugs. AICD implantation is the definitive treatment for Brugada syndrome, though one study suggests that administration of high-dose quinidine prevents arrhythmia while being both less expensive and less invasive. A proper diagnosis of Brugada syndrome will further allow the internist to screen the patient's family through regular ECG testing and to counsel avoidance of common medications that can precipitate a ventricular fibrillation pattern, including tricyclic anti-depressants and sodium channel blockers.

BEHIND THE MASK OF A URI: A GREAT MASQUERADER SHOWS ITS FACE. M.L. Cohen[1]; C.J. Dine[1]; A. Barden-Maja[1]. [1]University of Pennsylvania, Philadelphia, PA. *(Tracking ID # 155930)*

LEARNING OBJECTIVES: 1. Recognize extrathoracic manifestations of sarcoidosis, particularly ocular and facial manifestations. 2. Manage the initial work-up of a patient suspected of having sarcoidosis. 3. Assess diagnostic studies and appropriately stage patients undergoing work-up for a sarcoidosis.
CASE: 31 year-old African American female with past medical history significant only for GERD presented to her primary care provider with complaints of fevers, chills, facial swelling and congestion. She noted that her eyes felt "puffy" despite adequate sleep. She was initially diagnosed with a URI and given decongestants and a Z-pak. She continued to have symptoms and returned several weeks later concerned about daily low-grade fevers as well as progressive chest discomfort, intermittent wheezing, non-productive cough, and fatigue. She also noted continuing to feel that her eyes were swollen. At ths time she was noted to have mild periorbital edema with bilateral conjunctival injection with conjunctival follicles on exam. Urinalysis was negative for proteinuria. Extensive workup lead to findings of bilateral hilar adenopathy on CXR, chest CT with infiltrates suggestive of sarcoidosis and noncaseating granulomas found on pathology from bronchoscopy. During the time course of her work-up, she also developed a femoral nerve neuropathy. She was subsequently diagnosed with sarcoidosis, treated with low-dose steroids, and had resolution of her symptoms.
DISCUSSION: Sarcoidosis most frequently involves the lung, with the most common presenting symptoms in symptomatic patients with pulmonary sarcoidosis being cough, dyspnea and chest pain. However, up to 30 percent of

patients present with extrathoracic manifestations of sarcoidosis. Women are more likely to have neurologic or ocular involvement while men more commonly have abnormalities in calcium homeostasis. Ophthalmologic involvement occurs in up to 20 percent of patients and may be the presenting symptom in 5 percent. Ocular involvement can take various forms, including anterior or posterior uveitis, retinal vasculitis, keratoconjunctivitis, or conjunctival follicles. Maculopapular eruptions about the nose, lips, eyelids, or forehead; lupus pernio involving the nose, cheeks, chin and ears; and exocrine involvement involving swelling of the salivary, parotid, or lacrimal glands may all be facial manifestations of disease. Pulmonary disease can be staged based upon chest x-ray findings, though HRCT usually provides more detailed information regarding extent of disease. Ophthalmologic examination, pulmonary function testing, blood testing, EKG, Tb testing, and urinalysis are all other recommended parts of the initial work-up for a patient suspect of having sarcoidosis. In most cases, histologic evidence of noncaseating granulomas should be sought.

BETA BLOCKADE IN ACUTE MYOCARDIAL INFARCTION: MAINSTAY OR MAELSTROM?. B. Carlson[1]; M. Walsh[1]. [1]Hennepin County Medical Center, Minneapolis, MN. *(Tracking ID # 154701)*

LEARNING OBJECTIVES: 1) Understand the potential risks of beta blocker usage in the management of acute myocardial infarction [AMI], 2) Recognize the wide variability of symptoms in the presentation of AMI, 3) Understand the challenges of maintaining current standard of care versus embracing new modalities in light of novel clinical evidence.
CASE: A 48 year-old Somali male presents to clinic with a two week history of mid-epigastric pain. It is post-prandial in nature and exacerbated by certain foods. He has no chest pain, palpitations, or syncope, and states an exercise tolerance of twenty-four flights of stairs. Physical exam reveals mid-epigastric tenderness reproducible upon palpation, but is otherwise unremarkable. The patient is treated for presumptive esophageal reflux and instructed to return in two weeks. Two weeks later, he returns with constipation and diffuse abdominal tenderness. On exam, he is normotensive but tachycardic with a heart rate of 125 bpm. He has abdominal distention and decreased skin turgor. An EKG is obtained, revealing sinus tachycardia and ST depression in I, II, V4, V5, V6 and Q waves in V1, V2, and V3. His troponin is noted to be elevated to 1.8, and the patient is admitted for a non-ST elevation myocardial infarction. He subsequently receives aspirin, heparin, and nitroglycerin per the Acute Coronary Syndrome protocol and one dose of intravenous metoprolol. Within minutes of medication administration, he rapidly decompensates into flash pulmonary edema and cardiogenic shock. His blood pressure is 74/52 and pulse is 99. He undergoes echocardiography and angiography where he is found to have severe left main coronary artery occlusion and severe left ventricular (LV) dysfunction with an ejection fraction of 10%. Consequently, he undergoes balloon pump catheterization and coronary artery bypass grafting for his left main disease.
DISCUSSION: Beta blockers are widely recognized as mainstays of AMI management. Current AHA guidelines recommend their administration early in the management of AMI, but also highlight the relative contraindications to their use such as shock, bradycardia, and decompensated CHF. Upon presentation, our patient met the criteria for administration of beta blockers in AMI. Unfortunately, even a small dose of metoprolol decompensated him quickly as he was dependent on his tachycardia to maintain cardiac output. Beta blockade inhibited this compensatory mechanism, resulting in cardiogenic shock and clinical instability. One must be cognizant of the ramifications of beta blocker use in the early setting of AMI and the risk of inducing cardiogenic shock, especially in patients with no signs of heart failure (KILLIP Class I). This caution must be balanced with the benefits of beta blockade in prevention of arrhythmias and sudden death in the later stages of AMI. The recent publication of the COMMIT/CCS-2 trial highlights this exact issue. Their study results indicate that intravenous metoprolol in the setting of AMI did not lead to a reduction in in-hospital mortality. Moreover, this intervention increased the risk of cardiogenic shock, especially on days 0-1. Rates of reinfarction and ventricular fibrillation, however, were decreased. This data gives strong voice to the argument that beta blockers may be better suited for patients in the later stages of AMI and as maintenance therapy, although current guidelines still maintain its use in the first few minutes of AMI.

BEWARE WHAT LIES BENEATH A RASH. R. Evans[1]; L. Gerber[2]. [1]University of Pittsburgh, Pittsburgh, PA; [2]VA Pittsburgh, Pittsburgh, PA. *(Tracking ID # 156441)*

LEARNING OBJECTIVES: 1) To recognize visceral varicella 2) To state the medical therapy of varicella.
CASE: A 52 year old male presented with colicky epigastric, non-radiating abdominal pain of 5 days duration. He was afebrile, tachycardic (to 140) and orthostatic. His abdominal exam revealed epigastric tenderness without guarding or obvious distension. Bowel sounds were normal. The remainder of the exam was normal apart from a rash on his abdomen that consisted of several small erythematous papules. His lab work revealed SGOT 123, SGPT 106, GGT 46, platelet count 81000, WBC 10 (61% PMN, 10% bands). An abdominal x-ray was normal. On day one of his admission his rash evolved into a papular vesicular lesions. His postural hypotension did not respond to fluid resuscitation. On day three, he vomited undigested food from the previous day. A succusion splash was obtained on clinical exam. Abdominal CT scan revealed a massively distended stomach. UGI endoscopy revealed widespread gastric ulcerations. A Tzanck smear from these ulcers was positive for multinucleated cells with inclusion bodies and his varicella IGM titers were strongly positive. He responded to IV acyclovir and had begun resolution of his symptoms after 1 week. After two weeks he was discharged home with complete abatement of his symptoms.
DISCUSSION: Varicella is a common infection. There were 220,642 new cases in the USA in 1995 leading to an estimated 5000 to 9000 hospital admissions. 1 in 50 cases of varicella is associated with a complication. Its characteristic rash usually diagnoses varicella clinically. It can be diagnosed by viral cultures, the Tzanck smear and by serology. More extensive skin lesions and a higher risk of serious complications such as pneumonia, encephalitis and death characterize primary varicella in adults. Visceral varicella is extremely rare in patients who do not have a severely compromised immune system. We did not find any previous case reports of visceral varicella in adults who were not known to be immunocompromised. Those adults most at risk of this complication are those with Leukemia and HIV. Recently, bone marrow transplant recipients have emerged as being at extreme risk of varicella infection (30–50% develop infection in first year). They have a higher incidence of visceral varicella. A case series of 10 patients reports that visceral varicella presented with abdominal pain an average of 6 days before the onset of the rash. In vulnerable patients, severe abdominal pain and abnormal liver tests may be the only presenting signs of disseminated varicella. In disseminated varicella, the autonomic system may be affected resulting in signs such as postural hypotension and persistent tachycardia. The initiation of antivirals such as acyclovir or valacyclovir is recommended for all adults who develop varicella. Treatment with oral acyclovir for 5 to 10 days is sufficient for those who are not severely immunosuppressed. Immunocompromised patients should receive IV acyclovir. Acyclovir and valacyclovir disrupt viral DNA replication and hence must be initiated within the first 48 hours of onset of the rash.

BIG HANDS, BIG JAW, BAD BACK: AN UNUSUAL PRESENTATION OF PREVIOUSLY UNDIAGNOSED ACROMEGALY. K. Luce[1]. [1]University of Tennessee, Chattanooga, TN. *(Tracking ID # 151478)*

LEARNING OBJECTIVES: To explore the differential diagnosis of cauda equina syndrome and its possible association with spinal stenosis and to discuss the diagnostic work-up of suspected acromegaly.
CASE: A 60-year-old woman had a several week history of gradual onset left lower extremity weakness and worsening chronic back pain. History included several years of pain management for severe spinal stenosis. Initial examination revealed profound right distal extremity weakness, sensory abnormalities consistent with cauda equina syndrome, and poor rectal tone. Magnetic resonance imaging (MRI) revealed interim worsening of her spinal stenosis with areas of disc herniation and nerve impingement. Neurosurgical intervention resulted in significantly improved motor function and resolution of sensory and rectal abnormalities. The neurosurgeons expressed surprise that the severity of the patient's spinal stenosis led to a presentation of cauda equina syndrome, resembling an epidural abscess or vertebral neoplasm. On further examination of the patient, there were subtle physical findings such as prominence of mandible, large hands, a prominence of the sternum, and thick heel pads that were consistent with a possible underlying endocrine abnormality. The suspicion led to a detailed research effort into possible secondary causes of spinal stenosis. Screening showed an increased serum insulin growth factor-I (IGF-1) level (4.0 μg/dL; reference 1.5 to 2.4 μg/dL normal) and a confirmation glucose suppression test demonstrated a high serum growth hormone (2.6 ng/dL; reference $<$1.0 ng/dL normal), establishing the diagnosis of acromegaly. Brain imaging revealed an enlarged sella turcica, which could be indicative of a pituitary adenoma. However, the patient reviewed treatment options available and chose a conservative approach with oral cabergoline therapy.
DISCUSSION: When faced with a neurologically debilitating case of spinal stenosis, secondary causes should be considered. Careful observation of the patient, detailed history and physical examination still remain crucial to recognizing important diagnoses. What the mind knows, the eyes see and the hands feel.

BIG HEAD DISEASE. K. Perez[1]; G. Gopalakrishnan[1]; B. Misra[1]; C. Smitas[1]; T. Tupper[1]. [1]Brown University, Providence, RI. *(Tracking ID # 153514)*

LEARNING OBJECTIVES: Recognize the clinical presentation of Uremic Leontiasis Ossea (ULO) in patients who have developed renal osteodystrophy.
CASE: 40yo female with end stage renal disease (ESRD) on hemodialysis presented with progressive visual loss over 2 days and papilledema. Her past medical history was significant for ESRD secondary to glomerulonephritis, and her course has been complicated by failed allograft renal transplant and parathyroidectomy. Her exam was significant for absent visual acuity, enlarged cranium especially in the frontal, occipital and maxilla areas. Her creatinine 5.6; corrected calcium 7.96; phosphorus 6.1; alkaline phosphatase 96; Vitamin D 1, 25 10; Vitamin D 25 17; and PTH 13. A head CT was normal except for a skull that was markedly thickened and pagetoid in appearance. A lumbar puncture was significant for an elevated opening pressure, otherwise negative for infectious etiology. Patient was treated with high dose steroids and a lumbar drain was placed for presumed pseudotumor cerebri. Despite interventions, there was no improvement of her vision. Considering her presentation and clinical course, a diagnosis of ULO was made postoperatively.
DISCUSSION: Renal osteodystrophy is a general term for all the disorders of calcium and phosphate metabolism which results in abnormalities of the musculoskeletal system following chronic renal impairment. Uremic Leontiassis Ossea also known as "Big Head Disease", is a rare presentation of renal osteodystrophy. It is a term that describes the craniofacial bone changes seen

in renal osteodystrophy. The most dreaded complication is irreversible visual loss secondary to optic canal stenosis. The incidence is unknown. Of the 8 cases noted in the literature, the predisposition for maxillo-cranial involvement has not been determined. Although very few cases have been reported, as patients with ESRD live longer, the prevalance is likely to increase. Treatment of ULO is parathyroidectomy. However because of the formation of cortical thinning and trabecular expansion in renal osteodystrophy, clinical features either stabilize or worsen. In cases in which optic nerve compression is a complication, treatment is steroids and surgical decompression. Unfortunately, only one case in the literature demonstrated improvement in vision after treatment. What was notable in this case was that the recommended intervention was done in a timely manner. This case illustrates the need for prompt recognition of nerve impingement resulting from bone overgrowth as a complication of ESRD.

BILATERAL LUNG MASSES IN A YOUNG MAN. R. Batwara[1]; B. Varkey[1]; K. Pfeifer[1]. [1]Medical College of Wisconsin, Milwaukee, WI. *(Tracking ID # 153346)*

LEARNING OBJECTIVES: 1. Identify an uncommon mimic of cancerous metastases in the lungs. 2. Describe the unusual and often striking radiologic features of nodular pulmonary sarcoidosis. 3. Understand the course of the disease and initiate medical therapy at the appropriate time.
CASE: A 36 year-old African-American man presented to the emergency department with acute onset of right-sided upper back pain. He had no previous injury and no significant past illnesses. Physical examination including vital signs, respiratory, cardiac, musculoskeletal, neurologic, dermatologic and lymphatic sytems was normal. A chest radiograph and subsequent chest CT scan showed multiple bilateral pulmonary nodules, the largest measuring about 5 cm in diameter, and bilateral hilar lymphadenopathy. On admission, his CBC, basic chemistry, angiotensin converting enzyme and complement levels were normal, and HIV, RPR, ANA, ANCA and tuberculin skin tests were negative. Mediastinoscopic lymph node biopsy showed non-caseating granulomas with negative fungal and AFB stains, supporting the diagnosis of sarcoidosis. The patient's back pain resolved, and being asymptomatic, he was discharged without any corticosteroid treatment. On follow-up visit one month later, he complained of a frequent dry cough. Repeat chest radiograph at this time showed no change in his lung nodules. At this point he was started on oral corticosteroid treatment (prednisone 30 mg/day). One month later his cough had resolved, and a follow-up chest CT showed marked decrease in the size of the nodules. Another chest radiograph three months later, showed almost complete resolution of the lung nodules.
DISCUSSION: Sharma et al were the first to use the term 'nodular sarcoidosis' in their report of six cases (Chest, 1973) to describe the discrete large lung nodules that simulate metastatic carcinoma. This is a rare presentation occurring in 1.6% to 4% of patients with pulmonary sarcoidosis. Most cases are bilateral and are often associated with hilar lymphadenopathy. The diagnosis is made by demonstrating non-caseating granulomas on tissue biopsy. If necrosis and vasculitis are seen in addition to the granulomas, the term necrotizing sarcoid granulomatosis is appropriate. Because of its rarity, the literature does not provide precise information on the natural history and treatment indications of nodular sarcoidosis, although most cases report a favorable prognosis. In our patient, the observation that the lung nodules remained radiographically unchanged after the first month without treatment and markedly decreased in size in the subsequent month with oral steroids suggests that corticosteroids hastened the resolution of sarcoid nodules.

BILATERAL PULMONARY NODULES IN A HEAVY SMOKER: WHAT WOULD YOU SUSPECT?. K. Gaurav[1]. [1]University of Tennessee, College of Medicine - Chattanooga Unit, Chattanooga, TN. *(Tracking ID # 151321)*

LEARNING OBJECTIVES: Recognize unusual causes of bilateral pulmonary nodules in a heavy smoker.
CASE: A 73 year old male with a 70 pack year smoking history, presented with exertional dyspnea for several months. Complete review of systems including chest pain, hemoptysis, edema, paroxysmal nocturnal dyspnea, orthopnea, fever, weight loss or night sweats was negative. Physical exam revealed stable vital signs, diminished breath sounds, prolonged expiration without any adventitious sounds. The rest of the exam was unremarkable. Complete blood count, CMP, urinalysis were normal. Echo was unremarkable. Chest X-ray showed bilateral ill defined nodular opacities. RA factor and ANA was negative. Spiral CT thorax revealed multiple bilateral soft tissue lung masses. Whole body Pet CT revealed FDG enhancement only of the pulmonary masses. BAL was negative for AFB, nocardia and fungi. Trans-bronchial lung biopsy showed findings consistent with amyloidosis. Congo red and crystal violet stains showed typical amyloid patterns. Thoracoscopic biopsy confirmed the diagnosis of diffuse and nodular amyloid deposition.
DISCUSSION: Metastatic solid organ malignancies are the most common cause of multiple pulmonary nodules and account for 80% of such cases. Other diagnoses include multiple abscesses, septic emboli, fungal infection, non-inflammatory conditions i.e. rheumatoid arthritis, sarcoidosis, wegner's and lymphomatoid granulomatosis, amyloidosis, AV malformations and pneumoconiosis. Amyloidosis is a subset of diseases produced by deposition of misfolded proteins ultimately compromising the function of target organ and producing clinical disease. Commonly involved organs are kidneys, heart, spleen, liver, tongue, bone marrow, skin, blood vessels and nerves both peripheral and central. Although several cases of primary pulmonary amyloidosis have been reported in the literature very few of them were in the US. Primary pulmonary amyloidosis is a rare disorder that appears in three forms - trachebronchial, nodular parenchymal and diffuse parenchymal. Tracheobronchial presents with airway obstruction symptoms. Nodular parenchymal is mostly asymptomatic. Diffuse primary pulmonary amyloidosis usually presents with dyspnea. Given our patient's risk factors we had a strong suspicion for infection or malignancy which were ruled out. The lack of effective treatment for PPA renders the prognosis grim. Though PPA is a rare entity, this case emphasizes the value of tissue diagnosis especially in a patient with a high pretest probability for malignancy, and the need for further research on this entity.

BLEOMYCIN-INDUCED LUNG INJURY: A CAUSE OF RESPIRATORY FAILURE IN A PATIENT RECEIVING CHEMOTHERAPY. D.D. Kim[1]; S. Rivera[2]. [1]University of California, Los Angeles Medical Center, Glendale, CA; [2]University of California, Los Angeles Medical Center, Los Angeles, CA. *(Tracking ID # 154879)*

LEARNING OBJECTIVES: Diagnose and manage bleomycin-induced lung injury.
CASE: The patient is a 37-year-old man with a history of stage II Hodgkin lymphoma status post eleven cycles of doxorubicin, bleomycin, vinblastine, and dacarbazine (ABVD) who presented to the emergency department with a 3-month history of progressive dyspnea and an episode of hypoxia to 70% oxygen saturation on home oxygen. He denied any fevers, chills, cough, chest pain, or peripheral edema. The patient previously had good response to ABVD, which was last given one month prior. He did not receive any chest radiation therapy. Approximately 2 weeks prior to presentation, the patient was seen at an outside hospital for his dyspnea, treated with levofloxacin, and discharged on nasal canulla oxygen. Physical exam was signficant for a respiratory rate of 32 and oxygen saturation of 75% on room air. The patient was in moderate respiratory distress. Lung exam revealed decreased breath sounds throughout. He was placed on broad-spectrum antibiotics and required intubation and mechanical ventilation soon after admission. CT of the chest revealed diffuse bilateral ground glass opacification with areas of fibrosis as well as bronchiectesis. Bronchoscopy revealed negative cytology and bronchoalveolar lavage cultures. Based on his history, radiography, and lack of infectious etiology, he given the diagnosis of bleomycin toxicity. The patient was treated with intravenous methylprednisolone. After four weeks of mechanical ventilation, he was liberated from the ventilator. Repeat chest CT revealed almost complete resolution of the previous findings.
DISCUSSION: Bleomycin-induced lung injury consists mainly of pneumonitis leading to pulmonary fibrosis and less commonly eosinophilic hypersensitivity pneumonitis and bronchiolitis obliterans with organizing pneumonia in the setting of exposure to bleomycin. Interstitial pulmonary fibrosis can occur in up to 46% of patients receiving bleomycin. The pathogenesis is thought to involve the relative lack of bleomycin hydrolase, an enzyme that inactivates bleomycin, in the lungs, leading to accumulation of the active form, oxidative damage to endothelial cells, and influx of inflammatory cells. Risk factors include higher doses of bleomycin, age greater than 70 years, high FIO2 inhalation, thoracic radiation, renal insufficiency, and smoking. Patients usually develop subacute signs and symptoms between 1 to 6 months after bleomycin exposure, which include dyspnea on exertion, tachypnea, hypoxia, rales, nonproductive cough, chest pain, fever, pneumothorax and pneumomediastinum. Diagnosis is suggested by clinical presentation and radiographic findings. Plain radiograph of the chest is variable but classically shows interstitial and alveolar infiltrates and consolidations. Chest CT may reveal linear and subpleural nodular lesions in the lung bases. Bronchoscopy and BAL should be perform to rule out pneumonia. A restrictive picture with decrease in DLCO is found in pulmonary function tests. Lung biopsy shows subpleural lung fibrosis, patchy alveolar damage, presence of inflammatory lymphocytes and plasma cells, endothelial cell necrosis, and excess collagen deposition. The cornerstone of treatment is to discontinue bleomycin as soon as the diagnosis is suspected. If possible, supplemental oxygen should be avoided. Case reports have shown significant improvement with corticosteroids, tapered over months based on response. Most other drugs have not been adequately studied in humans.

BOTHERSOME GYNECOMASTIA IN A CIRRHOTIC MAN USING HEROIN. S. Tchernodrinski[1]; B.P. Lucas[1]. [1]John H. Stroger Jr. Hospital of Cook County, Chicago, IL. *(Tracking ID # 156134)*

LEARNING OBJECTIVES: 1. Distinguish gynecomastia from pseudogynecomastia; 2. Recognize cirrhosis and heroin as causes of gynecomastia.
CASE: A thin 50 year old man complained of leg swelling, fatigue, and large breasts. He had a long history of using intravenous heroin but did not use alcohol or marijuana. He was not taking any medications. On physical examination he had small testicles but no evidence of ascites, palmar erythema, spider angiomata, or an enlarged liver or spleen. His breasts were symmetrically enlarged and the equatorial semi-circumference of each measured 17 cm (corresponding to an estimated "A-cup" bra size). Palpation of both breasts revealed rubbery disks of tissue 5 cm in diameter that were concentrically centered beneath each nipple. Laboratory testing showed poor synthetic liver function with an albumin of 2.4 gm/dL, total cholesterol of 60 mg/dL and a prothrombin time of 20 seconds. His total serum testosterone was 113 ng/dL (normal range 180 to 1600 ng/dL) with normal values of serum thyroid-stimulating hormone, estradiol, luteinizing hormone, and human chorionic gonadotropin. Testing for Hepatitis C antibody was positive. A CT scan of the abdomen showed a small liver that was cirrhotic in appearance with evidence of portal hypertension.
DISCUSSION: Our patient had liver cirrhosis from chronic hepatitis C infection. His presentation was remarkable for gynecomastia in the absence of other stigmata of chronic liver disease. Gynecomastia is a benign proliferation of

glandular breast tissue. Unlike pseudogynecomastia, which is caused by fat deposition without proliferation of glandular tissue, gynecomastia concentrically surrounds the nipples. Physical examination alone can distinguish the two. To isolate the tissue in question, an examiner should ask the supine patient to place his hands behind his head. The examiner should then centripetally run an index finger toward each nipple from a perimeter of clearly normal tissue. Gynecomastia is likely if circular ridges of rubbery tissue are centered by each nipple. Breast carcinoma is an uncommon malignancy in men. It is almost always unilateral, asymmetric, and can be associated with regional lymphadenopathy. If the physical examination is equivocal, mammography or ultrasonography can be helpful. Common causes of gynecomastia include persistent pubertal gynecomastia, medications (e.g., spironolactone), cirrhosis, and primary hypogonadism. Cirrhosis can lead to gynecomastia through several proposed mechanisms, including increased adrenal production of androstenedione and its subsequent conversion to estradiol. However, some suggest that the high prevalence of gynecomastia seen in cirrhotic patients is no higher than age-matched controls, particularly when aggressive surveillance reveals that gynecomastia can be found in half of all men ages 50 to 80. Our patient was also using heroin which, along with marijuana and alcohol, is reported to cause gynecomastia in the absence of cirrhosis. The combination of both known causes may explain the marked gynecomastia seen in our patient.

BREAST CANCER IN A TRANSGENDER PATIENT AND ROLE FOR SCREENING MAMMOGRAPHY. R.K. Kelley[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 154259)*

LEARNING OBJECTIVES: 1. Recognize risk of hormone-dependent tumors in genotypic male patients with hyperestrogen states. 2. Identify indications for screening mammography in transgender patient population. 3. Augment awareness of preventive medicine issues unique to transgender patient population.
CASE: A 53-year-old transgender male-to-female patient treated with conjugated estrogen supplementation presented as a new patient to our general internal medicine clinic with left breast skin changes, disfigurement, and discomfort progressive over one year. Saline implants had been placed in 1988. Family history was positive for breast cancer in three sisters, but there was no family history of uterine, ovarian, or male breast malignancy. Mammography revealed a large lobulated mass with dystrophic calcifications that was subsequently resected via left simple mastectomy. Microscopic examination showed high-grade malignant phyllodes tumor that was negative for estrogen receptor, progesterone receptor, and HER2neu overexpression. Given the tumor size and grade, computerized tomography of the chest was performed to evaluate for metastatic disease, revealing no evidence of pulmonary metastases. The patient was referred to a medical oncologist to evaluate role for adjuvant therapy, and yearly surveillance mammography of the right breast will be performed.
DISCUSSION: Phyllodes tumor is a rare neoplasm that comprises less than 1% of breast tumors in women. There are few case reports of phyllodes tumor occurring in males. Though this patient's tumor was negative for estrogen and progesterone receptors at resection, phyllodes tumor is thought to be a hormone-dependent lesion early in the progression of malignancy with subsequent loss of receptor expression as tumor grade increases, suggesting that high-dose estrogen therapy may have played a causal or contributory role in tumorigenesis in this case. Multiple case reports of hormone-dependent breast tumors in the transgender population and in males with other hyperestrogen states support the hypothesis that gender reassignment may confer a risk of hormone-dependent malignancies. Although there is no population data to date establishing an increased prevalence of breast cancer in transgender patients, limitations of the current literature include lack of long-term follow-up, few population-based studies, and small numbers of patients. Previously an uncommon procedure, patients with gender dysphoria now have increasing access to surgical and hormonal means of gender reassignment. In a 1996 study by van Kesteren et al., the prevalence of transsexualism in the Netherlands was calculated to be 1 in 11,900 men and 1 in 30,400 women; the prevalence of transsexualism in the United States is not known. With a growing population of transsexuals worldwide, general internists will increasingly provide primary care to transgender patients. Preventive medicine in this population requires consideration of both the prior and new phenotypic gender. There are currently no formal guidelines regarding indications for and frequency of breast cancer screening in the transgender population, but this case and review of the literature suggest a role for screening mammography in transgender male-to-female patients receiving long-term estrogen supplementation or with a strong family history.

BREWING UP A STORM: THE RAVAGES OF 'ROID RAGE. M. Cash[1]; C. Miller[1]. [1]Tulane University, New Orleans, LA. *(Tracking ID # 156840)*

LEARNING OBJECTIVES: 1. Identify the systemic manifestations of Graves' disease. 2. Recognize the cardiac morbidity associated with prolonged hyperthyroidism.
CASE: A 63-year-old man presented with a one-week history of diarrhea and intractable nausea and vomiting. His symptoms began two days following a hospitalization for the treatment of congestive heart failure. He had experienced self-limited bouts of diarrhea for the previous six months, but no previous episodes of nausea and vomiting. He denied consumption of undercooked meat, recent travel, or sick contacts. He also noted associated bilateral swelling of his legs, decreased exercise tolerance, and a 30-pound weight loss over the previous three months. He was afebrile with a pulse of 140 beats/min.; respirations of 16 breaths/min.; and a blood pressure of 120/55 mmHg. He appeared thin, diaphoretic, and tremulous. He had crackles at the bases of the lungs, lower extremity edema, and hyper-reflexia in all extremities. His thyroid gland was diffusely enlarged. His hemoglobin was 10 g/l; the BUN was 60 mg/dL, and the creatinine was 1.8 mg/dL. The observation the enlarged thyroid prompted a TSH that was read as undetectable (<0.01 mU/L) and a serum free T4 and T3 level that were greater than the upper limit of testing. He was diagnosed with thyrotoxicosis due to Graves' disease and started on high-dose beta-blockers, methimazole, prophylthiouracil, hydrocortisone, and later, sodium iodide.
DISCUSSION: Our patient had been hyperthyroid for nearly a year. Due to the unusual presentation, his condition remained undetected despite multiple hospital and clinic visits. Graves' disease is the most prevalent autoimmune disorder in the United States, but the incidence amongst men is one tenth of that of women. Heart failure is a rare complication in mild cases, but frequent in patients who have long-standing hyperthyroidism. The constilation of heart failure, diarrhea, and weight loss were ominous warnings that he was progressing toward thyroid storm. In most cases of hyperthyroidism, cardiac output is enhanced by increasing heart rate, left ventricular contractility, and decreasing systemic vascular resistance. The longstanding tachycardia may result in cardiomyopathy. It is distinguished from "high output" heart failure by echocardiographic evidence of low cardiac output and decreased cardiac contractility. The increased metabolic demands of hyperthyroidism may result in ischemia or heart failure in a patient with underlying systolic or diastolic dysfunction. Although aspirin has been shown to improve mortality in patients with ischemic heart disease, it displaces T4 from thyroid binding globulin, raising free T4 levels. As opposed to ischemic cardiomyopathy, aspirin is not recommended for cardiomyopathy due to thyroid storm. Because Grave's disease is common autoimmune disorder, the general internist should remain aware of the systemic complications of the disease as illustrated by our patient. Early diagnosis is vital to preventing the long-standing cardiac morbidity and potential mortality associated with the disease.

BRUGADA SYNDROME. A. Wright[1]; I. Katz[1]; L. Siegel[1]. [1]Brigham and Women's Hospital, Boston, MA. *(Tracking ID # 155799)*

LEARNING OBJECTIVES: 1) Recognize Brugada syndrome, an uncommon cause of syncope; 2) Learn important cause of sudden cardiac death without structural heart disease; 3) Remember that electrophysiology plays an important role in evaluating syncope.
CASE: A 61 year-old Chinese-American man with no past medical history presented with chest pain after a motor vehicle accident. Four days prior, he experienced sudden-onset, non-radiating substernal chest discomfort while driving home from work at 4 am. He tried to pull over but lost consciousness, hitting a guardrail. Chest X-ray at a nearby hospital was normal; he was discharged after observation. He presented to our hospital four days later with ongoing chest pain but no accompanying symptoms. His sole cardiac risk factor was age; there was no family history of sudden death. He reported three similar accidents over the past two years. In the emergency department, the temperature was 97.6, heart rate 60, blood pressure 124/82, respirations 12, oxygen saturation 98%. Exam revealed clear lungs, normal jugular venous pressure and normal heart sounds. Mild chest wall ecchymoses were present. There were no carotid, subclavian, or abdominal bruits; pulses were normal. Cardiac biomarkers and chest X-ray were normal. ECG showed sinus rhythm at 60; RSR' with 1-mm ST elevation in V1; 2-mm ST elevation with saddleback contour in V2; normal QT interval. CT angiogram showed no aortic dissection or coronary calcifications. The patient was admitted for evaluation of syncope. Telemetry and two additional sets of cardiac markers were normal. Echocardiography showed normal ventricular size, systolic function, and valves. Given the ECG, electrophysiology was consulted. An electrophysiology study with procainamide induced 1-mm coved ST elevation and T-wave inversion in V1, and programmed stimulation revealed easily-inducible ventricular tachycardia (VT). While strict criteria for Brugada syndrome were not met, he was considered high risk for arrhythmias and sudden death. An implantable cardioverter-defibrillator was placed.
DISCUSSION: Sudden cardiac death (SCD) occurs mainly in people with structural heart disease—80% with atherosclerosis and 10–15% with cardiomyopathy. In the 5% of SCD with normal hearts, causes include abnormal repolarization (Brugada, long QT syndromes) and transient triggers (toxic ingestions, autonomic changes). Unusual ST elevations in the right precordial leads led to this patient's diagnosis. First characterized in 2002, Brugada syndrome may cause 20% of SCD in patients with structurally normal hearts. ST elevations are often dynamic or concealed, necessitating a high degree of clinical suspicion. Criteria include coved ST elevation of >2 mm and T-wave inversion in >1 right precordial lead, combined with one of the following: ventricular fibrillation (VF), polymorphic VT, family history of SCD at <45 years old, inducible VT, syncope, or nocturnal agonal respiration. Brugada syndrome is linked to mutations in SCN5A, the gene encoding the alpha-subunit of the cardiac sodium channel. Abnormal channel activity creates a heterogeneous refractory period, allowing premature impulses to induce reentrant arrhythmias, usually VT or VF. Patients should avoid sodium channel blockers. Advances in molecular biology continue to elucidate the pathophysiology, but implantable cardioverter-defibrillators are the only treatment. Given autosomal dominant transmission, family members should be screened.

BY ALMOST KILLING ME, YOU SAVED MY LIFE. B.E. Phillips[1]; S.A. Haist[1]. [1]University of Kentucky, Lexington, KY. *(Tracking ID # 153570)*

LEARNING OBJECTIVES: 1) Recognize the presentation of dissemtiated blastomycoses; 2) Diagnosis and treatment of blastomycoses and 3) Recognize the potential dangers of indiscriminate glucocorticoid use.
CASE: A 57 year-old nonsmoking man with no prior lung disease presented to his primary care physician complaining of cough and an abdominal skin lesion for one week. He denied fever, chills, dyspnea, or weight loss. He was diagnosed with pneumonia and cellulitis and was subsequently prescribed cephalexin and azithromycin. Nine days later he was admitted to his local hospital without resolution of his symptoms. He was treated again with antibiotics for pneumonia and cellulitis. During out-patient follow-up, prednisone was prescribed for abdominal pain with a presumptive diagnosis of inflammatory bowel disease. After starting prednisone, the abdominal lesion increased and new lesions were noticed on his right shoulder and back. The patient was transferred secondary to multiple skin lesions. Physical exam revealed a 10×10 cm red swollen area over the right shoulder, a 2×3 cm RLQ abdominal nodule, and multiple ulcerations on his back. CT of the chest and abdomen showed multiple lung nodules, a gluteal mass and a 2.3×2.6 cm renal mass. Biopsy of right shoulder and lung nodule showed broad-based budding yeast. Itraconazole was started for disseminated blastomycoses. Three days after discharge, he developed unsteady gait. MRI of the head showed a ring enhancing lesion in the right cerebellum. Itrazonazole was changed to amphotericin B. Repeat MRI showed increased edema and neurosurgery was consulted for craniotomy. Cultures again showed broad-based budding yeast. Surprisingly, the renal biopsy revealed renal cell carcinoma. Nephrectomy was performed after completing treatment for blastomycoses and renal cell carcinoma (RCC) was resected (Stage 1).
DISCUSSION: This case demonstrates the difficulty with diagnosing fungal infections and the potential dangers of steroid use. When presumed bacterial pneumonia does not respond to usual treatment, fungal infections should always be considered in the differential. Disseminated blastomycoses most often presents with cutaneous involvement and should always be considered in a patient with pneumonia and skin lesions. Besides cutaneous and pulmonary involvement, blastomycoses often causes osteomyelitis and prostatism. Central nervous system (CNS) involvement is unusual unless the patient is immunocompromised. Our patient would have likely not developed CNS disease if he had not been given steroids. This gentlemen was fortunate, his RCC may not have been diagnosed at such an early stage if he had not been given prednisone resulting in further dissemination of his blastomycoses. In fact, there may be a link between his RCC and his initial development of disseminated blastomycoses. RCC adversely affects lymphocytes; however, lymphocytes in direct contact with the tumor are more greatly affected than peripheral blood lymphocytes.(1) Also, immunmotherapy has been used for years in the treatment of metastatic RCC with some success. 1) Riccobon A, Gunelli R, Ridolfi R, et. al. Immunosupression in Renal Cell: Differential Expression of Signal Transduction Molecules in Tumor-Infiltrating, Near-Tumor Tissue, and Peripheral Blood Lymphocytes. Cancer Investigation 2004;22:871–7.

CANDIDA KRUSEI LUNG ABSCESS IN AN IMMUNOCOMPETENT MALE. M. Lammi[1]; C. Lim[1]. [1]Temple University Hospital, Philadelphia, PA. *(Tracking ID # 154669)*

LEARNING OBJECTIVES: 1. Identify the common organisms involved in lung abscesses. 2. Use culture data to properly treat unusual infections. 3. Recognize what patient populations are at risk for Candida Krusei infection.
CASE: W.W. is a 61 year old African American male with a past medical history of asthma who presented to the Temple University Emergency Department with a chief complaint of 2 weeks of shortness of breath, productive cough, night sweats, and pleuritic chest pain. He also reported a 40 lb. weight loss over 6 weeks. Social history was significant for a 50 pack-year smoking history and one 40 oz. beer consumed daily. Vital signs on admission showed the patient to be afebrile, tachycardic, tachypneic, and hypoxic (90% of 2L O2). Lung exam revealed accessory muscle use; absent breath sounds and dullness to percussion on the right were appreciated. Labs revealed a WBC count of 26.4 with 67% segs and 13% bands. CXR showed a right lower lobe mass with pleural effusion. CT scan demonstrated infiltrates in all 3 lobes of the right and 2 large and multiple fluid-filled density collections with air-fluid levels, representing abscesses. Blood and sputum cultures were obtained. The patient was initially treated with Vancomycin and Piperacillin-Tazobactam and a pigtail catheter was placed by interventional radiology with drainage of copious purulent material. Both sputum and pleural fluid cultures grew out Candida Krusei. Anaerobic cultures from sputum, blood, and pleural fluid were negative. Caspofungin was added to the patient's regimen. Bronchoscopy ruled out an endobronchial lesion and showed purulent secretions in the right middle and lower lobes. He was intermittently febrile and had continued purulent drainage from his chest tube. On day 23 of hospitalization, the patient was discharged on Clindamycin, Ciprofloxacin, and Voriconazole.
DISCUSSION: The term lung abscess refers to necrosis of the lung parenchyma resulting from a microbial infection. Most lung abscesses are caused by aspiration from oral flora. The majority of lung abscesses, particularly those caused by anaerobes, fungi, and mycobacteria, present with an indolent course of fever, cough, sputum, and weight loss. Treatment rests on antibiotics, particularly those covering anaerobic pathogens, such as Clindamycin. Surgery is generally indicated when there is failure to respond to appropriate medical management, hemorrhage, or neoplasm. The microbiology of lung abscesses demonstrates that the majority are caused by bacterial anaerobes. A study in Chest in 1995 found that 74% of lung abscesses in the study group were caused by anaerobes, with the majority being oral flora, such as Prevotella, Porphyromonas, Bacteroides, and Fusobacterium. Lung involvement with Candida generally falls into 3 categories: pneumonia, mycetoma, and lung abscess. Candida albicans as a cause of lung abscess has been described in the literature 15 times. Most cases of Candida lung involvement occur in the setting of disseminated candidiasis, particularly in immunocompromised patients. Candida krusei lung abscess has not been previously described in the literature. This species is generally found only in severely immunocompromised patients. It has been isolated in certain foods and beverages, but is not a normal human microbe. C. krusei is inherently resistant to fluconazole, and is more common in those receiving fluconazole prophylaxis, eg bone marrow transplant recipients.

CARDIOPULMONARY COMPLICATIONS OF HIV: A CASE OF DYSPNEA IN GABORONE, BOTSWANA. M. Bhargava[1]. [1]Stanford Hospital, CA, Stanford, CA. *(Tracking ID # 156726)*

LEARNING OBJECTIVES: 1. To recognize that pulmonary hypertension is a major cardiopulmonary complication of HIV infection and can cause significant morbidity and mortality, especially in sub-Saharan Africa. 2. To identify various treatment modalities available to treat HIV-related pulmonary hypertension.
CASE: A 22-year-old male from Gaborone, Botswana, a bus driver with no known past medical history, presented to the local public hospital complaining of several months of increasing dyspnea on exertion. He used to play football regularly but was now unable to walk a city block without severe shortness of breath. He also noticed increasing abdominal girth, lower extremity swelling, and mild nausea for two months. He reported no recent fevers. He was on no medications and denied any alcohol or drug use. On admission, his vital signs revealed a blood pressure of 90/50 and a heart rate of 110. Pulse oximetry was 88% on room air. He was afebrile. Physical exam was notable for elevated neck veins, tachycardia, a pronounced P2, moderate ascites, and 2+lower extremity edema. CBC revealed a WBC of 3.2 and a HCT of 23. Rapid HIV test was positive; no CD4 count was available. Chest X-ray demonstrated cardiomegaly with no evidence of edema or effusions. Chest CT was negative for pulmonary emboli. Echocardiogram confirmed a dilated RA and RV; LV ejection fraction was normal. Right ventricular systolic pressure (RVSP) was measured at more than 70 mm Hg. The patient was diagnosed with advanced-stage HIV-associated pulmonary hypertension, and therapy consisting of a low-salt diet, nifedipine, HCTZ, warfarin, and oxygen was begun. Over a four week period, the patient's symptoms improved. After eight weeks, the patient felt well enough to return to work, and he was referred to the local ID clinic for possible initiation of HAART.
DISCUSSION: The southern African nation of Botswana suffers from one of the highest HIV seroprevalence rates in the world, currently estimated at 40%. Pulmonary hypertension (PH), with attendant right-sided heart failure, is a common non-infectious presentation of viral infection in this part of the world. Pulmonary hypertension is defined as a pulmonary artery systolic pressure greater than 30 or a pulmonary artery mean pressure greater than 20 mm Hg. It is thought to be caused by both structural remodeling of the pulmonary arterial walls and functional alterations in vasoconstriction. Dyspnea on exertion is a typical early sign of the condition and is often identified by the patient's primary care physician. The rate of PH is 2500X higher in HIV-positive patients than in the general population, and it occurs in the absence of concomitant risk factors for PH. The mechanism of HIV-associated PH is poorly understood, but it may be related to abnormal cytokine production. In most cases, HAART slows the progression of pulmonary vasoconstriction. A therapeutic regimen for PH of any etiology may include diuretics, calcium channel blockers, prostacyclins, oral endothelin-1 antagonists, sildenafil, oral anticoagulation to prevent intracardiac and pulmonary thromboses, and oxygen. Advanced stages of PH are especially difficult to treat in resource-limited settings, so early discovery is essential.

CARPE MELLITUS (SEIZE THE SUGAR). M. Mourad[1]; D. Lewkowicz[1]; B. Sharpe[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 153475)*

LEARNING OBJECTIVES: Recognize the typical clinical presentation of insulinomas. Recognize new-onset seizures or refractory seizures can be the initial presenting complaint in insulinomas. Diagnose insulinomas by use of a 72-hour fast.
CASE: A 24 year-old female with developmental delay and history of seizure disorder presented with increasing tonic-clonic seizures. The seizures had been well-controlled on medications, occurring only every 2–3 years. Over the year prior to admission her seizures became progressively more frequent despite additional anti-epileptics, eventually occurring up to five times per day. On admission, physical examination was unremarkable. Initial laboratory tests were non-diagnostic and MRI and EEG were unchanged from previous studies. Despite monitored compliance with four seizure medications, she continued to have multiple seizures per day. On day three, a new nurse caring for the patient checked her glucose during a seizure and it was found to be 24 mg/dL. The seizure resolved with a dextrose infusion. In ongoing monitoring, she had persistent hypoglycemia requiring a D10 infusion despite her normal tube feedings. With continuous dextrose administration, she was seizure free and the additional seizure medications were stopped. There was no evidence of sepsis and evaluations of thyroid, hepatic, and renal function were all normal. With suspicion for insulinoma, a 72-hour fast was performed. Her initial serum glucose was 81 mg/dL but fell to 30 mg/dL after 3 hours. At three hours, she had an elevated insulin of 57 microU/ml (normal <3 microU/ml if serum glucose <55 mg/dL) and an elevated c-peptide level of 13 ng/mL (normal <3.1 ng/mL if serum glucose <55 mg/dL). The sulfonylurea level was undetectable, confirming the diagnosis of insulinoma. Subsequent computed tomography revealed two small (<1.0 cm) hypervascular pancreatic nodules.

She underwent surgical removal of the benign insulinomas and two weeks later was discharged to home on tube feedings, seizure free.
DISCUSSION: Insulinomas are rare pancreatic neuroendocrine tumors. Patients typically present with recurrent neuroglycopenic symptoms (confusion, lethargy, personality changes) with or without autonomic symptoms (diaphoresis, anxiety, tremor). We present a case of an insulinoma presenting as refractory seizures in a patient with known seizure disorder. It is likely because of her developmental delay the patient was unable to communicate other symptoms. Insulinoma presenting as refractory seizures (or new-onset seizures) is a rare presentation of a rare disease but there have been multiple published case reports, including cases involving canines and felines. As well, because the presentation is usually insidious and the diagnosis rare, insulinomas are often initially mis-diagnosed as seizures. In one study, 39% of documented insulinomas were initially wrongly attributed to seizures. The diagnosis is made by demonstrating inappropriately high insulin and c-peptide levels and normal sulfanylurea in the setting of hypoglycemia during a 72-hour fast. C-peptide levels and sulfanylurea levels must be checked to exclude exogenous insulin and oral hypoglycemic administration. The tumors can be localized by multiple radiographic techniques and the treatment is surgical removal. Recurrence is rare and most patients make a full recovery.

CELIAC SPRUE: THE GREAT MASQUERADER. K.E. Bickel[1]; R. Buranosky[1]; R. Granieri[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 151807)*

LEARNING OBJECTIVES: 1. Recognize the clinical presentations of celiac disease. 2. List the diagnostic tests for celiac disease. 3. Recognize when screening for celiac disease is appropriate.
CASE: A 79 year-old thin woman with a history of "colitis," lactose intolerance, depression, and anxiety, presented with 4 years of intermittent nausea, vomiting, decreased oral intake, fatigue, weakness, and a 10–20 pound weight loss. Her emesis and nausea were typically preceded by abdominal bloating and cramping, and they were not related to dietary intake. Upon presentation, she was orthostatic and had persistent nausea and vomiting. Her abdominal exam was benign. Electrolytes, CBC, glucose, liver enzymes, bilirubin, amylase, lipase, and a TSH were normal. A recent upper endoscopy and a colonoscopy at an outside hospital were also normal, showing normal mucosa. With a clinical picture suggestive of celiac disease, a test for IgA anti-endomysial antibodies was sent and was positive. She declined confirmatory biopsies, but on a gluten-free diet, the patient's nausea, vomiting and long-standing diarrhea improved.
DISCUSSION: With a prevalence of 1:300 to 1:250, celiac disease is more common than previously thought. Our improved understanding of its multisystem involvement and the use of serologic tests have lead to the discovery of celiac disease in patients previously described as "atypical" or "silent." The classic presentation of villous atrophy, weight loss, and signs or symptoms of malabsorption may no longer be the most common. An atypical presentation can include one or more of the following: fatigue, abdominal pain, depression, anxiety, anorexia, nausea, vomiting, weight loss, infertility, recurrent apthous stomatitis, chelosis, osteopenia/osteoporosis, iron deficiency, folate deficiency, borderline elevated liver enzymes, prolonged PTT, hypoalbuminemia, and hyposplenism. A number of these signs and symptoms were present in the above patient, leading to the suspicion of celiac disease. Although duodenal biopsy remains the recommended diagnostic test for celiac disease, there are also 4 serologic studies available for screening. Only the IgA tissue transglutaminase antibody (sensitivity 90–98%, specificity 95–97%) and the IgA endomysial antibody (sensitivity 85–98%, specificity 97–100%) are currently recommended. Due to their lower sensitivities and specificities, the Antigliadin IgG and IgA antibody tests are no longer recommended. If a patient does have positive serologic tests on a gluten containing diet, then a confirmatory duodenal biopsy is recommended. Considering the ease of screening with these serologic tests and the broad spectrum of presentation, the question of whom to screen arises. Although there is insufficient data to recommend screening of the general population, the NIH Consensus Statement suggests screening for the following: 1) patients with suggestive gastrointestinal symptoms 2) patients with one or more of the "atypical" signs or symptoms and without other explanations 3) symptomatic patients in high risk populations: family history of celiac disease; history of type 1 diabetes or other autoimmune endocrinopathies; history of Turner's, Down's, or William's syndromes. Because celiac sprue is common and can masquerade as other diseases, we must increase our awareness of this disease and be able to screen for it appropriately.

CHARCOT NEUROARTHROPATHY IN THE MODERN ERA : DISPROVING CERTAIN MYTHS. B.A. Babu[1]; S. Madhwal[1]; J. Salangsang[1]. [1]Cleveland Clinic Foundation, cleveland, OH. *(Tracking ID # 154805)*

LEARNING OBJECTIVES: 1. Recognize typical and atypical presentations of Charcot neuroarthropathy. 2. Learn that Charcot neuroarthropathy can occur even in well controlled diabetics in the absence of marked neuropathy. 3. Select appropriate laboratory and imaging modalities to evaluate and manage Charcot neuroarthropathy.
CASE: A 43-year old caucasian male with a background history of diabetes and end stage renal disease on hemodialysis was referred from an outside hospital with complaints of right ankle pain, swelling and the inability to ambulate for 8 weeks. The plain X-ray film of the ankle was negative. He was presumed to have septic arthritis based on one out of two blood cultures which grew MRSE. However, his symptoms did not improve on antibiotics and continued to have exquisite tenderness of the ankle. The patient was transferred to our institution for further management. On admission, he had a right ankle effusion, an elevated temperature and slightly decreased sensation as compared to the left ankle. His blood pressure, heart rate, respiratory rate and oxygen saturation were normal. Arthocenthesis identified a WBC of 36,000 mm^3 without any crystals or organisms. MRI revealed non-displaced fractures through the right calcaneus and talus. An orthopedic surgery consultation was requested and it was felt that the radiographic findings are consistent with Charcot's arthopathy. The right ankle was immobilized in a total contact cast. There was an immediate improvement of his right ankle pain and swelling. He was discharged from the hospital and followed up one month later with improvement in his symptoms and range of motion.
DISCUSSION: It is a misconception that Charcot neuroarthropathy is an uncommon disease in the present era. Its prevalence ranges from 0.16% in a general population of patients with diabetes to 13% of patients presenting to a high-risk diabetic foot clinic. Primary care physicians involved in the management of patients with diabetes are likey to encounter the diagnostic and treatment challenges of Charcot neuroarthopathy. The diagnosis of Charcot's arthropathy is based clinical grounds with features consisting of a painful, swollen and warm foot in the setting of a diabetic peripheral neuropathy. These are overlapping clinical characterics that can mimic cellulitis, crystal-induced arthropathy, septic arthritis or osteomyelitis. Radiographic diagnosis is based on the presence of destruction, subluxation or dislocation. However, during the early phase of the disease, the x-rays are often normal. This creates a diagnostic dilemma especially because many patients present with atypical symtpoms or absence of severe neuropathy. Lack of awareness about this condition led our patient to develop multiple fractures secondary to improper weight bearing techniques. In conclusion, early recognition with MRI, immobilization and prompt consulation with orthopedic surgeons, could minimize the degree foot deformity and loss of function.

CHARCOT, MARIE AND TOOTH . . . THE WRONG TRIAD. B. Merovich[1]; F.H. Rubin[1]; G. Tabas[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 151186)*

LEARNING OBJECTIVES: 1) Recognize that different disease state may share similar clinical presentations. 2) Outline the presentation of Normal Pressure Hydrocephalus. 3) Recognize the role of lumbar puncture in the treatment of Normal Pressure Hydrocephalus.
CASE: 77 year old white man was hospitalized due to subacute worsening of gait and balance. He had been diagnosed with Charcot Marie Tooth peripheral neuropathy 30 years ago. His symptoms had been confined to his lower legs and he had been leading an independent life with the aid of bilateral ankle/foot orthoses and a wheeled walker. His past medical history included hypertension, obstructive sleep apnea, coronary artery disease, hypercholesterolemia, benign prostate hypertrophy and urge urinary incontinence. His medications were oxybutynin, quinapril, felodipine and lovastatin. During the six months prior to his presentation to the hospital he has noticed increasing weakness in his legs, with progressive deterioration in his gait and recurrent falls. He noticed forgetfulness and difficulty concentrating, which he attributed to recent emotional stress. The patient also noticed worsening of his urinary incontinence, which was presumed to be related to his known prostatism. A rehabilitation specialist suggested a motorized scooter to insure safe mobility and function. On admission his BP was 156/74 mmHg, pulse was 76 bpm, and temperature was 36.8 °C. He was wearing a protective undergarment. His attention span and concentration were good. He could not remember any of three objects after five minutes. His cranial nerves were intact. He had striking atrophy of his distal lower extremities. He had pes cavus and hammer toes bilaterally. He had negative Babinski reflexes bilaterally. DTR's were present throughout except absent at the ankles. He was unable to maintain a sitting position on the side of his bed, or to stand without assistance. Gait was unsteady, with inability to ambulate more than a few steps without toppling backwards. His labs showed WBC 9.3, Hct 47, platelets 183,000, glucose 125, BUN 21, Creatinine 1.1, Na 134, K 4.1, Cl 100, Ca 9.1, CPK 852, and an abnormal urinalysis. A CT scan of the head showed moderate prominence of the lateral ventricles and mild central volume loss. A MRI of his brain confirmed disproportionately large ventricles. To confirm a diagnosis of normal pressure hydrocephalus (NPH), a large volume LP was performed. The opening CSF pressure was 16 cm H_2O. The following day it was noted that the patient's gait and mentation were dramatically improved. He then underwent a ventriculoperitoneal shunt. He became continent of urine and was able to resume all his previous activities. At his first follow up visit, he announced that he had used his wheeled walker to ambulate the three blocks from his apartment.
DISCUSSION: The classic triad of gait disorder, urinary incontinence and impaired cognition that signifies normal-pressure hydrocephalus was present in this patient exactly as described in the literature, yet the diagnosis was delayed. The gait disorder was thought to be due to progression of his peripheral neuropathy, the incontinence was attributed to his BPH, and the cognitive impairment was quite mild and consistent with his self-attribution of emotional stress. This case illustrates the difficulty of seeing a pattern among a host of comorbid conditions.

CHEMOTHERAPY-INDUCED FLARE OF HEPATITIS B. K.A. Walsh[1]. [1]Temple University, Philadelphia, PA. *(Tracking ID # 156829)*

LEARNING OBJECTIVES: Recognize chemotherapy-induced Hepatitis B flare. Review the mechanism for virus reactivation. Review the data for lamivudine prophylaxis in chemotherapy-induced Hepatitis B flare.
CASE: 40-year-old woman diagnosed with stage II, T1N1M0, invasive ductal carcinoma of the right breast had a lumpectomy with axillary lymph node

dissection and was initiated on treatment with adjuvant chemotherapy in a clinical trial (adriamycin and cytoxan). Approximately six weeks later, she was admitted to the hospital for observation and further workup of abnormal liver function tests (AST 307 U/l; ALT 202 U/l; total bilirubin 0.4 mg/dl). Initially, she denied any symptoms. Further history revealed during one of her pregnancies, ten years prior, she was told she had a form of "hepatitis," but was never treated. Hepatitis serologies included: hepatitis B surface antigen (+); hepatitis B envelop antibody (+); hepatitis B surface antibody (−); hepatitis B core antibody (+); hepatitis B viral copies >2450 E6 copies/ml; hepatitis C antibody (−); hepatitis D antibody (−); hepatitis A IgG (+); hepatitis A IgM (−). Right upper quadrant ultrasound (−); antimitochondrial antibody (−); and peripheral smear identified target cells. Peak values: AST 5255 U/l; ALT 2473 U/l; direct bilirubin 12.8 mg/dl; total bilirubin 17.3 mg/dl; PTT 46.2s; PT 52.2s (INR 5.76); albumin 2.5 mg/dl. She was initially started on adefovir dipivoxil. Lamivudine was subsequently added. Despite supportive measures, she developed fulminant hepatic failure and died within 3 months of starting chemotherapy.
DISCUSSION: Chemotherapy-induced flares of hepatitis infection are an unusual, but described problem. It is estimated that hepatitis B virus reactivates in 14–50% of hepatitis B virus surface antigen positive patients and in individuals with chronic hepatitis B virus undergoing chemotherapy/immunosuppressive treatment. The mortality associated with viral reactivation varies from 3.7–60%. Virus reactivation is thought to be a two-staged process. The initial stage occurs during intense immunosuppressive therapy and is characterized by enhanced viral replication and infection of hepatocytes with hepatitis B virus. The second stage is related to the restoration of immune function once immunosuppressive therapy is stopped, causing activated T-cells to attack infected hepatocytes leading to their rapid destruction. Generally treatment consists of stopping chemotherapeutic agents and supportive care, but these actions do no stop the liver damage. Lamivudine, a nucleoside analog that competitively inhibits viral reverse transcriptase and terminates proviral DNA chain extension, is recommended for acute hepatitis B infection in immunosuppressed patients, with growing concern for resistance. Adefovir, an analogue of adenosine monophosphate represents the newest approach to treating hepatitis B virus infection in the immunocompetent individual with no report of resistance. Safety, efficacy and tolerability in immunosuppressed patients needs to be studied. Prophylaxing these individuals is a controversial topic. Two recent studies demonstrate effectiveness in the lamivudine prophylaxis of hepatitis B surface antigen carriers and inactive carriers of hepatitis B virus undergoing chemotherapy. Resistance is a growing concern. Currently, there are no clear data indicating the duration of lamivudine prophylaxis, but long-term (1–2 years following cessation of chemotherapy) seems reasonable.

CHEST PAIN AND ELEVATED CARDIAC ENZYMES IN A 16-YEAR-OLD MALE: A DIAGNOSTIC DILEMMA. M.M. Yeboah[1]; J.R. Cava[1]. [1]Medical College of Wisconsin, Milwaukee, WI. *(Tracking ID # 152867)*

LEARNING OBJECTIVES: (1) Evaluate adolescents with chest pain, elevated cardiac enzymes and abnormal EKG (2) Know that elevated troponin level is not synonymous with myocardial infarction (3) Select the appropriate tests in young patients with myocardial injury pattern, with particular emphasis on the utility of MRI.
CASE: A 16 year-old male was admitted because of chest pain. He was in good health until a few days prior to admission when he developed a dry cough and dyspnea. He started to experience precordial chest pain one day before admission. The pain was moderately severe, throbbing in nature and did not radiate. He was admitted to the coronary care unit after initial evaluation at an outside ER where he was noted to have an abnormal EKG and elevated cardiac enzymes. He presented with a similar chest pain 18 months earlier and was diagnosed with myocardial infarction on account of elevated cardiac enzymes, EKG changes and a hypokinetic segment involving the left ventricle at cardiac catheterization. The coronary arteries were normal. He made an uneventful recovery and remained on atenolol and aspirin until the present admission. He had no other medical or family history of significance. On physical examination, he appeared well and was painfree and apyrexial. The head, neck, lungs, heart and abdomen were unremarkable apart from the presence of a fourth heart sound. Abnormal laboratory tests included troponin I 18.7, creatinine kinase and MB fraction were 727 and 52.4 respectively. Toxicology screen, viral studies, thrombotic screen, autoantibody screen were all negative. Homocysteine, lipid panel, basic chemistry and complete blood count were normal. The EKG showed ST-segment elevation of 1 mm in the lateral leads, the chest radiograph was normal and no abnormality was demonstrated on transthoracic echocardiography. Coronary angiography revealed normal coronary arteries with no regional wall motion abnormalities. Subsequent cardiac MRI (CMR) scanning showed small focal areas of hyper-enhancement after gadolinium administration. The findings were consistent with CMR findings in acute myocarditis.
DISCUSSION: The evaluation of adolescents with chest pain continues to pose diagnostic and management dilemmas. Cardiac chest pain in adolescents is more likely to be related to myocarditis or pericarditis than to myocardial infarction. Myocarditis is a non-ischemic inflammatory disease of the myocardium and is characterized by myocyte necrosis. It is most often caused by cardiotropic viruses (e.g. Coxsackie B and echo virus). The clinical features of myocarditis are varied. The spectrum includes asymptomatic patients who may have EKG abnormalities; patients with signs and symptoms of clinical heart failure and ventricular dilatation; and patients with symptoms of fulminant heart failure and severe left ventricular dysfunction. Patients may present with non-specific chest pain and/or a flulike syndrome. The gold-standard test, endomyocardial biopsy, has a sensitivity of only 10–40%. New contrast CMR techniques hold promise for improving non-invasive diagnosis of acute myocarditis. As in our patient, spontaneous recovery is the usual outcome, although 5–10% of all patients may progress to develop chronic dilated cardiomyopathy. Myocarditis is occasionally the unrecognized culprit in cases of sudden death.

CHICKEN OR EGG: THROMBOCYTOSIS IN A PATIENT WITH AN ISCHEMIC LIMB. V. Paralkar[1]. [1]Temple University, Philadelphia, PA. *(Tracking ID # 154041)*

LEARNING OBJECTIVES: 1) Review the distinguishing features of Reactive and Clonal Thrombocytosis 2) Review the divergent management of the two types.
CASE: A 59 year old man with HTN presented to the ED with 2 weeks of pain, numbness and swelling of his calf and foot, symptoms that he unfortunately attempted to treat by soaking the limb in scalding hot water. On examination, his left limb was dark, tender and cold below the knee, with second degree burns. Pedal pulses were absent and the ABI was unmeasurable. The right limb was grossly normal with an ABI of 0.54. The left limb being unsalvageable, amputation was performed, the pathological analysis of which revealed marked diffuse stenosis of large vessels. An ECHO showed no cardiac source of emboli. Tests for hypercoagulability were normal. The hospital stay was complicated by infection of the stump and marked thrombocytosis that progressed from a platelet count of 604,000/mm^3 at admission to 1,058,000/mm^3 on Day 16. The white and red cell counts remained stable. Hematology was consulted in view of rising concern of an etiological relationship between the thrombocytosis and the ischemic event. The peripheral smear showed increased platelets and mild toxic granulation, with no abnormal forms. A diagnosis of reactive thrombocytosis was made and no treatment or further investigation was indicated. The platelet count peaked at 1,199,000/mm^3 on Day 19 and then trended down to normal as the amputation stump healed.
DISCUSSION: Differentiation between the reactive and clonal types of thrombocytosis is exceedingly difficult, with no diagnostic findings or lab tests that offer clear-cut distinctions between the two (although newer cytogenetic analysis offers promise). A confusing clinical picture can make the situation particularly vexing. Reactive thrombocytosis accounts for 88% of all platelet counts above 500,000/mm^3 and 82% above 1,000,000/mm^3. It is secondary to inflammation, infections or neoplasms and shows normal platelets on peripheral smear and normal megakaryocytes on bone marrow. It has a benign course, does not lead to bleeding or thrombosis, and resolves once the underlying cause is corrected. Clonal thrombocytosis on the other hand is a myeloproliferative disorder. Splenomegaly may be seen, along with giant platelets and subtle changes in the marrow. None of these findings are conclusive though, and the diagnosis is largely one of exclusion. Far from benign, it is associated with an increased risk of large vessel thrombosis, cerebrovascular ischemia, and paradoxically, bleeding. Aspirin and cytoreduction with Hydroxyurea, Anagrelide, Interferon alpha or plateletpheresis is recommended in symptomatic and high risk patients. In our case, thrombocytosis is seen in the setting of an ischemic limb, a conundrum that might perhaps have led to a diagnosis of clonal thrombocytosis had the patient presented with a high platelet count that had remained stable. The features of this case that made reactive thrombocytosis more likely were the serial increase in the number of circulating platelets (it would be too coincidental for a myeloproliferative disorder to develop right during an ischemic episode), presence of diffuse arterial stenosis and bilateral PVD, presence of known underlying causes - tissue necrosis and infection, and, in retrospect, resolution of thrombocytosis after the insults had subsided. The conclusion was that the platelets were the bystanders rather than the culprits of this vascular accident.

CHURG-STRAUSS SYNDROME INDUCED BY MONTELUKAST. M.D. Naik[1]; J. Ross[1]. [1]Lehigh Valley Hospital, Allentown, PA. *(Tracking ID # 153086)*

LEARNING OBJECTIVES: 1. Recognize the clinical manifestations of Churg-Strauss Syndrome 2. Recognize the association between Churg-Strauss Syndrome and leukotriene receptor antagonists.
CASE: A 54 year-old female, without significant past medical history, presented to her doctor's office with symptoms consistent with allergic rhinitis. She was started on montelukast. Subsequently, she developed acute dyspnea, which required hospitalization. Admission chest x-ray showed patchy right upper lobe linear infiltrate with basilar nodules versus infiltrates. Consequently, a CT scan of the chest was completed and demonstrated patchy airspace disease throughout both lungs. Her laboratory data were within normal limits. The patient was started on antibiotics for presumed pneumonia. After discharge from the hospital, the patient's pneumonia was slow to resolve. Additionally, she noticed erythematous purpuric lesions developing on her lower extremities. Due to these complaints, a follow-up chest x-ray done one month after admission displayed a significant degree of acute bilateral pneumonic infiltration. Follow-up CT scan of the chest confirmed extensive bilateral pulmonary infiltrates. A repeat CBC exhibited a WBC count of 15.9 with a new eosinophilia of 27%. At that time, the patient discontinued montelukast and finished several courses of antibiotics. Complete resolution of her signs and symptoms, including skin manifestations and chest x-ray findings, occurred within two months. After her pulmonary symptoms resolved, the patient began experiencing paresthesias in both feet with mild weakness in the toes. She then developed anesthesia and weakness of her right hand. These symptoms prompted an EMG from which a diagnosis of mononeuritis multiplex was made. Further evaluation revealed a normal erythrocyte sedimentation rate and c-reactive protein; however, an elevated myeloperoxidase antibody at 74 EU/ml as well as an increasing eosinophilia at 39% was found. Biopsy of the sural nerve established an axonal neuropathy with a single small epineural artery demonstrating thrombosis and recanalization,

which was suggestive of a healed or resolving vasculitis. Based on the constellation of findings and the confirmatory biopsy, the diagnosis of Churg-Strauss Syndrome (CSS) was made. The patient was initiated on glucocorticoid therapy with partial improvement in her hand weakness and paresthesias. Despite therapy, she has not yet returned to her baseline.
DISCUSSION: Churg-Strauss Syndrome is a rare type of necrotizing granulomatous vasculitis, which usually affects small blood vessels. It is traditionally associated with peripheral eosinophilia and allergic manifestations, such as nasal polyps, rhinitis, and asthma. Montelukast-associated CSS is a well recognized phenomenon. In most case reports, patients had received inhaled or oral glucocorticoid therapy for asthma prior to initiation of montelukast. Leukotriene receptor antagonists are thought to enable patients to taper down their steroid dosages, which unmasks occult CSS. However, we report a case of CSS in which the patient did not have pre-existing asthma and had never been treated with steroids until after her diagnosis was made. Consequently, in this case, montelukast may have induced CSS. Though the mechanism of this association is uncertain, physicians should have heightened awareness of CSS when initiating leukotriene receptor antagonists.

CHURG-STRAUSS SYNDROME PRESENTING WITH TRANSVERSE MYELITIS. J. Mariotti[1]; J. Ross[1]. [1]Lehigh Valley Hospital, Allentown, PA. *(Tracking ID # 151604)*

LEARNING OBJECTIVES: Churg-Strauss syndrome (CSS) is a rare disease of unknown etiology characterized by systemic vasculitis of small and medium sized vessels. Transverse myelitis has been associated with certain autoimmune diseases however; thus far a common link between CSS and transverse myelitis has not been appreciated. The learning objectives for this clinical vignette include: 1) Review the diagnosis of Churg-Strauss Syndrome; 2) Review the diagnosis of Transverse Myelitis; and 3) Recognize a case - based relationship between Churg-Strauss Syndrome and Transverse Myelitis.
CASE: A 30 year old male presented with a three week history of progressive lower extremity numbness and bowel/bladder retention. A MRI of the cervical spine demonstrated C4-T1 transverse myelitis (TM). He was treated with high dose steroids but unfortunately demonstrated poor clinical improvement with subsequent ventilator dependent respiratory failure. Plasma exchange therapy was initiated followed by IVIG infusion. Gradual improvement occurred over two months however, newly occurring bronchospasm prompted placement of a tracheostomy. Approximately 9 months later new symptoms occurred including an intermittent punctuate erythematous rash, night sweats, lymphadenopathy, and dyspnea on exertion prompting admission for congestive heart failure. Laboratory studies demonstrated eosinophilia, an elevated rheumatoid factor (RF), erythrocyte sedimentation rate (ESR) and c-reactive protein (CRP). A head CT scan demonstrated sphenoid sinus disease and a chest CT scan demonstrated bilateral pleural effusions with multiple infiltrates. A cardiac catheterization revealed aneurysms of the multiple coronary arteries consistent with vasculitis. Skin biopsy results of the rash demonstrated superficial and deep neutrophilic and eosinophilic dermatitis in addition to eosinophilic perivascular and vessel wall infiltration. Churg-strauss syndrome (CSS) was diagnosed based on the presence of bronchospasm and asthma, eosinophilia, non-fixed pulmonary infiltrates, paranasal sinus abnormalities and a positive biopsy for extravascular eosinophils. Treatment was instituted with oral steroids and IV Cytoxan with prompt resolution of the hypereosinophilia. Within three months of therapy, the constitutional and pulmonary symptoms had completely resolved.
DISCUSSION: We describe the unusual occurrence of TM heralding the onset of CSS. It is believed that CSS vasculitis was actually the direct cause of the TM and proposed that withdrawal of the high dose steroids utilized for treatment of the TM likely revealed the CSS underlying the patient's constellation of symptoms. Given the importance of accurate diagnosis and treatment, increased recognition of TM with autoimmune disorders and CSS is encouraged.

CLINICALLY CONFIRMED HEPARIN INDUCED THROMBOCYTOPENIA(HIT) PRESENTING WITH UNUSUALLY LOW PLATELET COUNT AND NEGATIVE HEPARIN INDUCED PLATELET ANTIBODIES. P. Bose[1]; V. Shah[2]. [1]Henry Ford Hospital Detroit, Detroit, MI; [2]Henry Ford Health System, Detroit, MI. *(Tracking ID # 153942)*

LEARNING OBJECTIVES: 1. Recognize that very low platelet counts may sometimes occur with HIT. 2. Recognize that HIT may occur in the absence of detectable heparin induced platelet antibodies and that other new tests may have more clinical relevance than just the presence or absence of these antibodies.
CASE: A 43 year old mentally retarded male with Prader Wili syndrome presented a week after a monthlong hospitalization for non ST elevation myocardial infarction and congestive heart failure complicated by pneumonia and candidemia, with findings worrisome for lung abscess on chest film. He had received intravenous heparin during his recent hospitalization and was started on subcutaneous heparin for prophylaxis of venous thromboembolism on his present admission. His platelet count plummeted from 2,44,000 to less than 10,000 per cubic mm overnight. No bleeding or thromboses occurred. A diagnosis of HIT was made clinically, heparin in all forms was stopped and the patient started on lepirudin. The platelet count steadily rose over a week to 1,73,000 per cubic mm at discharge. Warfarin was begun when the platelet count climbed over 1,00,000 per cubic mm. Heparin induced antiplatelet antibodies returned negative.
DISCUSSION: HIT is a clinicopathologic syndrome manifested by thrombocytopenia in the setting of heparin exposure that is caused by autoantibodies which complex with heparin and platelet factor 4 to cause platelet activation. This, together with thrombin generation in vivo, causes paradoxical thrombosis(venous : arterial=4:1) in upto 35% to 75% of cases, necessitating anticoagulation for several weeks. In typical onset HIT (70%), the platelet count starts to drop 5–10 days after initiation of heparin therapy, whereas patients who have received heparin within the last 100 days (while the antibodies persist) can develop rapid onset HIT (25%–30%) with platelet counts dropping within 24 hours of reexposure to heparin. Typically, the thrombocytopenia in HIT is of moderate severity, with the median platelet count nadir being 50,000 to 60,000 per cubic mm. For 90% of patients, the nadir ranges between 15,000 and 1,50,000 platelets per cubic mm. Very severe thrombocytopenia (platelet count, $<15{,}000$ per cubic mm) is usually not caused by HIT, but can occur, as this case illustrates. The treatment of HIT involves discontinuation of heparin in all forms and initiation of an alternative form of anticoagulant therapy, most commonly the direct thrombin inhibitors (DTIs) lepirudin, bivalirudin or argatroban or the anti-Xa agent, danaparoid. The early initiation of warfarin is associated with an increased risk of acute venous limb gangrene and coumadin-induced skin necrosis and should be avoided. The brief reintroduction of heparin in patients with a history of HIT who have cleared their antibodies is probably safe. The presence of HIT antibodies is not highly specific for the diagnosis of HIT, and may not be very sensitive either, as our case demonstrates. Indeed, recent research has suggested that the use of sensitive platelet function assays and the magnitude of HIT antibody positivity on the enzyme linked immunosorbent assay(ELISA) may help more in deciding which patients with a history of HIT may tolerate reintroduction of heparin.

COLONIC SCHISTOSOMIASIS AND COLORECTAL CARCINOMA-AN EMERGING TREND DUE TO TRANSMIGRATION. R. Gupta[1]; P. Garg[1]; P. Bonanni[1]. [1]Unity Health System, Rochester, NY. *(Tracking ID # 154374)*

LEARNING OBJECTIVES: 1. Recognize the clinical and endoscopic spectrum of colonic Schistosomiasis and its increasing prevalence due to transmigration. 2. Recognize the association between colonic Schistosomiasis and colorectal carcinoma in patients with long standing colitis.
CASE: A 45 year old female from Sri-Lanka who recently immigrated to United States presented with chronic bilateral lower abdominal cramps which worsened with defecation and decreased stool caliber for the last 1 year. Examination of her abdomen revealed normal bowel sounds and bilateral lower quadrant tenderness without guarding, rigidity or organomegaly. Colonoscopy was positive for multiple rectosigmoid polyps. Histology of the polyps revealed well differentiated tubular adenocarcinoma with multiple schistosoma mansoni ova in the mucosa and submucosa.
DISCUSSION: Schistosomiasis, a tropical disease, infects over 200 million people worldwide causing 200 thousand deaths annually. It is the second most common parasitic infection after malaria and infects colon, bladder and lungs primarily. We report, to our best knowledge, the first case of colonic schistosomiasis with carcinomatous changes in the United States. Schistosomiasis is acquired via water containing cercariae larva of shistosoma shed from the snails. Parasite migrates through the bloodstream to mesenteric venules of colon, matures and lays eggs which invade local tissues and release toxins and enzymes causing an immune response leading to fibrosis and scarring. Colonoscopic manifestations of schistosomiasis are capillary congestion, polyposis, superficial ulceration and pseudotumor. Polyps can be upto 20 mm in size and present as sessile, pedunculated or fungating masses often causing partial bowel obstruction. Mucosa of the polyps contain glands with mucoid activity and adenomatous hyperplasia which can progress to carcinoma. Ulceration with superficial hemorrhage is common in these polyps and viable and non viable eggs are sometimes present as well. The repeated bouts of mucosal destruction and repair are a stimulus to carcinomatous transformation in chronically inflamed and replicating colonic epithelium. Chen Ming Chai etal reviewed 454 cases of colorectal carcinoma from China and found an association between colonic schistosomiasis and colorectal carcinoma. These patients had a long history of colitis and a diffuse involvement of the large intestine by schistosoma. The criteria for carcinomatous changes associated with schistosomiasis include anaplasia in a pseudopolyp, polyp formation adjacent to a schistosomal ulcer with ectopic submucosal epithelial proliferation. Symptoms due to colonic schistosomiasis can be localized or generalized. Patients may present with swimmer's itch, fever, abdominal pain or discomfort with bloody diarrhea. Hepatomegaly, splenomegaly secondary to portal hypertension is seen in hepatic schistosomiasis. Diagnosis is confirmed by microscopy and egg identification in stool samples. Treatment of choice in uncomplicated schistosomiasis is praziquantal. In today's jet age with increasing transmigration it is important for physicians in the United States to be aware of clinical and endoscopic spectrum of Schistosomiasis. A high index of suspicion depending on epidemiologic and travel history is the cornerstone in diagnosing colonic schistosomiasis in early stages in United States. Role of colonic schistosomiasis in the causation of colorectal carcinoma needs to be further elucidated.

COMMUNITY-ACQUIRED METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS OSTEOMYELITIS AFTER INJECTING SPEEDBALLS MADE WITH CRACK COCAINE DISSOLVED IN KOOL-AID ® LEMONADE. S. Tchernodrinski[1]; B.P. Lucas[1]. [1]John H. Stroger Jr. Hospital of Cook County, Chicago, IL. *(Tracking ID # 151798)*

LEARNING OBJECTIVES: 1. Recognize that crack cocaine can be mixed with readily available solvents for intravenous injection. 2. Recognize the high potential for severe infections among users injecting these solvents.
CASE: A 51 year old man with chronic hepatitis C infection presented with a lower leg ulcer. Since age 30, he has injected heroin mixed with cocaine. When

powdered cocaine became less available in the mid-1990s, however, he began mixing heroin with crushed free-base, or "crack," cocaine dissolved with Kool-Aid® lemonade. His ulcer developed after attempting to inject this mixture but missing a vein; he immediately developed a burning pain that was more intense and prolonged than those associated with failed injections of powdered cocaine dissolved in water. On physical examination he had no fever; beneath both knees his skin was thick, dry, and lichenified with hyperpigmented "track marks" and dime-sized scars near thrombosed or atrophied leg veins; serosanguinous fluid and pus flowed freely from a linear 1 cm scar that was surrounded by a 5 cm diameter area of tenderness and fluctuance above his left lateral malleous; there was no inguinal lymphademopathy or ascending red streaks. An MRI with intravenous gadolinium contrast showed a destructive lesion of the distal fibula consistent with osteomyelitis. Surgical exploration showed an abscess that tracked subcutaneously for 6 cm. Deep wound cultures grew methicillin-resistant Staphylococcus aureus. He was discharged on a 6 week course of oral trimethoprim-sulfamethoxazole and counseled on the risks of his intravenous drug use. He was already enrolled in a methadone treatment program and refused to change his rehabilitation treatment plan.
DISCUSSION: Many intravenous drug users mix heroin with cocaine, commonly know as a "speedball," to enhance the positive subjective response. Whereas powdered cocaine is a hydrochloride salt that dissolves easily in water, crack cocaine is insoluble in water. However, because powdered cocaine has become less available, and because crack cocaine is less expensive, users have learned to dissolve crack cocaine in readily available acidic solvents such as vinegar, ascorbic acid (vitamin C), and lemon juice for intravenous injection. Our patient tried several brands of lemon-flavored soft drinks, including Wyler's® and Country Time®, before finding that the Kool-Aid® brand, which contains both citric and ascorbic acids without a sodium citrate buffer, was an effective solvent. Because these acidic solvents can cause focal tissue necrosis, destroy vein walls, and harbor bacteria, users may develop more severe infections than those injecting powdered cocaine dissolved in water.

CUTANEOUS MYELOMA. L.C. Siegel[1]. [1]Brigham and Women's Hospital, Boston, MA. *(Tracking ID # 155257)*

LEARNING OBJECTIVES: 1) Recognize the dermatologic manifestations of multiple myeloma 2) Understand the prognostic implications of cutaneous myeloma 3) Address end-of-life issues with patients with end-stage myeloma in the primary care setting.
CASE: A 77 year-old woman with a history of Type 2 diabetes, hypertension, peripheral vascular disease and multiple myeloma presented for a primary care visit reporting new tender skin nodules on her lower extremities. Multiple myeloma had been diagnosed 18 months prior, when anemia workup revealed an IgA lambda monoclonal gammopathy of 3,840 mg on serum protein electrophoresis, CD 138+. Bone marrow biopsy was consistent with myltiple myeloma. Skeletal survey at that time was negative. She was initially treated with thalidomide and decadron, with the addition of cyclophosphamide six months later since her disease remained aggressive. At a visit four months later, multiple subcutaneous nodules were noted across her upper arms and back, thought to be plasmacytomas. This coincided with the appearance of plasma cells in her peripheral smear and an increase in the IgA titer to 5,950 mg. Repeat skeletal survey showed lytic lesions in the skull, humeri and femurs. Bortezomib was added; after the first cycle, the peripheral blood was free of plasma cells, and the IgA dropped to 293 mg. The patient ultimately decided not to pursue treatment beyond oral cyclophosphamide. On a primary care visit six months later, she reported 1 month of these new skin lesions. Multiple, tender 2- to 3-mm erythematous papules were noted on bilateral shins in an asymmetric distribution. One month later, larger lesions had progressed to 1.5-cm nodules with central whitish discoloration. Punch biopsy with immunostains revealed CD138+ plasma cells with lambda light chains. The IgA titer was 980 mg. Given the poor prognosis associated with cutaneous myeloma, the patient elected to focus her remaining energy on friends and family rather than pursue additional treatment.
DISCUSSION: Cutaneous manifestations are extremely rare in multiple myeloma (MM). The literature is limited to small case series even at referral centers. Dermatologic involvement usually occurs in late stages and tends to parallel an increased malignant burden. The differential diagnosis includes Sweet's syndrome, leukocytoclastic vasculitis, and drug reaction, including the morbilliform rash associated with thalidomide. The spectrum of findings includes plaques, nodules, and infiltrates. Histopathology reveals either nodular or diffuse interstitial patterns. The specific immunoglobulin and light-chain type corresponds to the malignancy subtype. IgG is therefore most commonly seen, but IgD and light-chain forms are associated with more aggressive disease. Anatomic distribution varies widely, but lesions most commonly appear on the trunk and abdomen. Skin lesions are only occasionally localized to areas of underlying bone involvement. Cutaneous myeloma heralds an extremely poor prognosis. In the few published case series, survival ranged from several weeks to several months at most, despite aggressive treatment. Although limited by relatively few cases, the existing literature suggests that the appearance of cutaneous myeloma should guide discussions with patients toward end-of-life priorities and goals of care.

DEBILITATING PAIN IN A SOMALI. M.A. Ariza[1]; L.A. Piwowarczyk[2]; M.K. Paasche-Orlow[1]; S.S. Crosby[1]. [1]Boston Medical Center, Boston, MA; [2]Boston University, Boston, MA. *(Tracking ID # 151675)*

LEARNING OBJECTIVES: 1 Recognize torture, Posttraumatic Stress Disorder (PTSD), and somatization as etiologies for otherwise unexplained symptoms in patients from high-risk areas.
CASE: A 43-year-old non-English speaking Somali woman in the United States (U.S.) since 2001 was brought to the Emergency Department complaining of severe total body pain and weakness. She reports that symptoms started approximately 15 years ago, and have progressively gotten worse to the point where she is unable to walk without assistance. She brings two plastic bags with more than 60 prescription bottles of medications from providers in the past year. These include acetaminophen, levothyroxine, hydrochlorothiazide, multiple non-steroidal anti-inflammatory agents, muscle relaxants, and narcotics, as well as low dose amitriptyline and trazodone. Physical exam revealed normal vital signs and nutritional state. Neurological exam was grossly non-focal, but limited due to severe pain. While she exhibited generalized allodynia, there was no muscle atrophy, fasiculations, joint inflammation, or rash. The patient was admitted for further evaluation and pain control. Laboratory studies including CBC, chemistries, thyroid function studies, LFTs, ANA, RF, CK, CRP, and ESR were within normal limits. Urine and serum toxicology screens were negative. Plain films of knees and hands revealed minimal degenerative joint disease of the knees. MRI studies of her brain and spinal cord were unremarkable. Further history revealed that the patient had been a victim of rape and torture in Somalia. She reported the execution of her parents, the death of her husband, and the disappearance of her 2 children, three brothers, and mother-in-law two years ago. She repeatedly communicated her anguish over the separation from her children, and concern about their fate. Paroxetine (10 mg) and ibuprofen were started with some improvement. She was discharged with close follow-up, although she still required a high level of assistance with activities of daily living. Her discharge diagnosis was an extreme form of somatization. The patient has initiated mental health care at the Boston Center for Refugee Health and Human Rights, where, in addition, she has been diagnosed with Major Depression and PTSD.
DISCUSSION: Since 1991 a state of anarchy and clan warfare has predominated throughout Somalia. In a U.S. community-based study approximately 25% and 47% of Somali men and women have been victims of torture. Up to 25% of these individuals may go on to develop psychiatric co-morbidities, including PTSD and somatization. Analgesics are often ineffective in these patients, but selective serotonin reuptake inhibitors and psychotherapy do show benefit. Clinicians should routinely take a torture history in high-risk individuals, and consider the possibility of depression, PTSD, and somatization in the evaluation of physical symptoms. When caring for immigrants, it is important to consider cross-cultural barriers, including the patient's specific cultural views of illness, psychological distress, and mental health. In addition, physicians must be aware of the dangerous potential of polypharmacy in patients who seek help in multiple sites and whose English proficiency is limited, as well as the importance of developing a relationship with the patient (Jaranson et al., Somali and Oromo refugees: correlates of torture and trauma history. Am J Public Health. 2004 Apr; 94(4): 591–8).

DEEP VENOUS THROMBOSIS WITH CONCOMITANT PULMONARY EMBOLISM AND ISCHEMIC STROKE DUE TO PARADOXICAL EMBOLISM. C. Ozcan[1]; K. Gutgutia[1]; K. Pfeifer[1]. [1]Medical College of Wisconsin, Milwaukee, WI. *(Tracking ID # 154085)*

LEARNING OBJECTIVES: 1. Recognize that venous thromboembolism (VTE) may be associated with complications of multiple organ systems. 2. Identify paradoxical embolism through a patent foramen ovale (PFO) as a major differential diagnosis in patients with concomitant pulmonary embolism (PE) and ischemic stroke.
CASE: A 43-year-old woman with depression and on ethinyl estradiol and norethindrone for contraception presented with new-onset left-sided weakness and numbness. Her symptoms started in the morning and waxed and waned throughout the day. She also reported dyspnea, chest discomfort, palpitations, diaphoresis, fatigue and dizziness two days prior to admission. The patient had normal physical exam findings except tachycardia, tachypnea and mild left upper extremity weakness. Laboratory studies and chest radiograph were unremarkable, but her electrocardiogram showed an S1Q3T3 pattern. PE-protocol chest CT demonstrated large, bilateral, central pulmonary emboli, and deep venous thrombosis (DVT) in the left superficial femoral vein was revealed by lower extremity ultrasound. Moreover, brain MRI showed an acute posterior putamen and internal capsule ischemic stroke, while bilateral carotid ultrasound was within normal limits. Based on these findings, ischemic stroke due to paradoxical embolism through a PFO was a strong consideration. Echocardiogram demonstrated moderate pulmonary hypertension (mean pulmonary arterial pressure 49 mm Hg), mild right ventricular enlargement and a small PFO in a septal aneurysm. With anticoagulation and discontinuation of oral contraceptives, the patient's symptoms improved, and she was discharged home with warfarin, physical therapy and primary care follow-up. Her hypercoagulability screening studies eventually came back negative.
DISCUSSION: VTE is a common clinical problem with a high risk of morbidity and mortality. The pulmonary and cardiac complications of PE are well recognized, but VTE can affect multiple other organ systems, including the nervous system (stroke) and gastrointestinal tract (mesenteric ischemia). The latter two are common diagnostic considerations in patients with atrial fibrillation or other cardiac conditions predisposing to cardiac thrombi. However, our case demonstrates the importance of considering paradoxical emboli through a PFO as another possibility, especially to establish a unifying diagnosis in the right clinical context. Stroke due to paradoxical emboli is most often a presumptive diagnosis made in patients with a PFO, PE and cerebral infarcts with no evidence of other cardiac or carotid atherosclerotic disease. In the majority of such cases, no evidence of DVT is found. Our case is one of a small number of reported cases in which DVT was identified in a patient with suspected paradoxical embolic stroke. Furthermore, to our knowledge, this is the only case of

cerebral infarct due to paradoxical embolism through a PFO in association with oral contraceptives.

DEGLUTITION INDUCED ATRIAL FIBRILLATION. N. Malik[1]; E. Warm[1]. [1]University of Cincinnati, Cincinnati, OH. *(Tracking ID # 154285)*

LEARNING OBJECTIVES: 1) Identify the different dysrhythmias (common and uncommon) related to swallowing. 2) Discuss the mechanisms for swallowing induced atrial fibrillation. 3) List the different treatment options for swallowing induced atrial fibrillation.
CASE: A 38 year old female with no past medical history presented with intermittent palpitations occurring up to thirty times a day. There was no accompanying chest pain, shortness of breath, dizziness, or syncope. Each of these episodes lasted for a few seconds, and was associated with eating. She denied heartburn, dysphagia or odynophagia. She was a non-smoker and did not consume alcohol or excess caffeinated beverages. Physical exam and laboratory tests including TSH were within normal limits. Chest X-ray was normal. Electrocardiogram (EKG) revealed sinus rhythm with rate of 80/min. There were no ST or T segment changes. QT interval was normal. Repeat EKG after she was given a snack revealed two non-sustained runs of atrial fibrillation. There was no preceding bradycardia. An echocardiogram revealed normal biventricular function, ejection fraction and no wall motion abnormality. She was treated with glycopyrrolate, but her symptoms persisted and she experienced lightheadedness and dizziness. A barium swallow was normal. Esophageal manometry with simultaneous EKG tracings showed atrial fibrillation with each wet swallow. Mean ventricular rate was 166 beats/minute. Of the 15 dry swallows, patient developed atrial fibrillation in only 7 swallows. The patient was treated with disopyramide and verapamil with a complete resolution of symptoms. Over a period of 9 months, she was weaned off both medications. She continues to be symptom free.
DISCUSSION: The mechanism by which swallowing induces tachydysrhythmias is unclear. One theory hypothesizes mechanical stimulation of the left atrium by the distended esophagus. The other hypothesis is that initiation of the tachycardia is a vasovagal reflex with the afferent and the efferent branches of the vagal nerve being activated during the rise in the intra-esophageal pressure. Preferential vagal discharge to the atrial myocardium rather than to the sinus node could result in ectopic atrial activity, leading to fibrillation without the precipitation of preceeding bradycardia. Many drugs have been used either alone or in combination for suppression of swallowing induced tachydysrhythmias. The most commonly used include vagolytics such as disopyramide, quinidine and procainamide with or without a calcium channel or a beta blocker. Successful ablation therapy has also been used in medication resistant tachycardia in which etiology was probably an ectopic focus.

DELAYED RECOVERY OF METABOLIC ENCEPHALOPATHY IN A CASE OF PROFOUND HYPERCALCEMIA. D. Patel[1]; A. Patil[1]; K. Pfeifer[1]. [1]Medical College of Wisconsin, Milwaukee, WI. *(Tracking ID # 151634)*

LEARNING OBJECTIVES: 1) Consider rapid correction of profound hypercalcemia as a cause of worsening and/or delayed recovery of metabolic encephalopathy. 2) Recognize hepatocellular carcinoma (HCC) as a potential cause of symptomatic hypercalcemia.
CASE: We present a case of a previously healthy 46 year-old man admitted with a one-week history of confusion and generalized weakness. His weakness began with difficulty walking and progressed to the point where he required assistance with ambulation. As his weakness worsened, he also developed lethargy and increased somnolence. He had no history of head trauma, prior malignancy, vision changes, localized neurological symptoms, calcium supplements or other medication use. On admission his vital signs were normal, and he was awake and responded to simple commands but had difficulty following conversations and answering questions. His physical exam was unremarkable except for mild abdominal tenderness in the right upper quadrant and hepatomegaly. Comprehensive neurological exam was limited by the patient's confusion, but no focal deficits were identified. Initial workup revealed serum calcium of 25 mg/dl, sodium 130 mmol/L, potassium 2.9 mg/dl, normal magnesium and phosphorous, creatinine 1.4 mg/dl and a normal head CT. He was given IV zolindronic acid, calcitonin and normal saline and monitored in the intensive care unit. His calcium corrected to 13.5 mg/dl the next day and normalized over the next two days. Despite correction of his hypercalcemia and avoidance of CNS depressant medications, his mental status worsened, and he became comatose. Further evaluation of his encephalopathy, including CSF studies, metabolic and infectious workup, EEG and brain MRI, was negative. Abdominal CT to evaluate his hepatomegaly showed multifocal lesions in the liver and spine consistent with malignancy, and liver biopsy confirmed the diagnosis of hepatocellular carcinoma (HCC). The patient remained comatose for five days after achieving normal serum calcium levels. Following this, his mental status gradually improved beyond his preadmission status to the point where he was fully alert and oriented and able to understand his disease and prognosis. The cause of his hypercalcemia was eventually determined to be parathyroid hormone-related peptide (PTHrP) produced by HCC. After discussion of care goals in the context of his diagnosis, he was discharged with home hospice.
DISCUSSION: HCC can rarely produce various paraneoplastic syndromes. Hypercalcemia, hypoglycemia, polycythemia and others have been described. HCC can produce hypercalcemia by two mechanisms: bone metastasis and rarely, through PTHrP-mediated bone resorption. Although PTHrP-producing HCC has been reported in the literatrue, values as high as 25 mg/dl have not. Severe hypercalcemia is a known cause of mental status changes but symptoms typically resolve rapidly after calcium correction. Conversely our patient became more encephalopathic after correction of his hypercalcemia and remained this way for several days. Our review of the literature did not reveal any reports of persistent encephalopathy after correction of hypercalcemia. Our case illustrates that rapid correction of profoundly high calcium levels may be a cause of worsening metabolic encephalopathy. Further studies are necessary to determine the effects of calcium dynamics on neurons in the hypercalcemic state and after correction of hypercalcemia.

DELIBERATE STEPS TO DIAGNOSE A FEVER. J.B. Hossack[1]. [1]Beth Israel Deaconess Medical Center, Boston, MA. *(Tracking ID # 154024)*

LEARNING OBJECTIVES: 1. Recognize presenting features and diagnostic evaluation of vertebral osteomyelitis/discitis. 2. Treat Pott's disease with optimal therapy.
CASE: An 86 year old female with a history of recurrent urinary tract infections was admitted with multiple falls, fever and confusion. She was found on her apartment floor in a pool of urine. The patient has a history of chronic low back pain. Her pain worsened in the 2 weeks prior to admission. She denied dysuria, cough, weight loss, abdominal pain, nausea, vomiting and change in bowel habits. She was born in the Ukraine and moved to the United States 10 years ago. She had no history of IV drug use, high-risk sexual practices, or specific exposures to tuberculosis. The physical exam was notable for fever (101.8 °F) and delirium. She had no spinal or paraspinal tenderness. She had no motor or sensory deficits. Her chest X-ray revealed calcified granulomas in the right upper lung field. Her EKG and head CT scan were unremarkable. The patient was treated with levofloxacin for presumed urinary tract infection as her urinalysis had 10 WBC/hpf (0–5 #/hpf) and her urine culture grew Escherichia coli. She defervesced but remained confused. The patient was reluctant to walk or sit up. When she did walk, her gait was unsteady with slow and deliberate steps. Her ferritin >2000 ng/mL (13–150 ng/mL), ESR 39 mm/hr (0–20 mm/hr), and CRP 84.0 mg/L (0–5.0 mg/L). An MRI of the lumbosacral spine was obtained and showed osteomyelitis/discitis at the L4/5 interspace. Fluoroscopy-guided intervertebral disc biopsy yielded 4 cc of purulent fluid which contained acid-fast bacilli and grew Mycobacterium tuberulosis (TB).
DISCUSSION: Pott's disease, or tuberculous spondylitis, most often involves the lumbar and lower thoracic region. Upper thoracic and cervical disease is less common but potentially more disabling. Bone and joint infection may account for 10 to 35 percent of cases of extrapulmonary tuberculosis and, overall, for almost 2% of all cases of TB. Primary TB and associated bacillemia results in seeding throughout the body. Vertebral bodies are vulnerable in this stage due to their high blood flow state. Depressed immune states, like HIV infection and older age, can result in reactivation with progression to clinically apparent disease. In highly endemic regions, musculoskeletal TB usually manifests within about one year after primary lung infection and mainly occurs in the young. In industrialized countries, bony tuberculosis is more commonly associated with late reactivation of infection and mainly occurs in adults. The most common presenting symptom is progressive local pain that is sometimes associated with muscle spasm and rigidity. The muscle spasm classically produces an erect posture and an associated gait notable for short, deliberate steps. Consensus guidelines recommend six months of anti-tuberculous therapy for uncomplicated Pott's disease. Therapy should consist of a four-drug regimen which includes rifampin. Longer duration of treatment may be necessary for extensive disease or drug regimens that do not include rifampin.

DIAGNOSIS OF HIV/AIDS AND HIV-ASSOCIATED DEMENTIA IN AN ELDERLY MALE WITH A HISTORY OF "FALLS". J.R. Agrawal[1]. [1]Brigham and Women's Hospital, Jamaica Plain, MA. *(Tracking ID # 157012)*

LEARNING OBJECTIVES: Understand the clinical presentation and treatment of HIV-associated dementia (HAD). Understand the changing epidemiology and disease progression of HAD in the HAART era.
CASE: This 68 y/o man was brought to the hospital after a witnessed mechanical fall down the stairs. Per his wife the patient had "tripped" several times over the past few months. Review of systems was significant for a twenty-pound weight loss, decreased appetite and overall loss of interest in activities over the past year. He denied symptoms of infection or blood loss. The patient was a retired accountant and denied any drug use or extramarital relations. On presentation his exam was notable for a temperature of 100.9 Fahrenheit, with normal heart rate, blood pressure and respiratory rate. He was noted to have a flat affect and demonstrated profound psychomotor slowing in speech and movement. He was able to name 3/3 objects but unable to recall any at five minutes. The rest of his physical exam was unremarkable. Admission labs were notable for a WBC of 3, a hematocrit of 30 and a platelet count of 140,000. The patient was admitted to the hospital for evaluation of fever and mental status changes. Serum chemistries, urinalysis, thyroid stimulating hormone, iron studies, transaminases, bilirubin, B12, folic acid, protein electrophoresis and thick and thin smears were all unremarkable. Bone marrow biopsy showed hypocellular, nonspecific findings. Blood and urine cultures and CT scans of the chest, abdomen, and pelvis were negative for source of fever. Cerebrospinal fluid studies showed mild elevation in protein only. MRI/MRA of the brain showed mild cortical atrophy. The patient was seen by neurology and psychiatry consult services and diagnosed with severe depression. Two days after discharge to rehab the laboratory reported a positive HIV Western Blot test. Subsequently the CD4 count was measured at 38 with HIV RNA levels greater than assay. The patient was started on atazanavir, ritonavir, and truvada. At six months follow-

up there was resolution of fevers and mild improvement in movement and memory.
DISCUSSION: In the United States, HIV-associated dementia (HAD) represents a minority of dementia cases among the elderly, but because it is treatable, diagnosis is critical. Serological testing should be considered in patients presenting with "early dementia," and in patients with unexplained constitutional symptoms, risk factors for HIV, or evidence of an underlying medical problem. This patient's presentation included many features typical of HAD, which classically presents with memory deficits, psychomotor speed impairment, and depressive symptoms, particularly apathy. Pre-HAART, HAD developed in 20% of patients with AIDS. In 5% of AIDS cases, HIV dementia was the AIDS-defining illness, occurring mainly in patients with low CD4 counts. The mean survival rate for patients with HAD was one year. With HAART therapy, most patients with HAD stabilize or improve. Concurrent treatment with methylphenidate for apathy symptoms is often employed. Since HAART, the incidence of HAD has decreased by roughly 40–50%, but prevalence has increased as a result of improved survival. The most important risk factor for development is now advanced age rather than viremia or low CD4 count. Currently, individuals over 50 comprise 11% of AIDS cases reported to the Centers for Disease Control. For this reason HAD will continue to be an important concern in the care of elderly patients with HIV.

DISSEMINATED CYTOMEGALOVIRUS IN AN UNLIKELY HOST. M.A. Waxman[1]; S. Lundberg[2]. [1]University of California, Sylmar, Los Angeles, CA; [2]University of California, Los Angeles, Sylmar, CA. *(Tracking ID # 156387)*

LEARNING OBJECTIVES: 1. To recognize the clinical manifestations of disseminated CMV infection in chronically immunosupressed host. 2. Recognize the diagnostic and treatment options for disseminated CMV infection.
CASE: A 24 year-old dental student with a history of Crohn's disease presented to the emergency department with complaints of fever and non-productive cough for seven days. He was seen at a clinic four days prior and told he had a viral infection. In the emergency department the patient appeared acutely ill, with a temparature of 40.0, heart rate of 110, and clinical signs of dehydration. He complained of non-productive cough, shortness of breath, muscle aches, fevers, and generalized weakness. The patient had been taking azathioprine and asacol for three years, with a flare eight months prior. He was having three non-bloody loose stools for the past several weeks. On admission complete blood count showed pancytopenia with WBC 1.5, Hgb 8.6, platelet count 81. Chest radiography was normal. The patient was admitted to the general medicine service and improved after hydration, granulocyte stimulating factor, discontinuation of azathioprine, and broad spectrum antibiotics. On hospital day 2 he underwent bone marrow biopsy which showed hypocellularity, no blasts, and showed no histologic evidence of CMV. On hospital day 6, the patient became markedly short of breath and Chest CT showed bilateral patchy infiltrates with ground glass attenuation. He was intubated and transferred to the intensive care unit. Bronchoscopy showed cells consistent with CMV and no other bacterial or fungal pathogen. CMV viremia was noted on blood culture with a DNA quantification of 230235. There was no evidence of CMV colitis or retinitis. Gancyclovir and ultimately Foscarnet were used to treat the CMV infection during the duration of the hospitalization. The patient developed acute respiratory distress syndrome, was placed on high frequency ventilation and developed multiple pneumothoraces. After prolonged mechanical ventilation and respiratory acidosis, the family requested care be withdrawn and the patient expired on hospital day 40.
DISCUSSION: Disseminated CMV infection has been described in patients receiving azathioprine for inflammatory bowel disease. This unfortunate patient presented with pancytopenia and constitutional symptoms mimicking a viral illnessin a setting of chronic low-grade immunosupression. These non-specific findings are characteristic of disseminated CMV infection. CMV is geographically ubiquitous, and infects over 50% of adults in the United States by age 40. Besides vertical transmission, most cases of CMV are seen in chronically immunosupressed populations such as organ transplant recipients, persons infected with the HIV virus, and patients receiving immunosuppressive drugs. Although primary infection can cause severe disease, most often virus is reactivated after immunosupression. Clinical manifestations of disseminated CMV are most commonly pneumonia, colitis, and retinitis. Diagnosis of disseminated disease is often initially made by an ELISA assay measuring antibody against CMV. PCR of CMV DNA can quantitate viremia, and aid with duration and response to treatment. Treatment of disseminated CMV is IV Gancyclovir. Foscarnet is reserved for life-threatening or Gancyclovir resistant infections. This case illustrates the high index of suspicion necessary for opportunistic infection in chronically immunosupressed inflammatory bowel disease patients.

DYSPNEA AND CHEST PAIN AT REST. N. Al-Skaf[1]; M.H. Davidian[1]. [1]Creighton University, Omaha, NE. *(Tracking ID # 152782)*

LEARNING OBJECTIVES: Recognize the presentation of cardiac tamponade and its treatment. Identify pericarditis as part of the differential diagnosis of chest pain.
CASE: 54 year-old Caucasian male with history of hypertension and hyperlipidemia, presented with 10 days history of chest pain. The pain was episodic, diffuse, radiated to both shoulders and down his arms. The pain decreased with sitting up and increased with deep inspiration. His symptoms increased dramatically one day prior to admission. He developed increasing shortness of breath to the point where he had to sleep in a 90 degree angle. He had had a mild productive cough with yellowish sputum. He also complained of muscle and joint aches, night sweats and an intermittent sore throat. On physical exam, the patient was anxious and in obvious respiratory distress. He was sitting in a 90 degree angle, unable to lay flat. His skin was clammy. Temp 101.7, HR 120 and regular with palpable pulsus paradoxus, RR 25, BP 160/90 which decreased to 110/70 after one dose of nitroglycerin 0.4 sublingual. The nitroglycerin also decreased his pain from 6/10 to 3/10 within 5 minutes. He had increased jugular venous distention and a few basal crackles in the left lung base. Heart sounds were distant. No murmur or rub was appreciated. ECG revealed a sinus tachycardia with nonspecific ST-T wave changes. Chest X-ray showed cardiomegaly and few left lower lobe infiltrates and blunting of the costophrenic angle. Echocardiogram showed large pericardial effusion with evidence of right ventricular diastolic collapse. Emergent pericardiocentesis was performed and 1200 ml of hemorrhagic fluid was removed. This resulted in a significant improvement of the patient's symptoms. Pericardial fluid gram stain, culture, cell count, and cytology failed to identify a specific etiology for the effusion. Serum WBC was 11.6, ESR 30, C-reactive protein was 16.6. BMP was normal. He was started on levofloxacin. 5 days later repeated echo and chest X-ray were normal. Serum WBC dropped to 6.5. He was discharged in a good condition.
DISCUSSION: Cardiac tamponade is the accumulation of pericardial fluid which raises intrapericardial pressure, hence poor ventricular filling pressure. Causes include any cause of pericarditis like viruses, bacteria, fungi, myocardial infarction, lupus, radiotherapy and uremia. Fluid can also result from trauma, malignancy, and iatrogenic causes (i.e. pacemaker placement, central line insertion, cardiac cath.) Presenting signs include tachycardia, anxiety, hypotension, pulsus paradoxus, raised jugular venous pressure, muffled heart sounds, Kussmal's sign (paradoxical increase in venous distention and pressure during inspiration.) Management : Emergent pericardiocentesis and treat the underlying cause.

EHRLICHIOSIS MIMICKING THROMBOTIC THROMBOCYTOPENIA PURPURA. G. Harrison[1]; V.T. Martin[1]. [1]University of Cincinnati, Cincinnati, OH. *(Tracking ID # 154452)*

LEARNING OBJECTIVES: 1) Summarize the natural disease progression of Human Granulomatous Ehrlichiosis and Human Monocytosis Ehrlichiosis. 2) Appreciate the role of epidemiology in Ehrlichiosis 3) List the diagnostic tests used in making the diagnosis of Ehrlichiosis.
CASE: A 58-year-old man was transferred to this hospital for management of new onset thrombocytopenia accompanied by fever, hypotension, hypoxia, mental status changes, diarrhea, and acute renal failure. Three days before admission, he had presented to his primary care physician complaining of polymyalgias, fatigue, and dysuria. He was treated for a urinary tract infection with trimethoprim/sulfamethoxazole. Additional history revealed that this Georgia native was a hunter and recently traveled to Ohio. His past medical history was significant for hypertension, Type II diabetes mellitus, hyperlipidemia, and coronary artery disease. His medications included atenolol, metformin, cimetidine, tramadol, niacin and atorvastatin. On exam, the patient was unresponsive to verbal stimuli and had a T=103.1, P=140 bpm; R=50 breaths/min; BP=142/98 mmHg. There were petichial lesions localized to the dorsum of his feet. Neurological exam revealed hyporeflexia and bilateral upgoing toes. The remainder of the exam was normal. Laboratory examination revealed a platelet count of 50,000, a WBC of 7,000 with 10% bands, a creatinine of 2.0 mg/dL, microscopic hematuria, an AST of 110 U/L and an ALT of 119 U/L. Blood and urine cultures were negative. The patient was empirically started on broad spectrum antibiotics and an antiviral medication. In the setting of ARF; progressive thrombocytopenia; schistocytes on peripheral smear; and an elevated LDH in a comatose patient, the presumptive diagnosis of thrombotic thrombocytopenia purpura (TTP) was made. Plasmopheresis was then started, and continued for two days with no improvement in the patient's clinical status. Doxycycline was empirically started for coverage of presumed Rocky Mountain Spotted Fever (RMSF) and/or Ehrlichiosis. Eleven days after admission, the CSF revealed a positive Ehrlichia antibody titer (IgG 1:2048; IgM 1:256). The doxycycline was continued for a total of 14 days, while the other antibiotics were discontinued. The patient continued to improve and he returned to his baseline mental status.
DISCUSSION: The presentation of Ehrlichiosis and TTP share many of the same characteristics such as, confusion, ARF, thrombocytopenia, anemia and fever. However, Ehrlichiosis phagocytopenia (Human Granulomatous Ehrlichiosis) is also associated with myalgias, nausea/vomiting, diarrhea, and elevated LFTs. A positive antibody titer is used for confirmation. Endemic areas include the Midwestern and the Northeastern regions of the US. As demonstrated in this case, one should consider the diagnosis of Ehrlichiosis in patients with suspected TTP and a history of residence and/or travel to endemic areas.

EMERGENCE OF COMMUNITY ACQUIRED METHICILLIN-RESISTANT STAPHYLOCCOCUS AUREUS (CA-MRSA) PNEUMONIA IN HEALTHY INDIVIDUALS. P.A. Tabibian[1]; C. Fung[1]. [1]VA Greater Los Angeles Healthcare System, Los Angeles, CA. *(Tracking ID # 152733)*

LEARNING OBJECTIVES: 1. Recognize presence of life threatening community acquired Methicillin-resistant Staphylococcus Aureus (CA-MRSA) pneumonia among individuals lacking typical risk factors 2. Recognize a genotype of MRSA strains causing life threatening pneumonias.
CASE: A 59 year-old male with history of hypertension, was in his usual state of health until he presented to an urgent care clinic with a two week history of fevers, cough with brownish sputum, night sweats, anorexia, and myalgias. At presentation, he had a temp of 36.4 degrees C, heart rate of 76 beats/minute, blood pressure of 101/62 mm Hg, respiratory rate of 16 breaths/minute, and

room air oxygen saturation of 99%. Physical exam was significant for decreased breath sounds at the bilateral lower lung bases. Laboratory findings indicated a WBC count of 15 with a normal cell differential, Hb of 12, and platelets of 1395. His chest x-ray showed bilateral asymmetric upper, mid, and lower lung field parenchymal opacities. Patient was admitted to medicine ward and placed in negative pressure respiratory isolation pending AFB sputum results. Several hours after admission, he developed a temp of 40 degrees C, HR of 117 beats/min, and BP of 98/57 mm Hg without changes in his respiratory status. He was empirically treated with vancomycin and gentamicin. Subsequently, a chest CT revealed bilateral diffuse central and peripheral non-calcified parenchymal opacities ranging from several millimeters to three centimeters. There were central lucencies in several of the opacities consistent with possibility of early cavitations. Patient's sputum sample tested negative for AFB stain; however, it grew MRSA organisms sensitive to rifampin, trimethoprim-sulfamethoxazole, vancomycin, clindamycin, and doxycycline. Final blood cultures did not grew any organisms. He tested negative for HIV. Given the clinical presentation, laboratory and radiologic findings, patient was thought to have CA-MRSA pneumonia containing the Panton-Valentine Leukocidin (PVL) gene. Patient's condition improved and was discharged with a three-week course of rifampin and clindamycin.
DISCUSSION: The existence of MRSA infections was originally described in 1961 among populations having risk factors including recent hospitalization, living in long-term care facilities, and using intravenous drugs. Currently, MRSA infections are evolving into a community-related health issue. Community acquired MRSA skin infections, which are increasing in prevalence, have been well described in the literature. However, less common but potentially more serious are CA-MRSA pneumonia infections. These infections are generally associated with high fever, leucopenia, respiratory distress and failure, and even shock. The different strains of MRSA contain toxins responsible for severity level of the illness. For instance, Panton-Valentine Leukocidin (PVL) is a cytotoxin that causes leukocyte destruction and tissue necrosis by releasing neutrophil chemotactic factors and variety of other inflammatory agents. PVL gene is only detected in strains responsible for CA-MRSA pneumonias and is not prevalent in hospital-acquired MRSA pneumonias. Early recognition of patients suffering from CA-MRSA pneumonia is crucial for reduction of morbidity and mortality. Moreover, clinicians should become familiar with clinical characteristics of and evolving therapeutic and preventive strategies for CA-MRSA infections.

EMPHYSEMATOUS GASTRITIS. M.M. Hotiana[1]; F. Rahman[2]; G. Bandla[2]; I. Ahmad[2]; M.U. Usman[3]; T. Islam[2]. [1]Mercy Catholic Medical Center., Lansdowne, PA; [2]Mercy Catholic Medical Center., Darby, PA; [3]Mercy Catholic Medical Center, Secane, PA. *(Tracking ID # 152785)*

LEARNING OBJECTIVES: 1. Identify the rare and fatal form of gastritis called emphysematous gastritis. 2. Familiarize oneself to its clinical presentation, diagnosis and treatment. 3. Recognize the association of this condition with gastrostomy tubes.
CASE: A 94-year old African American female resident of a local nursing home was sent to the emergency room for assessment of her Percutaneous endoscopic gastrostomy (PEG) tube with a greenish maroon exudate at its insertion site. Abdominal examination revealed warmth, erythema and localized tenderness with hypoactive bowel sounds. Her PEG tube was replaced and feedings resumed. She subsequently started having emesis and copious leakage from the insertion site. Culture of the exudates revealed Staphylococcus Aureus and Pseudomonas Aeruginosa. Her clinical condition deteriorated despite aggressive supportive care and antibiotics. An emergent computed tomographic (CT) scan of her abdomen was done and revealed gas in the stomach wall. Her condition worsened despite aggressive supportive management and she subsequently expired.
DISCUSSION: Emphysematous gastritis is a rare and fatal form of phlegmonous gastritis caused by invasion of stomach wall by gas forming bacteria from mucosa or rarely a hematogenous source. First described by Fraenkel in 1889 a very few cases have been reported in the literature. The stomach is a well protected organ with abundant blood supply, acidity and mucosa. Conditions that damage the gastric mucosal wall predispose the stomach to this clinical entity. Ingestions of toxic, erosive substances like ammonia or acid, alcohol abuse, gastroenteritis, gastric ulcers, forceful emesis, traumatic nasogastric tube placement, excessive carbonated beverage ingestion and abdominal surgeries can increase the risk of mucosal injury and hence emphysematous gastritis. s. Staphylococcus Aureus, Pseudomonas Aeruginosa, Escherichia Coli, Enterobacter species, Clostridium Perfringes, and Strongyloides Stercoralis are the frequent pathogens involved. One case has been reported as being a result of gastric mucormycosis. The clinical presentation is typically with abdominal pain, nausea, vomiting, diarrhea, and occasionally hematemesis and melena. Abdominal radiographic studies are the preferred modalities to confirm the diagnosis. Plain radiograph can show gas in the wall of stomach but the typical radiographic finding of presence of irregular mottled gas in the wall of stomach with thickening of gastric folds and occasionally portal venous air are better shown by CT scan. Use of ultrasound and MRI in the diagnosis of Emphysematous gastritis is limited. Endoscopic findings are non specific and include gastric erosions, exudates, and thickened gastric folds Treatment of emphysematous gastritis is mainly supportive and with broad spectrum antibiotics in the beginning, which can be narrowed down to cover the identified microorganism once culture results are obtained. Despite aggressive measures, mortality of 60% has been reported. Surgery is indicated in perforation and gastric stricture formation. This is a rare condition associated with high mortality. Our patient was predisposed to it due to the PEG tube infection. This is a very important association as there is a large, debilitated and potentially vulnerable population of nursing home patients with gastrostomy tube related infections in today's world.

EOSINOPHILIC ESOPHAGITIS - ASTHMA OF THE ESOPHAGUS. R. Gupta[1]; P. Garg[1]; J. Dytoc[1]. [1]Unity Health System, Rochester, NY. *(Tracking ID # 154102)*

LEARNING OBJECTIVES: 1. Recognize "Eosinophilic esophagitis" as a new entity causing dysphagia and heartburn which is unresponsive to antireflux treatment. 2. Distinguish eosinophilic esophagitis from conventional reflux disease by an early endoscopic biopsy in patients with reflux not responding to therapy.
CASE: 35 year old male presented with heartburn of recent onset and a single episode of choking. He denied any dysphagia or regurgitation. Endoscopy revealed esophagitis and granular whitish mucosa extending from mid to distal esophagus. Biopsy was positive for esophagitis (eosinophil count was not done), basal cell hyperplasia and papillomatosis. A diagnosis of gastroesophageal reflux disease (GERD) was made but his symptoms persisted despite maximal antireflux therapy. Repeat endoscopy for occasional 'tightness' on swallowing revealed a "ringed" appearance of the mid esophagus, stricture at the gastroesophageal junction and worsening of granular esophagitis. Biopsies showed >25 eosinophils per HPF. The diagnosis of eosinophilic esophagitis was now confirmed. Patient was given a course of fluticasone propionate mouth spray for 6 weeks, to which he responded well both clinically and on repeat endoscopy.
DISCUSSION: The above case demonstrates a potentially missed diagnosis with worsening of symptoms in a patient being treated as reflux disease. Traditionally esophageal eosinophilia has been attributed to GERD. We describe a fairly new entity "Eosinophilic esophagitis" which causes dysphagia and heartburn unresponsive to antireflux treatment. It is characterized by dense eosinophilic infiltration ($>$20–25 eosinophils per high power field) of the esophagus. Multiple biopsies with eosinophil cell count are needed to make a definitive diagnosis and to differentiate it from conventional reflux disease. Unrecognized, eosinophilic esophagitis leads to worsening of symptoms and significant stenosis. Typically affected individuals are young men with a history of atopy being present in more than half the cases. In patients with conventional GERD there is mucosal involvement with <10 eosinophils per HPF in the distal esophagus and abnormal 24 hour pH studies. Basal cell hyperplasia and papillomatosis are common to both of these entities. In eosinophilic esophagitis endoscopic presentations vary from strictures, mucosal rings, linear furrowing, crepe paper mucosa, corrugation to multiple whitish papules. The etiological considerations include acid reflux, food allergies or an abnormal immunological response. Acid reflux is not the only culprit as aggressive acid suppression, though resulting in symptomatic improvement, does not change the histology. Delayed hypersensivity reaction to food or respiratory allergens has been proposed as another etiology. A trial of acid suppression should be done as increased acidity aggravates the already inflamed esophageal mucosa. Elimination type diets should be tried especially in children due to a questionable link to food allergens. Medical treatment options include use of systemic and topical steroids, cromolyn sodium and leukotriene receptor antagonists. Long standing eosinophilic esophagitis causes significant stenosis and chronic symptoms of dysphagia and heartburn. An early diagnosis and differentiation from conventional GERD is the cornerstone to prevent associated complications. A high index of suspicion and an early endoscopic biopsy is necessary in patients with reflux not responding to traditional antireflux therapy.

EPILEPSIA PARTIALIS CONTINUA, A RARE AND EARLY PRESENTATION OF DIABETES MELLITUS: KOSHENIKOV SYNDROME. I. Singla[1]; R. Aggarwal[1]; P. Ruth[2]. [1]University of Pittsburgh, Pittsburgh, PA; [2]University of Pittsburgh, VAMC Oakland, Pittsburgh, PA. *(Tracking ID # 151552)*

LEARNING OBJECTIVES: 1. Recognize the differential diagnosis of Epilepsia Partialis Continua (EPC). 2. Recognize management of Epilepsia partialis continua in patients with diabetes mellitus. 3. Describe the clinical profile of patients with Koshenikov Syndrome in Diabetes Mellitus.
CASE: A 59 year old male with history of hyperlipidemia, hypertension and back pain presented to primary care clinic with a 2 week history of jerking of his right arm. The movements occurred approximately 15–20 times per hour and lasted 30–40 seconds. They were provoked by movement of his right arm and he was occasionally able to suppress them. He denied loss of consciousness, past history of seizures, recent fever, limb weakness or recent trauma. Examination revealed continuous clonic jerking of his right arm and was otherwise unremarkable. Laboratory tests revealed the following: sodium 129 mmol/L, chloride 94.2 mmol/L, bicarbonate 13.0 mmol/L, arterial pH 7.299, glucose 552 mg/dl, serum osmolality 285 mosm/L, creatinine 1.5 mg/dL. Serum and urine were positive for ketones. His scalp EEG showed no change in normal background EEG with rhythmic right arm movement lasting less than twenty seconds. MRI without contrast revealed right anterior frontal lobe encephalomalacia (related to old trauma), minimal foci of chronic micro vascular changes, left falcine osseous metaplasia and no acute abnormalities. His diabetic ketoacidosis was treated with fluids and insulin. No anti seizure medication was started. His movement disorder resolved over 3–4 days and he was discharged home on insulin. His follow up MRI with contrast after 4 months revealed no changes in encephalomalacia or osseous metaplasia.
DISCUSSION: An Epilepsia Partialis continuum (EPC) is a rare and serious epileptic disorder. It involves persistent, regular or irregular clonic movement of one localized muscle group, this condition of focal motor seizures is also called Koshenikov's syndrome. The origin of the seizures is usually cortical lesion. EPC differs from motor Jacksonian epilepsy in its continuous character and in the

absence of a march of convulsions. Seizures can last from hours to weeks and usually involve distal more than the proximal muscle groups. It is seen equally in both sexes, but is more prevalent in children. EPC is etiologically related to metabolic diseases such as myoclonic epilepsy with lactic acidosis, hepatic encephalopathy, non ketotic hyperglycemia and diabetic ketoacidosis. Structural abnormalities related to tumors (gliomas) and vascular lesions of sensorimotor cortex can also cause Epilepsia partialis continua. It has also been related to various infections such as Ramsussen encephalitis, measles encephalitis and HIV, CMV and EBV. Seizures can be initial manifestation of diabetes. In diabetic patients presenting with seizures EPC was noted in 20%. In one study EPC led to diagnosis of diabetes mellitus in 9 out of 21 patients. In patients with diabetes it has been related to hyperglycemia, hyperosmolarity, hyponatremia and elevated Anti GAD-65 antibodies Treatment of EPC depends on underlying disorder. Surgical approach has been recommended for cases related to cortical dysplasia and brain tumors.In diabetes, treatment consists of aggressive hydration with fluids and insulin. The effect of antiepileptics is disappointing. It is important to consider diabetic ketoacidosis as cause of EPC and these patients do not need long term anti-epileptic drugs.

ERGOTISM INDUCED BY RITONAVIR. M. Laguna[1]; M. Laguna[1]; K. Pfeifer[1]. [1]Medical College of Wisconsin, Milwaukee, WI. *(Tracking ID # 154017)*

LEARNING OBJECTIVES: 1-Recognize life-threatening vasospasm induced by the combination of ritonavir and common antimigraine medications. 2-Describe the appropriate evaluation and treatment of ergotism.
CASE: A 28 year-old woman with HIV presented with pain and numbness in both her legs. Three days prior to admission, the patient developed sudden onset of numbness of both feet and tingling sensations in both calves. The following day, this evolved into a loss of sensation, stabbing pain and myalgias in a bilateral stocking distribution that occurred after walking a few feet. On the day of admission, the patient was unable to bear weight on her feet due to excruciating pain. She was diagnosed with HIV in 2000 and was compliant with her antiretroviral regimen of Reyataz and Truvada until one month prior to admission when she was switched to Kaletra and Combivir. The remainder of her medications, including albuterol, Advair, citalopram, trazodone, naratriptan, zolpidem, acetaminophen with codeine and Cafergot, were unchanged. Of note, she had been taking Cafergot almost every day for 2 weeks for her usual migraine headaches. Her physical exam was unremarkable except for bilateral femoral bruits, absent pedal pulses and cold, pale, hypersensitive skin over both feet. Initial laboratory studies were unchanged from her chronic values, but arterial brachial indices (ABI) were <0.2 bilaterally. CT angiogram revealed marked, diffuse diminished caliber of the bilateral extrernal iliac arteries and their distal arterial systems. The patient was treated in the ICU with an unfractionated heparin drip and glucocorticoids, and her antiretrovirals were held. In 24 hours her bilateral foot capillary refill improved, and in 48 hours the patient had prominently palpable pedal pulses. Repeat ABI were normal, and repeat CT angiogram showed marked improvement in the lower extremity circulation with focal adherent mural thrombi in the bilateral proximal external iliac arteries. The patient was sent home on warfarin without further complications.
DISCUSSION: Ritonavir is a potent protease inhibitor that inhibits the metabolism of cytochrome P450 substrates. Ergotamine and triptans are cleared via this metabolic pathway. The combination of ritonavir and ergotamine can result in acute intoxication from the latter, presenting as acute arterial spasm and ischemia. Persistence of this situation may result in capillary endothelial lesions and thrombosis. The ideal treatment is not defined, but treatment alternatives include calcium channel blockers, heparin, prazosin, alpha-adrenergic blockers, catheter-based intra-arterial or systemic vasodilator therapy and intraarterial balloon dilatation.

EVALUATION AND MANAGEMENT OF PATIENTS WITH NIPPLE DISCHARGE. D. Wahner-Roedler[1]. [1]Mayo Clinic, Rochester, MN. *(Tracking ID # 151967)*

LEARNING OBJECTIVES: Recognize patient and nipple discharge characteristics associated with breast neoplasms.
CASE: A 59 year old woman presented with a history of one episode of spontaneous right bloody nipple discharge (drop of blood noted on top of nipple after a bath). Breast cancer risk profile: G0, P0, menarche age 12, menopause age 40, no HRT, no previous breast biopsy, no family history of breast cancer. Physical examination: No lymphadenopathy, breasts symmetrical, no dimpling or retraction, nipples everted, fibroglandular changes on palpation, no discharge expressible. Radiologic evaluation: Mammogram: Scattered parenchymal densities with multiple well-defined nodules in both breasts. Ultrasound: Multiple small hypoechoic nodules consistent with simple cysts in both breasts, one nodule in right breast 4×5 mm containing low level internal echoes consistent with possible small papillary lesion, a cyst with internal echo or small intramammary lymph node, not suspicious for malignancy. Surgical consultation: Surgeon unable to express any blood, observation advised, return if recurrent blood noted. Follow-up: Patient returned in 2 months after noting drops of blood on right nipple on 2 different occasions. Physical examination unchanged. No discharge expressible. Ultrasound unchanged. Surgical consultation: Exploration advised, right subareolar duct excision performed. Pathology: Ductal carcinoma in situ (DCIS) $0.5 \times 0.5 \times 0.4$ cm, margins free, ER/PR positive, intraductal papilloma $0.5 \times 0.4 \times 0.3$ cm. Treatment: External beam radiation therapy to right breast.
DISCUSSION: Nipple discharge is common, 50–80% of women in their reproductive years can express one or more drops of fluid. Nipple discharge is usually caused by benign conditions such as galactorrhea, physiologic stimulation from breast or nipple manipulation, apocrine secretion caused by exogenous estrogens or drugs that inhibit dopamine action (phenothiazines, methyldopa). Clinical features suggesting a neoplasm (pathologic nipple discharge) and indicating the need for surgical evaluation after appropriate imaging studies include: •spontaneous discharge, •unilateral localization, •confinement to one duct, •association with mass, •bloody, serous, serosanguineous, or watery discharge, •older age, •male gender. Abnormalities on mammography and ultrasound in these patients should further alert physicians to the possibility of breast cancer diagnosis. Ductography might be helpful. MRI and ductoscopy are new approaches to evaluation of nipple discharge that have not been adequately evaluated for routine clinical use. Patients presenting with pathologic nipple discharge should undergo a subareolar exploration even when imaging studies are negative. Pathologic discharge-like the bloody discharge described by our patient-which cannot be reproduced in the clinical setting, is difficult to evaluate. In general we do not consider a patient report of a bloody discharge alone a sufficient indication for surgery. In the patient described, in whom observation was advised, the diagnosis of DCIS was delayed by 2 months. One-third of cases with grossly bloody nipple discharge are due to a carcinoma (in-situ or invasive), one-third are due to a solitary papilloma or papillomatosis (papillomas with concomitant DCIS as seen in our patient have been described), and one-third are from fibrocystic changes with an active intraductal component (plasma cell mastitis, ductal ectasia, intraductal hyperplasia).

EYES WIDE OPEN: AN UNUSUAL CASE OF ALTERED MENTAL STATUS. Z.K. Siddiqui[1]; M. Cunnane[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 152094)*

LEARNING OBJECTIVES: 1. To recognize Non-Convulsive Status Epilepticus (NCSE) as a potential diagnosis in the evaluation for altered mental status and metabolic coma 2. To recognize the presentation and diagnosis of NCSE 3. To state the prognosis of NCSE.
CASE: A 54-year-old woman with a history of hypertension, schizoaffective disorder and seizure disorder was admitted with epigastric pain, nausea and diarrhea. She was diagnosed with pancreatitis and was treated appropriately. Her pancreatitis gradually improved, but her hospital course was complicated by a urinary tract infection, delirium, and pneumonia, which required intubation. After several days, the patient's respiratory status stabilized, her delirium resolved, and she was transferred to the floor. On the day prior to planned discharge, the patient was found unresponsive to verbal and painful stimuli. She had a blank stare and coarse tremors of her right hand and lips which resolved in a few minutes. Pupils were reactive and the occulocephalic reflex was intact. Her vital signs, blood glucose, ABG, and serum chemistries were normal. An urgent EEG showed seizure activity from the left hemisphere with no secondary generalization. The patient was diagnosed with Non-Convulsive Status Epilepticus. She was treated with IV lorazepam but required intubation and propofol for resolution of the seizure pattern on EEG. Later her mental status returned to baseline and her antiepileptic medications were adjusted.
DISCUSSION: Non-convulsive status epilepticus (NCSE) is an epileptic condition without tonic-clonic motor activity, lasting more than 30 minutes with continuous or recurrent seizure activity as confirmed by electroencephalogram (EEG). It should be considered in patients with unexplained altered mental status, obtunded or comatose patients who have no localizing signs and an intact brain stem (as indicated by intact pupillary and occulocephalic reflexes) and patients who are not arousable 30 minutes after an episode of tonic clonic seizure. A history of seizure disorder and discontinuation or change in antiepileptic medications are additional clues that should raise suspicion for NCSE. In the ambulatory setting, NCSE can be classified into Absence status epilepticus and Complex partial status epilepticus based on ictal EEG patterns. Absence status epilepticus, which typically occurs in patients with chronic epilepsy, is characterized by altered awareness, but not necessarily unconsciousness. There may be associated myoclonus, eye blinking, and perseveration. Complex partial status epilepticus is characterized by continuous or repeated episodes of focal motor, sensory, or cognitive symptoms with impaired consciousness, and may present as acute confusional state. NCSE may occur in 8% of all comatose patients and can develop as a consequence of a variety of metabolic derangements. Treatment and resolution of the epileptiform pattern on EEG may not result in clinical changes. An urgent EEG is required for diagnosis. Treatment is similar to that of tonic-clonic status epilepticus and includes benzodiazepines and other antiepileptics. Prognosis is typically related to the underlying cause of the seizure (metabolic etiologies herald a worse prognosis), the severity of the mental status changes, and associated complications. Ambulatory patients with NCSE have a favorable outcome with resolution of the mental status changes. Conversely, obtunded patients have a high mortality rate and poor outcome despite treatment.

FACIAL NERVE PARALYSIS AND HEADACHE IN AN EL SALVADOREAN IMMIGRANT. E. Kahle[1]; R. Mehta[2]; S. Cohen[2]; M.J. Fagan[1]. [1]Brown University, Providence, RI; [2]Rhode Island Hospital/Brown Medical School, Providence, RI. *(Tracking ID # 154203)*

LEARNING OBJECTIVES: 1) Recognize the presentation of Lyme neuroborreliosis 2) Diagnose neurologic Lyme disease using clinical and laboratory data 3) Distinguish among the causes of facial nerve paralysis associated with aseptic meningitis.
CASE: A 36-year-old previously healthy male from El Salvador presented in late August with headache, fever (101°F by history) and photophobia. His symptoms began two weeks prior to admission with back and neck pain, which two days later included facial weakness. The patient went camping in Massachusetts two

months prior to admission but did not note any tick bites or skin rashes. He had a history of a positive tuberculin skin test ten years ago for which he was treated with six months of isoniazid. Three months prior to admission the patient had a left ear infection that was treated with an unknown antibiotic. The patient's most recent travel outside the country was to El Salvador in 2002. Notable findings on physical exam included mild neck stiffness on flexion; bilateral facial weakness with difficulty squinting, raising his eyebrows, and smiling that was more prominent on the left than right. Lumbar puncture revealed clear CSF with 468 nucleated cells, 73% lymphocytes, 1% neutrophils, 22% plasma cells, and 4% mononuclear cells, and 2 red blood cells; elevated protein (214 mg/dl) and normal glucose (47 mg/dl). Gram stain and culture of CSF were negative for bacteria. Lyme serology by ELISA was positive at 8.35 (OD ratio) in serum and 9.5 (U/ml) in CSF. This was confirmed by Western blot for IgM and IgG in the CSF. AFB smear of the CSF showed no organisms. HSV-1, HSV-2 and West Nile Virus were negative by PCR, and serologies for Babesia and RPR were negative as well. MRI revealed bilateral enhancement of cranial nerves III, V, and VII, which was greater on the left than right. EKG showed normal sinus rhythm with no arrhythmia or AV block. The patient was treated with ceftriaxone 2 g IV qd for a total of 28 days. His headache and fever resolved, and the facial weakness improved but was still present at discharge.
DISCUSSION: Early disseminated Lyme disease presents weeks to months after infection and can cause facial palsy, peripheral nerve palsies, meningitis, meningoencephalitis, and radiculoneuropathy. Cardiac disease may also manifest during this stage. In Lyme meningitis, the CSF has a lymphocytic predominance, but plasma cell pleocytosis may also occur. CSF analysis in isolated Lyme disease facial palsy is often normal. The diagnosis of Lyme meningitis requires evidence of antibodies in the CSF. Clinically, one should consider neuroborreliosis in patients presenting with both facial palsy and meningitis in Lyme endemic regions. A third of Lyme facial palsy cases present bilaterally, which would be unusual in idiopathic Bell's palsy. All cranial nerves may be involved in Lyme disease, but VII is the most frequently affected. HSV can also cause both facial palsy and meningitis, but facial palsy is usually associated with HSV-1 and aseptic meningitis with HSV-2. Tuberculous meningitis can cause cranial neuropathy, hydrocephalus, and/or radiculopathy and may present with confusion or personality change. Parameningeal infection can present similarly to aseptic meningitis with focal neurologic involvement and was a consideration in this case due to the patient's history of ear infection. Sarcoidosis, syphilis, and HIV are other possible causes of both meningitis and facial palsy.

FATAL AORTIC DISSECTION CAUSED BY ACUTE AORTITIS, PRESENTING AS NEPHROLITHIASIS IN A 39-YEAR-OLD MAN. H.F. Ryder[1]. [1]Dartmouth-Hitchcock Medical Center, Lebanon, NH. *(Tracking ID # 154808)*

LEARNING OBJECTIVES: 1) Diagnose aortic dissection early in its presentation, thereby reducing mortality. 2) Recognize atypical presentation of aortic dissection and aortitis.
CASE: A 39-year-old man presented to the emergency department with colicky flank pain and vomiting. He had been healthy until three weeks prior when he had a similar episode and was diagnosed with nephrolithiasis by CT at another hospital. He smoked 2–3 packs per day and had a 75 pack-year history. His physical exam originally demonstrated right lower quadrant tenderness, agitation and restlessness; vital signs were stable. Urine analysis was remarkable only for trace protein. Laboratory data was otherwise normal. Non-contrast CT of the abdomen showed no stones, free fluid or free air. After three hours of pain not controlled by ketorolac or morphine, the patient noted new sharp epigastric/chest pain. An electrocardiogram revealed normal sinus rhythm. A lateral chest radiograph demonstrated increased retrocardiac opacity of uncertain etiology, possibly a tortuous aorta. Because of increasing chest pain, a CT of the chest was ordered. The patient suffered a PEA arrest prior to the CT scan, eight hours after the onset of his flank pain. Autopsy revealed aortic dissection within the media extending the full length of the aorta from the arch to the femoral artery bifurcation (Sanford type A; DeBakey type I). A 1 cm long full-thickness vessel perforation was identified at the origin of the brachiocephalic artery. Patchy transmural inflammatory infiltrate with giant cells and plasma cells and adventitial thickening with perivascular inflammation lead to a diagnosis of aortitis. We postulate that the patient's dissection, at a site of acute aortitis, started three weeks prior when the patient experienced what was presumed to be kidney stones. A full thickness rupture occurred at the same site three weeks later. The final terminal event was hemorrhage from the full thickness tear into the left pleural cavity.
DISCUSSION: Aortic dissection is the most common fatal disease of the aorta. Untreated, 33% of patients die within the first 24 hours, and 50% die within 48 hours. The incidence of aortic dissection is approximately 5–30 cases per million people per year. The male-to-female ratio is 3:1. Approximately 75% of dissections occur in patients of 40–70 years. Sudden onset chest pain, usually described as ripping or tearing, is the most common presenting symptom in patients with an aortic dissection. However, some patients present with mild pain in the thorax, groin or back. Physicians should have a low threshold of suspicion for aortic dissection and it should be considered in all patients with sudden onset severe chest pain. Angiography is still the gold standard for diagnosis, although chest CT and echocardiography are valuable diagnostic tools. Aortitis is defined as an inflammation of the aorta, most commonly due to infection, auto-immune or connective tissue disorders. This inflammation can cause aortic dilation or fibrous thickening and stenosis leading to reduced or absent pulses. Connective tissue diseases or large-vessel vasculitites are the most common cause of aortitis and include giant cell arteritis and Takayasu arteritis.

FATAL HHV-6 ENCEPHALITIS FOLLOWING TREATMENT OF HIGH GRADE T-CELL NHL WITH AUTOLOGOUS STEM CELL TRANSPLANT(SCT) AND CAMPATH. P. Bose[1]; J.A. Thompson[2]. [1]Henry Ford Hospital Detroit, Detroit, MI; [2]University of Washington, Seattle, WA. *(Tracking ID # 153904)*

LEARNING OBJECTIVES: 1. Recognize that human herpesvirus 6(HHV-6) is a potentially serious pathogen in the setting of both allogenic and autologous SCT, not just the former, and can be ganciclovir resistant. 2. Recognize that CAMPATH(alemtuzumab)can be extremely immunosuppressive, possibly leading to HHV-6 reactivation, an association not previously reported.
CASE: A 55 year old female with a two year history of multiply relapsed high grade angioimmunoblastic T cell lymphoma presented with 4 days of anorexia, altered mental status and increasing obtundation, culminating in a tonic seizure. MRI showed marked, fairly symmetric grey and white matter changes affecting the occipital lobes, brainstem, thalami and corona radiata. Quantitative PCR of CSF revealed 25,000 copies/ml of HHV-6 DNA. She had failed multiple chemotherapy regimens before autologous stem cell transplantation with the administration of CAMPATH in the peritransplant setting for persistence of malignant cells in her peripheral blood and tumor cell contamination of her harvested CD34+ cells. Since she already was on ganciclovir for persistent cytomegalovirus(CMV) antigenemia, treatment was started with foscarnet. Her neurologic status continued to deteriorate, however, and care was finally withdrawn.
DISCUSSION: Human herpesvirus-6, a betaherpesvirus closely related to cytomegalovirus, has long been recognized as the causative agent of childhood exanthem subitum. Infection is nearly universal by age 3, and the virus remains latent in the host, reactivating upon immunosuppression. HHV-6 is a common pathogen in the peritransplant setting, with approximately half of SCT recipients exhibiting viremia within 2 to 4 weeks of transplantation. Infection is much more common after allogenic than after autologous transplantation. In these populations, HHV-6 is associated with fever and rash, encephalitis, interstitial pneumonitis, delayed engraftment, myelosuppression, graft versus host disease(GVHD), thrombotic microangiopathies, graft rejection and the hemophagocytic syndrome. HHV-6 has marked immunomodulatory properties, suppressing the lymphoproliferative response to CMV infection and is strongly associated with the occurrence of GVHD. Ganciclovir, foscarnet and cidofovir are effective in treating acute HHV-6 infection, while acyclovir and other thymidine kinase dependent drugs are not. Ganciclovir has been reported to constitute effective prophylaxis. In this regard, it is of note that the HHV-6 U69 gene, which may be a functional homologue of the CMV UL97 gene, phosphorylates ganciclovir, a crucial step in the drug's mechanism of action. Mutations in this gene have been associated with reduced susceptibility to ganciclovir. CAMPATH (alemtuzumab) is a humanized, monoclonal antibody against the CDw52 membrane antigen of lymphocytes, which causes complement and antibody dependent cell mediated cytotoxicity. It is primarily used in the treatment of B cell CLL and T cell prolymphocytic leukemia (PLL). CAMPATH is also very useful both ex vivo and in vivo in the peritransplant setting, reducing GVHD, graft rejection and EBV associated post transplant lymphoproliferative disease (PTLD) after allogenic SCT and maximally eradicating malignant cells for autologous SCT. Owing to the depletion of normal T and B cells, CAMPATH is associated with a large number of opportunistic infections, mainly viral and fungal. However, the literature contains no reports of an association between CAMPATH and HHV-6.

FATAL MEDICINE. B. Singh[1]; U. Muthyala[2]; T. Thenappan[1]; H. Friedman[2]. [1]St. Francis Hospital, Evanston, IL, Evanston, IL; [2]St. Francis Hospital, Evanston, IL. *(Tracking ID # 154779)*

LEARNING OBJECTIVES: 1. To report a rare case of lead encephalopathy in an adult due to lead poisoning secondary to an Ayurvedic medicine 2. To recognize the importance of detailed history taking, including use of indigenous medicines.
CASE: A 52-year-old Asian Indian male was brought to emergency department for a witnessed episode of generalized tonic clonic seizures. Patient was confused on arrival to ER and was unable to give reliable history. As per patient's wife patient had few episodes of headache and vomiting in the preceding week. She also had noticed a definite slowing of mentation and physical activity in the past few weeks. Patient's past medical history was unremarkable except for diabetes mellitus. On examination, patient was afebrile and vitals were stable. He was awake but lethargic and confused. Neurological examination was nonfocal with no meningeal signs. Rest of the exam was unremarkable. The patient's blood glucose, urea, electrolytes, and liver function tests were all normal. CBC was unremarkable except for microcytic hypochromic anemia (hemoglobin 10 g%, MCV 77). Neuroimaging and EEG were unrevealing. Patient underwent lumbar puncture, CSF analysis showed a clear colorless fluid with protein of 128.8 mg/dl, 10 WBC (24% neutrophil, 63% lymphocytes and 36% monocytes) and 2 RBC. Patient was empirically started on antibiotic for possible meningitis, which were later on stopped when CSF and blood cultures turned out negative. Meanwhile, patient's mental confusion persisted. Peripheral smear examination of blood film revealed moderate basophilic stippling, which raised question of lead poisoning. A serum lead level was obtained and was reported to be 160 mcg/dl. On subsequent questioning family revealed that patient was using Ayurvedic medicines for diabetes mellitus. Analysis of the patient's herbal medicine revealed a very high lead content of 37000 mcg/gm. Patient was started on chelation therapy. His clinical condition improved and a follow up serum lead level was 32 mcg/dl.
DISCUSSION: Encephalopathy is a rare but potentially fatal consequence of lead poisoning in adults, predominantly seen with occupational exposure to lead, moonshine use or glue sniffing etc. Recently Ayurvedic/herbal medicines have emerged as an important but under recognized cause of lead poisoning in

adults and most cases present with GI and hematological manifestations. Initial presentation of lead toxicity because of indigenous remedies, with mental status changes and seizures is rare and can be easily confused with infectious, metabolic or other toxic encephalopathies. Patient may not exhibit the classical symptoms of adult lead poisoning like abdominal colic, anemia, and motor neuropathies. Picture is further confounded by presence of elevated WBC count in CSF and presence of generalized brain edema on neuroimaging in patients with lead encephalopathy. A high index of suspicion and a thorough history, including use of herbal medicines can help unravel the cause. Other important but inconsistent clues are presence of hypochromic, normocytic or microcytic anemia and basophilic stippling in erythrocytes. Lead encephalopathy in adults is usually seen at whole blood lead level greater than 60–80 mcg/dl. Chelation of lead with EDTA and Dimercaprol is the mainstay of treatment. Failure to recognize and treat in a timely fashion leads to irreversible neurologic deficits and death.

FEVER AND LYMPHADENOPATHY IN A PREVIOUSLY HEALTHY 18 YEAR-OLD MAN: NOT THE USUAL SUSPECT. J. Weiss[1]; J.M. Sosman[1]. [1]University of Wisconsin-Madison, Madison, WI. *(Tracking ID # 154397)*

LEARNING OBJECTIVES: 1). Recognize the signs and symptoms of Multicentric Castleman's disease (MCD) and the value of case reports in elucidating these details. 2). Identify potential treatment options. 3). Review the long-term risks of malignant sequelae (Hodgkin's, NHL, Kaposi's sarcoma, POEMS).
CASE: A previously healthy 18 year-old man presented to his local MD with fatigue, fevers, nonproductive cough, and generalized lymphadenopathy (LAD) for 2 weeks. He received two courses of antibiotics without improvement. Diagnostic workup revealed an ESR >140 mm/hr, Hct 28 ml/dl, Plt 37 K/ul, and diffuse LAD. Chest/abdomen CT showed an anterior mediastinal mass and splenomegaly. However, inguinal lymph node biopsy revealed a nonspecific reactive node. Within two weeks he developed acute renal failure (creatinine 6.9 mg/dl) and bilateral pleural effusions, prompting transfer to our facility. The mediastinal mass was felt to be a reactive thymic gland. A bone marrow biopsy was negative for an infiltrative process, but a renal biopsy displayed characteristics of thrombotic microangiopathy. Further serologic and tissue workup was negative for vasculitis and viral infections (HIV, EBV, CMV, HHV-8). The etiology remained unclear and intermittent hemodialysis was initiated. Two months later he presented with a dilated cardiomyopathy and heart failure. A second attempt at a tissue diagnosis led to an anterior cervical lymph node biopsy, which revealed follicular and medullary compartment expansion, extensive vascular proliferation, and plasma cell hyperplasia consistent with Multicentric Castleman's disease (MCD). Immunostain of the node was HHV-8(-). He was treated with 4 weekly doses of single agent Rituximab (anti-CD20) with resolution of his constitutional symptoms, normalization of kidney function, and complete regression of all palpable lymphadenopathy.
DISCUSSION: Castleman's disease is a rare lymphoproliferative disorder. It is an excellent example of the present day value of case reports to elucidate clinical details and present therapeutic options. Interest in this disease has grown since it is more often seen in HIV(+) adults co-infected with HHV-8. Multicentric Castleman's disease (MCD) is a systemic form of the disorder that can present with LAD, fever, malaise, pleural effusions, hepatosplenomegaly, cytopenias, and renal failure. MCD has been difficult to diagnose due to its rarity and should only be considered after more common etiologies of LAD have been ruled out. Our patient represents an unusual case of idiopathic MCD in a previously healthy young man. Given the rarity of this disease there are no standard protocols for treatment. Case reports document treatment efforts with steroids, interferon alpha, anti-IL-6 monoclonal antibodies, and chemotherapy, but none have reported satisfactory long-term outcomes. Since CD20+ immunoblasts may drive the disease process, we administered Rituximab as single agent therapy and achieved very favorable short-term results in our patient. Long-term follow-up will be necessary to monitor for clinical relapse and its malignant sequelae (Hodgkin's, NHL, Kaposi's sarcoma, POEMS).

FEVER OF UNKNOWN ORIGIN AND CERVICAL LYMPHADENOPATHY IN A YOUNG WOMAN: KIKUCHI-FUJIMOTO DISEASE. S.A. Tapyrik[1]; R. Mehta[1]; E. Kahle[2]; S. Cohen[1]; B. Misra[1]. [1]Rhode Island Hospital/Brown Medical School, Providence, RI; [2]Brown University, Providence, RI. *(Tracking ID # 154418)*

LEARNING OBJECTIVES: 1) Recognize the clinical presentation of Kikuchi-Fujimoto disease (KFD) and its place on the differential diagnosis of fever of unknown origin (FUO) in young adults. 2) Recognize the importance of excisional lymph node biopsy in the diagnosis of FUO. 3) Recognize the association between KFD and systemic lupus erythematosus (SLE).
CASE: 23-year-old Asian female presented with one month of fevers, chills and weight loss. Past medical and social history was notable for incomplete treatment of latent TB and immigration from Thailand at the age of 4. She had no history of recent travel or sick contacts and her physical exam demonstrated tender cervical lymphadenopathy. Full infectious work-up including blood cultures, lumbar puncture and 2-D echo was negative; tests for AFB, HIV, EBV, and Bartonella were also negative. Rheumatology work-up revealed a positive ANA and moderately elevated ESR but a non-reactive RF. Extensive imaging including CXR, CT of chest, abdomen and pelvis and RUQ US were negative. CT of the neck showed large bilateral submandibular lymph nodes. Fine needle aspiration (FNA) of one of the lymph nodes was non-diagnostic. Because of developing neutropenia, a bone marrow biopsy was performed which was negative for malignancy and infection. Throughout her hospitalization, she continued to spike fevers to 105F and ultimately had an excisional lymph node biopsy which demonstrated necrotizing lymphadenitis with reactive lymphoid hyperplasia. Histochemical studies were negative for bacterial, fungal, acid-fast and Bartonella organisms. The differential of her lymph node pathology was KFD vs. SLE. As our patient did not meet clinical criteria for a diagnosis of SLE, she was diagnosed with KFD. Two months after the onset of symptoms, her fevers resolved and she continues to be followed closely by her PMD for symptoms suggestive of SLE.
DISCUSSION: Kikuchi-Fujimoto Disease is a benign, self-limited syndrome that most often occurs in young adults. Its cause is unknown, but viral and autoimmune etiologies are suspected. Originally described in young Asian women, it has now been reported in both sexes with almost equal incidence and is not to be excluded in non-Asian patients. The presentation of KFD is varied, with an acute to subacute onset; cervical lymphadenopathy and fever are the most consistent features on physical exam. Common laboratory abnormalities include neutropenia and a positive ANA and ESR. Many patients with KFD are concurrently diagnosed with or go on to develop SLE, suggesting that KFD may be an incompletely defined autoimmune disease. The diagnosis of KFD can only be made via excisional lymph node biopsy with histological examination, as the clinical features are largely non-specific. FNA is usually non-diagnostic as the tissue sample is insufficient for demonstration of the necrotizing lymphadenitis. It is important to include KFD on the differential in patients who present with fever and cervical lymphadenopathy because its course and treatment vary greatly from the other causes of FUO, including TB, cat-scratch disease and lymphomas. Accurate clinicopathologic recognition is essential, as KFD can often be mistaken for malignant lymphoma. The current therapies for KFD are supportive measures, as the clinical course is self-limited and only rarely relapses. Corticosteroids have been used with limited success in some patients.

FINDING THE LOST TIC: A RARE CASE OF GASTROINTESTINAL BLEEDING DUE TO A JEJUNAL DIVERTICULUM. G. Salgado[1]; J. Miller[1]. [1]Temple University, Philadelphia, PA. *(Tracking ID # 154431)*

LEARNING OBJECTIVES: 1. Review the diagnostic approach of a patient with lower GI bleeding. 2. Recognize the diagnostic challenge that represents uncommon causes of lower GI bleeding. 3. Review the clinical entity of jejunal diverticulosis.
CASE: A 56 yo man with PMH of coronary artery disease was admitted with two episodes of painless hematochezia. The patient denied prior history of gastrointestinal bleeding, abdominal pain or weight loss. On exam, he was tachycardic, with normal blood pressure and no orthostatic changes; his conjunctiva were pale; his abdominal exam was benign and there was maroon blood on rectal exam. Labs revealed hemoglobin of 7.8 g/dl, down from 12.7 gm/dl one week prior to admission. IV fluids resuscitation and blood transfusions were started and a diagnostic work-up was initiated. Nasogastric lavage was negative and a colonoscopy showed multiple diverticula in the descending colon without evidence of recent bleeding. The patient continued to have recurrent hematochezia. A bleeding scan was performed which showed bleeding most likely originating in the mid small bowel; a subsequent mesenteric arteriogram was negative. An extended upper endoscopy was performed with evaluation of the entire duodenum and the proximal jejunum where a diverticulum was found actively bleeding. The patient underwent exploratory laparotomy with resection of the affected segment of small bowel. After surgery there was not recurrence of the GI bleed and the patient was discharged in a stable condition.
DISCUSSION: Lower GI bleeding is defined as a hemorrhage originating from the GI tract distal to the ligament of Treitz and usually presents as hematochezia. Identifying the cause and the anatomical location of the bleeding needs to be performed promptly; in this process a multidisciplinary team including gastroenterologists, radiologists and surgeons should be involved. Colonoscopy represents the first-choice as a diagnostic method especially if the patient is hemodynamically stable. If unable to perform a colonoscopy or if this does not provide the diagnosis, then imaging methods can be used. The most common modalities are the Technetium-99 scintigraphy and angiography. The former has the advantage of being more sensitive as it will detect bleeding even if it is slower than 0.5 mL/min. On the other hand, angiography provides the possibility of therapeutic intervention, mainly selective embolization. If the origin of bleeding remains unknown other diagnostic procedures should be performed. Extended upper endoscopy (also called Push enteroscopy) can be done if the patient remains stable; if not, it is recommended the surgical approach with exploratory laparotomy and intra-operative panendoscopy. The small bowel is the least common site for diverticula in the GI tract and, excluding Meckel's diverticulum, less than 30% of the diverticula occur in the jejunum or ileum. Jejunal diverticulosis was first described by Sir Asley Cooper in 1807 and its incidence varies from 1.3 to 4.6% in different series. Most jejunal diverticula are asymptomatic. However, jejunal diverticula should be considered as a diagnosis in patients with chronic abdominal pain or discomfort, malabsorption or weight loss. Acute complications can also occur and include diverticulitis, hemorrhage and intestinal obstruction. The rarity of symptomatic jejunal diverticula often represents a diagnostic challenge, resulting in increased morbidity and mortality due to delayed or missed diagnosis.

FLACCID PARALYSIS CAN BE "0" K. M.J. Richman[1]; D. Yick[2]. [1]University of California, Los Angeles, Los Angeles, CA; [2]Olive View/University of California, Los Angeles Medical Center, Sylmar, CA. *(Tracking ID # 154074)*

LEARNING OBJECTIVES: 1) Review the differential diagnosis for acute flaccid paralysis. 2) Describe thyrotoxic hypokalemic periodic paralysis (THPP).

CASE: A previously-healthy 40 year-old male developed ascending paralysis over 1 day. On the night PTA, he was unable to move both legs. In the morning, he fell down. By the afternoon, he could not move his arms. He denied F/HA/change in vision/weight change/hot or cold intolerance/CP/SOB/palpitations/incontinence. He had not eaten a large carbohydrate meal or undergone heavy exercise. One week prior, he described fevers/rhinorrhea/dry cough/mylagias. Three years prior, on account of his "bulging" eyes, a friend suggested he may have thyroid disease, but he never followed up with a physician. Initial PE: T 36.5, BP 146/65, P 95, RR 18, RASaO2 99%, exopthalmos, no thyromegaly; cranial nerves were intact, 0/5 strength in both legs and arms except for 4/5 plantar flexion, 0 DTRs, sensation present but diminished throughout. CXR and CT brain were (-). Initial labs: WBC 14,000, Hgb 16.4, Platelets 247, K <1.8, Ca 9.5, Mg 1.7, PO4 1.2; LFTs, INR, and troponin (-), TSH <0.03, FT4 2.27 TT3 1.42. EKG: first degree AV block, LVH, diffuse ST depression. K+ was repleted using 60 meq PO and 40 meq IV, with no change in serum K+. An additional 60 meq was given. The next morning, the patient spontaneously moved both legs and arms. His serum K was 5.5, and peaked at 6.3. The patient was discharged with Endocinology follow-up and instructions to take potassium pills and go to the ED if his weakness returned.

DISCUSSION: The DDx for acute flaccid paralysis includes critical illness, chronic liver/renal disease, carcinoma, multiple myeloma, cryoglobulinemia, amyloidosis, acute inflammatory demyelinating polyneuropathy (Guillain-Barre Syndrome), West Nile Virus, polio, hypothyroidism, thyrotoxic hypokalemic periodic paralysis (THPP), drugs/toxins, Charcot-Marie-Tooth, porphyria, spinal cord infarction, ataxia telangiectasia, tick paralysis, botulism, myesthenia gravis, and electrolyte depletion. In this patient, the diagnosis of viral myocarditis (EKG abnormalities) with GBS was also a possibility. THPP is a disorder of the striated/skeletal muscles due to excessive activity of the Na-K pump. Proximal and LE muscles are mostly affected; facial muscles and the diaphragm less so. As in non-thyrotoxic HPP, THPP is more common among Asian, Hispanic, and American Indian males. K+ levels are normal between attacks, and there is no decrease in total body K+. Attacks can be precipitated by an insulin surge after a high carbohydrate meal, or increased adrenergic activity with physical excretion. As in this case, the patient may not have overt hyperthyroidism, so TFTs should be checked in all patients with HPP. Treatment of hyperthyroidism prevents THPP, though the degree of hyperthyroidism does not predict the degree of paralysis. The hypokalemia of THPP may be exacerbated by associated mild hypomagnesemia and hypophosphatemia. Propranolol (which stops the adrenergic stimulation of the Na-K pump), K+supplementation, or spironolactone may also prevent attacks. Occasional spontaneous recovery of flaccid paralysis suggests that K+can shift back out of the cell without exogenous replacement. Giving K+during an attack can abort the episode in 15 to 20 minutes. The initial dose of 40 to 60 meq IV or oral KCl should be administered at a dose <0.25 meq/kg because of the risk of post-treatment hyperkalemia given the transient nature of the transcellular shift.

FROM BAD TO WORSE: ONE ANEMIA BEGETTING ANOTHER. S. Agolory[1]; J. Wiese[1]. [1]Tulane University, New Orleans, LA. *(Tracking ID # 156781)*

LEARNING OBJECTIVES: 1. Identify the differential diagnosis of pure red cell aplasia in the HIV patient 2. Recognize anti-erythropoietin antibody-mediated pure red cell aplasia as a complication of recombinant erythropoietin.

CASE: A 38-year-old man with AIDS (CD4 count 107, viral load 125) presented with two weeks of increasing fatigue, palpitations, and tachypnea on exertion. Three months earlier he was diagnosed with anemia of chronic disease and was started on weekly injections with epogen. This was stopped two months later because his hemoglobin had normalized. He denied fevers, night sweats, weight loss, and cough. He was afebrile but was tachycardic and tachypneic. His skin and conjunctivae were pale and his nails were brittle. The remainder of his examination was normal. His electrolytes, arterial blood gases, and CBC were normal, with the exception of a hemoglobin of 2.3 g/dl. His RBC morphology and ferritin levels were normal but the reticulocyte count was low. Serum IgG for parvovirus was positive but serum IgM and viral PCR were negative. A bone marrow biopsy revealed a hypocellular marrow, granulocytic hyperplasia with predominantly immature erythroid forms and an increased number of plasma cells. No viral inclusions were identified. He was diagnosed with pure red cell aplasia, and he was transfused. He received five cycles of intravenous immunoglobulin. His symptoms resolved.

DISCUSSION: Pure red-cell aplasia (PRCA) is the absence of mature erythroid precursors in a bone marrow that otherwise exhibits normal cellularity. The anemia is typically severe, the absolute reticulocyte count is usually less than 10,000/ul, and marrow erythroid precursors are virtually absent. Acquired PRCA may occur in association with many diseases commonly seen by the general internist, and may be falsely attributed to anemia of chronic disease. Examples include lymphoproliferative disorders, thymoma, autoimmune disorders, pregnancy, or as a consequence of chronic human parvovirus B19 (B19) infection in immunocompromised patients. PRCA may also develop after exposure to drugs including following the administration of recombinant erythropoietin. The pathophysiology is believed to be secondary to development of anti-erythropoietin antibodies (Ab+PRCA). Our patient illustrates that erythropoetin should not be used haphazardly, as the induction of PRCA is a potential complication. In the setting of HIV, erythropoetin should only be used in patients who have low endogenous erythropoetin levels. With the increased use of erythropoietin to treat anemia in HIV patients, it is imperative that the providers recognize it as a potential etiology for PRCA, since this can be treated successfully with intravenous immunoglobulins.

FRONTLINES FOR DIPHTHERIA OUTBREAK CONTROL: CORYNEBACTERIUM DIPHTHERIAE VS CORYNEBACTERIUM PROPINQUUM. J.P. Morano[1]; E.A. Talbot[2]. [1]Dartmouth-Hitchcock Medical Center, Lebanon, USA; [2]Dartmouth College, Dartmouth Hitchcock Medical Center, Lebanon, NH. *(Tracking ID # 154824)*

LEARNING OBJECTIVES: 1. Recognize clinical presentation of C. Diphtheriae and existence of related genotypes 2. Understand the best strategy for surveillance reporting and outbreak containment.

CASE: CASE: A 39-year-old Caucasian female New Hampshire resident was seen in general medicine clinic in Rochester, NH for nasal stuffiness and a sore throat which was at least one-month in duration. On physical exam, she was afebrile and found to have a gray-white membrane at the posterior oral pharynx, which was cultured. She was treated with a cephalosporin. Her throat culture returned positive for 4+ Corynebacteria. The state health department was alerted to the possible diagnosis of diphtheria. A team was deployed that day to conduct case and contact investigation and consider isolation. It was discovered that the patient was well, with resolving symptoms, had had appropriate childhood vaccinations and no international travel or contacts. She worked in daycare and agreed to voluntary isolation. She lived with two children, who were asymptomatic. CDC molecular diagnostics laboratory confirmed C. propinquum and the patient was released from isolation. The patient recovered without incident.

DISCUSSION: Corynebacterium propinquum is a native human throat inhabitant which can cause respiratory and pulmonary illness. C. propinquum must be distinguished from its more virulent relative, Corynebacterium diphtheriae. C. diphtheriae produces a dangerous toxin, which when absorbed affects organs and tissues distant from the site of invasion; complications include myocaridits, neuritis, and death. Per CDC data, overall case fatality for C. diphtheriae is 5–10%, with higher death reates (up to 20%) in persons <5 and >40 years of age. Humans are the only reservoirs; spread is via respiratory and fomite contact. Children are the most likely carriers during outbreaks. The DTaP/DR/Td vaccine has greatly reduced disease incidence in the US: 2005 surveillance data shows 0 cases/year for NH and average of 1 case/year nationally, down from 307 cases in 1975. Other Corynebacterium species that are native to the human throat are identical to C. diphtheriae on gram stain and initial culture. C. propinquum is microbiologically distinguished from a phylogenetically related C. pseudodiphtheriticum, which is urease positive, and from the CDC group ANF-1, which is negative for nitrate reduction. Culture of throat and nares on teullurite medium of the lesion or membrane is needed to confirm the diagnosis. Per CDC guidelines, immediate action is needed to isolate and treat all highly suspect cases of diphtheria including likely contacts. Erythromycin or procaine penicillin G should be started empirically for diphtheria even if diagnostics are not yet confirmatory. The disease is not contagious 48 hours after antibiotics are instituted, yet two subsequent negative cultures are needed to prove elimination of the disease and to end isolation precautions. This case of C. propinquum is the first in the United States and third in the English language and highlights the importance for general practitioners to distinguish C. propinquum from C. diphtheriae. Urgent public health action may be necessary before microbiologic confirmation.

GATIFLOXACIN: NOT AS SWEET AS IT SOUNDS. E. Howe[1]; J. Wiese[1]. [1]Tulane University, New Orleans, LA. *(Tracking ID # 156968)*

LEARNING OBJECTIVES: 1. Recognize gatifloxacin administration as a potential cause of hyperglycemia in the non-diabetic patient, especially those with liver disease.

CASE: A 53 year-old man with known hepatitis C and dementia presented with three days of fever, chills, supra-pubic abdominal pain and malaise. He reported multiple similar episodes in the past that were subsequently diagnosed as urinary tract infections. He had no known history of cancer, pancreatic or endocrine disease and was not taking steroids. His temperature was 101°F and he was tachycardic. He had an enlarged liver, suprapubic tenderness to palpation, and a normal prostate exam. His CBC, electrolytes, and liver function tests were all normal with the exception of a WBC of 18,000 cells/mm^3. His blood glucose on admission was 78 mg/dL. The UA was positive for nitrites and leukocyte esterase, with many bacteria, 50–100 WBCs, and 5 RBCs. He was started on gatifloxacin 400 mg per day. On his third day of gatifloxacin treatment, his blood sugar was 422 mg/dL. Despite gradual insulin therapy, his blood sugar remained elevated. Gatifloxacin was discontinued and he was started on Bactrim. Within 24 hours, his blood sugars returned to normal (111 mg/dL). Before this episode of hyperglycemia, the patient had no clinical or laboratory evidence of diabetes; his hemoglobin A1c was 5%. He remained euglycemic throughout his subsequent hospitalization and during his follow-up evaluations.

DISCUSSION: Gatifloxacin has been associated with both hyper-and hypoglycemic episodes in the non-diabetic patient. While the exact mechanism is unknown, it is postulated that gatifloxacin adversely affects the liver's ability to regulate glucose homeostasis especially when liver function is already impaired. Given the fact that our patient had no risk factors for diabetes, showed no symptoms or laboratory data consistent with hyperglycemia prior to this event, and returned to a normal blood sugar within 24 hours of discontinuing the drug, the most likely cause of his hyperglycemia was gatifloxacin. Non-diabetic patients taking gatifloxacin, especially those with liver disease, should be monitored closely for clinical or laboratory evidence of hyperglycemia. Should this occur in the absence of another known cause of hyperglycemia, gatifloxacin should be discontinued and another antibiotic started in its place. Further, gatifloxacin should not be administered to diabetic patients, especially those on metformin as its mechanism of action may be offset by the gatifloxacin.

GETTING A LEG UP ON CHRONIC COMPARTMENT SYNDROME. J.A. Hardman[1]; C.K. Bates[1]. [1]Beth Israel Deaconess Medical Center, Boston, MA. *(Tracking ID # 152150)*

LEARNING OBJECTIVES: 1. Present a case of exertional leg pain and generate a differential diagnosis 2. Describe the presentation, diagnosis, and management of chronic compartment syndrome 3. Discuss the emerging role of MRI in the diagnosis of chronic compartment syndrome.
CASE: A 50 year-old woman reported several years of exertional leg pain. She described cramping in both calves walking as little as one block with severe pain ascending an incline. She reported episodes of debilitating pain, including having to crawl while doing housework and being unable to cross the street in the time allotted. The pain resolved with rest. She denied numbness though endorsed weakness in the affected muscles. She denied radiation of the pain, bladder or bowel incontinence, lower extremity swelling, a history of trauma, or any symptoms in her arms. She had an L4-5 diskectomy four years prior for severe low back pain and afterwards had occasional mild low back pain without radiation into the legs. She suffered a cervical fracture at age 15 and is status post fusion of C4-5 and C5-6. Medical history also included hypercholesterolemia, hypertension, psoriasis and depression. She was taking antidepressants, antihypertensives and atorvastatin. On exam, muscle tone, bulk and strength were normal. Sensation was normal. Reflexes were normal and toes downgoing bilaterally. There was no edema or muscle tenderness. Pulses were normal. MRI of her cervical and lumbar spine revealed only post-surgical changes. EMG revealed no evidence of a myopathic process or postsynaptic disorder. Arterial duplex study of her lower extremities was normal at rest and with exercise. A muscle biopsy querying mitochondrial myopathy was normal. Compartment pressures were non-diagnostic, but exertional MRI showed increased fluid uptake in both superficial posterior compartments consistent with an exertional compartment syndrome. She underwent bilateral open anterior and posterior compartment fasciotomies with complete resolution of symptoms.
DISCUSSION: The differential diagnosis of exertional leg pain includes shin splints, stress fracture, muscle strain, vascular insufficiency, disk herniation, spinal stenosis, peripheral neuropathy, popliteal artery entrapment syndrome (PAES), peroneal nerve entrapments, osteomyelitis, tumor, and chronic compartment syndrome (CCS). Tenderness along the tibia is seen with shin splints and stress fracture. Plain radiographs, bone scintigraphy, or MRI may confirm the diagnosis of stress fracture. Concomitant low back pain or radicular pain in a dermatomal distribution suggests disk herniation. Radicular pain in elderly patients suggests spinal stenosis. Vascular insufficiency may only be apparent with exercise Ankle-Brachial Index (ABI) testing. PAES and peroneal nerve entrapments are uncommon, but can mimic CCS. These can be ruled out with Doppler imaging and EMG. CCS is an uncommon diagnosis with an unclear incidence. It is most common in athletes and more commonly affects the lower extremities. Young women may be most at risk. The average duration of symptoms before diagnosis is two years. Our patient had symptoms for five years despite neurology and rheumatology consultation. Confirmation has classically relied on elevated intracompartmental pressures, but sensitivity appears to be higher with exertional MRI. Conservative therapy is ineffective in CCS. Fasciotomy is the most widely used treatment, has few complications and a fast recovery time.

GETTING TO THE "COR": CUTANEOUS MUCORMYCOSIS IN A PATIENT WITH RHEMATOID ARTHRITIS ON INFLIXIMAB. H. Gadadhar[1]. [1]University of Tennessee, College of Medicine - Chattanooga Unit, Chattanooga, TN. *(Tracking ID # 151316)*

LEARNING OBJECTIVES: To recognize the immunocompromised status of patients on disease modifying anti rheumatic drugs (DMARD) for rheumatoid arthritis and to recognize the potentially life threatening complication of Mucormycosis.
CASE: A previously healthy 62 year old male presented to the emergency department with a rapidly progressive skin lesion leading to cellulitis on the left side of his face. Three days earlier he had noticed a nodule on his left cheek after being scratched by a thorn. The next day the nodule progressed to what appeared to be an abscess. It was lanced and he was started on oral Bactrim. By the next day the swelling and pain had worsened and spread to involve the periorbital area. He had fever with chills and was started on Clindamycin and Vancomycin. Past medical history was significant for rheumatoid arthritis, managed for the past 2 years with Prednisone and Methotrexate. Infliximab had been initiated 2 months prior and he had received 2 doses prior to his presentation with cellulitis. His white blood cell count at admission was 15.9 th/mm^3 with 90% neutrophils. The lesion progressed despite broadening the antibiotic coverage. A biopsy revealed broad nonseptate hyphae, suggesting mucormycosis. Lipophillic Amphoterecin B was initiated and extensive surgical debredriment was carried out. He also received HBO treatment, after which he underwent a pectoral muscle flap reconstruction of the side of his face with good cosmetic results.
DISCUSSION: Zygomycetous fungi are ubiquitous in nature and can be found on decaying vegetation and in the soil. These fungi grow very rapidly and release large numbers of spores that can become airborne. All humans have ample exposure to these fungi during routine day-to-day activities. The fact that mucormycosis is a rare human infection is a testament to the efficacy of the intact human immune system. This is further supported by the finding that almost all human infections occur in the presence of some underlying, compromising condition (i.e. diabetes mellitus, metabolic acidosis, treatment with steroids, hematologic malignancies, solid organ transplantation, desferoxamine treatment, acquired immunodeficiency syndrome (AIDS), intravenous drug use, and burns). Despite early diagnosis and aggressive surgical and medical therapy, the prognosis for recovery from disseminated mucormycosis is not favorable. An exception is cutaneous involvement which rarely disseminates as in our case. A high index of suspicion should be kept towards potentially life threatening infections while managing patients with steroids and DMARDs like Methotrexate and Infliximab.

GINGIVAL BLEEDING IN A SUICIDAL WOMAN: A CASE OF INTENTIONAL SUPERWARFARIN INGESTION. C.I. Herold[1]. [1]University of Pennsylvania, Philadelphia, PA. *(Tracking ID # 150585)*

LEARNING OBJECTIVES: Recognize superwarfarin ingestion among suicidal patients as a public health concern. Diagnose superwarfarin ingestion and manage the resultant toxicity.
CASE: A 27-year old woman is admitted to psychiatry with suicidal ideation; medicine is consulted regarding the patient's gingival bleeding. The patient reports gingival bleeding for the past 2 weeks and denies all other bleeding. When questioned about her mood, she admits to suicidal ideation but initially denies any suicidal behaviors including ingestions. Her medical history is notable for depression and bipolar disorder for which she is being treated with bupropion and quetiapine. She is an active smoker and denies all other substance abuse. Her physical exam is notable for gingival oozing from the lower and upper gums and a flat affect. Laboratory studies reveal normal renal and liver function. CBC and iron studies are consistent with iron deficiency anemia. Coagulation parameters are markedly elevated: PT greater than 90, aPTT 85. Fibrinogen and D-dimer levels are both normal. Urinalysis reveals microscopic hematuria.
DISCUSSION: The differential diagnosis for prolonged PT and aPTT includes supratherapeutic doses of warfarin and heparin used alone or in combination, superwarfarin ingestion, vitamin K deficiency, liver disease with deficient synthesis of clotting factors, DIC, fibrinolysis, rare inherited factor deficiencies and acquired inhibitors (factors I, II, V and X), and rare inherited fibrinogen disorders. In this case, superwarfarin ingestion was the most likely diagnosis and upon further questioning the patient admitted to the ingestion of a several boxes of rat poison in the weeks prior to her presentation. The superwarfarins were developed in the 1970s to combat rodent resistance to warfarin derivatives. Like warfarin, these drugs act by inhibiting hepatic carboxylation of the vitamin K-dependent clotting factors. They are 100-fold more potent than warfarin and the resultant coagulopathy, which is apparent 1–3 days following ingestion, can persist for weeks to months. In 1998 there were over 16,000 cases of superwarfarin ingestion of which the majority were accidental ingestions by children. Other causes of ingestion include Munchausen syndrome and attempted suicide. The diagnosis of superwarfarin ingestion is often based on patient history but can be confirmed with further studies including superwarfarin levels, vitamin K1 epoxide-reduced to vitamin K ratio, levels of the vitamin K-dependent factors, and plasma mixing studies. The urgent management of superwarfarin toxicity involves close monitoring for signs of bleeding including frequent physical exams, serial CBC, and coagulation studies. FFP can be used to correct an elevated PT in the setting of active bleeding. The long-term management is aimed at normalizing PT with massive doses of oral vitamin K and iron replacement as needed. The dosing of vitamin K is controversial but 7 mg/kg per day divided every 6 hours may be reasonable given the half-life and low potential for toxicity. This frequently causes compliance issues; for example, the patient was advised to take 350 mg of vitamin K daily which is a total of seventy 5 mg tablets. In follow-up, she noted that the pharmacy initially refused to fill this quantity, then ran out of stock, and that the number of tablets required of her was daunting. To determine the duration of vitamin K therapy it may be useful to estimate an elimination curve by obtaining serial superwarfarin levels.

GROUP A BETA-HEMOLYTIC STREPTOCOCCAL MENINGITIS IN AN ADULT. D.T. Albay[1]; J. Friedman[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 153539)*

LEARNING OBJECTIVES: 1. Increase awareness of the increasing incidence of Group A Beta-hemolytic streptococcal infections in the adult population.
CASE: A 46-year-old Caucasian female with no significant medical history presented with a one-day history of fever, five days of progressively worsening fatigue, sore throat, and swelling and tenderness of the neck and bilateral cheeks. One week previously, she was diagnosed in the ER with viral pharyngitis and discharged on over-the-counter medications. On exam she appeared ill with a temperature of 39.3 °C. ENT exam was negative for photophobia, but significant for pharyngeal exudates and periauricular tenderness and edema. Neck exam showed bilateral anterior cervical lymphadenopathy. Fiberoptic endoscopic evaluation showed tissue swelling of the pharynx, patent airway, and normal laryngeal structures. Neurologic exam was normal, no nuchal rigidity, and negative Kernig and Brudzinski signs. WBC count was 20,600. Pharyngeal and blood cultures were positive for group A Beta-hemolytic streptococcus (GAS). Chest and neck plain films showed widening of neck soft tissues and increased prevertebral soft tissues. Neck CT was negative for abscess, however, showed paravertebral soft tissue swelling from the nasopharynx to the hypopharynx and bilateral cervical lymphadenopathy with nodes < 1 cm. The patient received zosyn and one dose of vancomycin. On hospital day 1 she developed bleeding from her bilateral ear canals. Lab findings were consistent with mild DIC. On hospital day 2 she had decline in mental status. Brain CT was negative. Lumbar puncture revealed CSF consistent with bacterial meningitis. Antibiotic coverage was changed to penicillin, ceftriaxone, and clindamycin; she was transferred to the ICU. On hospital day 3, her mental status worsened and she was intubated. Brain MRI was negative for abscess. Her mental status gradually improved over next several days, and she was extubated and trans-

ferred to the floor. She continued to improve clinically and was discharged on intravenous cefotaxime.
DISCUSSION: GAS is the most common cause of acute bacterial pharyngitis and rarely may be associated with bacteremia. It can also cause invasive disease, streptococcal toxic shock syndrome, rheumatic fever and acute glomerulonephritis. CNS infection in adults is rare. Over the last two decades, GAS invasive disease has been observed with increasing frequency. Little is known regarding predisposing factors and clinical features of GAS meningitis. Some authors have suggested a higher association of such conditions as human immunodeficiency virus, malignant neoplasm, heart and lung disease, diabetes mellitus and alcoholism with increased risk of invasive GAS infections. In a retrospective study of nine cases of GAS meningitis in adults, eight were found to be community acquired. No chronic underlying conditions were present, suggesting that GAS meningitis can occur in otherwise healthy adults. The drug of choice for early treatment is penicillin. Clindamycin should also be considered in patients with documented invasive infections to halt production of toxins. Immuneglobulin has also been administered in some cases to neutralize streptococcal toxins. Mortality rates associated with GAS meningitis appear to be lower than that associated with pneumococcal or nosocomial meningitis. Adults with GAS meningitis usually have a favorable prognosis if antibiotic therapy is initiated promptly.

HEADACHE AND TREMOR AS PRESENTING SYMPTOMS OF WEST NILE MENINGITIS. L. Liwanpo[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 155516)*

LEARNING OBJECTIVES: Recognize potential clinical manifestations of West Nile infection.
CASE: A 60-year-old Hispanic female with hypertension, diabetes mellitus type 2, and prior history of breast cancer was admitted for headache and tremors. Her headaches, localized to the back of her head, started one week prior to admission and were associated with nausea and vomiting but not photophobia or neck stiffness. For three days prior to admission, she exhibited hand tremors, which occurred at rest and with movement. She also reported subjective fevers but denied cough, shortness of breath, dysuria, or diarrhea. She denied recent travel or household contacts. The patient was retired and lived in Van Nuys, California. She denied cigarette, alcohol, or drug use. On physical exam, the patient had a fever of 39.5 °C and pulse of 104. Examination of her lungs, heart, and abdomen was unremarkable. She had no meningismus but exhibited a static and kinetic hand tremor bilaterally; neurologic exam was otherwise normal. Her complete blood count and electrolytes were normal. A lumbar puncture was performed, which revealed a lymphocytic pleocytosis with 23 white blood cells and 4 red blood cells, as well as protein of 62 mg/dl. West Nile IgG of the CSF returned a few days later as positive, confirming a diagnosis of West Nile meningitis.
DISCUSSION: Historically indigenous to Africa, Asia, Europe, and Australia, the West Nile flavivirus first arrived in North America in 1999. Another outbreak occurred in 2002 and over 4,000 cases were reported in the next six months. Peak incidence occurs in the summer to early fall, and its transmission is maintained through a mosquito-bird-mosquito cycle, with humans involved as accidental hosts. West Nile infection can present with a broad range of manifestations. Most patients are asymptomatic and approximately 20% have a self-limited illness, with symptoms such as headache, fever, and nausea. Less than 1% develop neuroinvasive disease, such as meningitis, encephalitis, or flaccid paralysis. Many patients with CNS involvement exhibit dyskinesias, including tremors, myoclonus, and parkinsonianism. A 2002 prospective study of suspected cases showed that tremor was present in 15 of 16 seropositive cases. MRI imaging and pathologic review shows that the virus preferentially affects the basal ganglia, thalamus, caudate nuclei, brainstem, and spinal cord, which might explain the presence of dyskinesias. Diagnosis relies on serological testing with serum or CSF West Nile IgM ELISA, which has a sensitivity of 95%. Because its presentation is often nonspecific, many cases of West Nile likely go undiagnosed. Physicians should enquire thoroughly about exposure and geographic history. Testing for West Nile virus should be considered in patients with risk factors, movement abnormalities, or persistent fevers despite empiric treatment. Currently, only supportive treatment is available for West Nile infections. Mortality is highest in neuroinvasive disease, reportedly 12% in cases of encephalitis. Potential treatments may involve propagating the interferon response, and human vaccines are under development. A case control study showed that increased time spent outdoors and presence of standing water correlated with infection. Therefore, with no definite cure or vaccine, physicians should encourage patients to practice protective measures during peak months, such as avoiding mosquito exposure and using DEET-based repellants.

HEMOLYSIS IN AN ELDERLY MALE WITH NEAR DROWNING. K. Sandhu[1]; A. Segon[1]; U. Muthyala[1]; H. Friedman[2]. [1]St. Francis Hospital, Evanston, IL; [2]St. Francis Hospital, Evanston, IL, Evanston, IL. *(Tracking ID # 154170)*

LEARNING OBJECTIVES: Recognize hemolysis as one of the manifestations of near drowning.
CASE: An 83-year-old male, with PMH of coronary artery disease, hypertension, and DM type II, was rescued from the bottom of a swimming pool by a lifeguard and given cardiopulmonary resuscitation. He regained consciousness and spontaneous respirations and was transferred to the hospital. On arrival in emergency room, he was confused and dyspneic. He was on a 100% non-rebreather mask to maintain oxygen saturation in the blood. Blood pressure and pulse were normal. Chest examination showed bilateral crackles. Rest of the examination was unremarkable. Chest x-ray had bilateral infiltrates consistent with the diagnosis of pulmonary edema secondary to submersion injury. Lab values showed normal electrolytes except a low sodium of 133 mmol/L. CBC was normal except for a low hemoglobin of 10.7 g/dL and hematocrit of 32 %. His baseline hemoglobin was 12–13 g/dL. The next day hemoglobin dropped to 7.1 with a hemotocrit of 20.4. Workup for this acute drop in hemoglobin was initiated. Patient did not have any rectal or urinary blood loss. A CT-scan of abdomen and pelvis was done due to his complaint of abdominal pain, which showed a liver contusion but no active bleeding. A low haptoglobin level of 4, high LDH level of 733, and indirect bilirubin level of 1.2 were suggestive of hemolysis. Peripheral smear was unremarkable. Reticulocyte count was 1.5; however, the iron saturation was only 6%. Coombs test was negative. Patient received 2 units of packed red blood cells after which his hemoglobin increased to 9.1. Over the next few days, his breathing was back to normal and his mental status improved significantly. At the time of discharge, his hemoglobin had increased back to his baseline of 12.6.
DISCUSSION: The usual complications of near drowning are the end organ effects of hypoxemia. Pulmonary edema and ARDS, cerebral edema and coma, cardiac arrhythmias and renal failure have been variously reported. We reviewed the literature on near drowning but did not find hemolysis to be commonly listed as a complication. Fourier et al. (1979) reported hemolysis in 23% of subjects in their case series of 70 patients (1). The mechanism of hemolysis is thought to be due to movement of fresh water via the RBC membrane across the osmotic gradient and resulting in cell rupture. This may or may not be associated with hyperkalemia. Peripheral smear will not show schistocytes. Also, it has been reported in literature (2) that the hematocrit does not drop initially owing to the coexistence of enlarged and ruptured cells in the blood, so a drop in hematocrit can be seen many hours later. Based on the above information and a negative workup for other causes of hemolysis and the absence of active blood loss, we concluded that our patient had osmotic hemolysis. Thus, hemolysis should be recognized as a possible complication of fresh-water drowning. References: (1) Clinical study, evolution and therapy of 70 cases of near drowning: F. Fourrier, C. Chopin, A. Durocher, D. Dubois and F. Wattel. Acta tuberc. Pneumol. Belg. 1979–70/3–4. (2) Near-Drowning: a complex patho-physiological injury. Bill W. Long and Richard B. Warren. Journal of the Mississippi state medical association.

HEPATIC CIRRHOSIS WITH MARKED ASCITES ASSOCIATED WITH VITAMIN A TOXICITY. M.A. Baig[1]; J. Rasheed[1]. [1]Long Island Collect Hospital, Brooklyn, NY. *(Tracking ID # 157031)*

LEARNING OBJECTIVES: Learn the Mechanism of Vit A toxicity causing liver cirrhosis. Assess and be aware of unusual presentation of vitamin toxicity. Take history of over the counter medications and vitamins from patient.
CASE: 60-year-old man was admitted with worsening dyspnea, 25-kg weight loss, an increasing abdominal girth for several months. The patient's past medical history was unremarkable. He denied smoking, drinking alcohol or liver disease. The patient's medication history included an extensive list of vitamins. During 20 years; he ingested at least 300,500,000 IU vitamin A. Physical examination revealed a thin, chronically ill appearing man. He was afebrile, pulse rate was 80/min, BP 120/70 mm Hg and breathing was 26/min. He had a markedly distended abdomen with shifting dullness. Admitting labs were significant for serum ALT of 150 U/L, AST of 252 U/L, ALP 246 U/L, albumin was 2.2 g/dL, INR was 1.8 with PTT of 47, hemoglobin of 11 g/dl and hematocrit of 37%. Preliminary investigation revealed no apparent explanation for the patient's symptom complex and the patient tested negative for hepatitis viruses. Additionally, tests for autoimmune hepatitis, hemochromatosis, alpha-1 anti-trypsin deficiency, and Wilson's disease were negative. Budd-Chiari syndrome was appropriately excluded by demonstrating patency of hepatic veins by sonogram. A diagnostic ascitic tap revealed transudate with no sign of peritonitis. Peritoneal fluid cytology, bacterial culture, and stains for acid-fast bacillus were negative. Ultrasonogram of the abdomen showed diffuse increase in echogenecity consistent with hepatocellular disease. Transjugular liver biopsy demonstrated histologic changes that were consistent with vitamin A hepatotoxicity: Stellate cell lipidosis, compatible with hypervitaminosis A associated with portal fibrosis, scattered lipid laden cells seen throughout the biopsy specimen. There were no features to suggest concomitant liver disease of other causes. Throughout his hospital stay, gradual clinical and biochemical improvements were noted. Ten days after admission, he was discharged home.
DISCUSSION: This case describes rare presentation of vitamin toxicity. The patient's heavy consumption of vitamin A occurred during 20 years. Both the amount of vitamin A consumed and the time period during which the ingestion occurs are important prognostic determinants of hepatotoxicity. Determining liver retinol concentrations would be of no help because distribution of Vitamin A is not homogenous even in normal liver. Humans ingest the vitamin in two basic forms: Retinyl ester and Beta-carotene. Beta-carotene can be cleaved into two molecules of vitamin A, rapidly taken up by hepatocytes and is stored as retinyl ester. 50% to 90% of total body stores of the vitamin are located within the stellate (Ito) cells of liver. Mobilization from liver to extrahepatic sites requires hydrolysis of the retinyl esters. Free vitamin A is then transported by retinol-binding protein to extrahepatic sites. Under normal conditions, almost all of the vitamin A in the blood is bound to retinol-binding protein. Toxicity of the vitamin becomes apparent when the capacity of the liver to store vitamin A is overwhelmed, and capacity of retinol-binding protein is exceeded. Under these circumstances, large proportions of the vitamin circulate as retinyl esters that mediate toxicity by disrupting cellular and subcellular membranes, activation of hepatic stellate cells ultimately resulting in fibrosis.

HEPATIC ENCEPHALOPATHY SECONDARY TO STREPTOCOCCUS PNEUMONIAE SEPTIC ARTHRITIS. A.F. Beck[1]; C.L. Spagnoletti[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 153766)*

LEARNING OBJECTIVES: 1) List the causes for hepatic encephalopathy (HE) and recognize an uncommon cause in a patient with cirrhosis. 2) Review the clinical presentation and epidemiology of septic arthritis (SA) caused by Streptococcus pneumoniae. 3) Discuss the management of SA.
CASE: A 57-year-old Caucasian male with a history significant for right prosthetic shoulder joint implantation two years ago and long-standing alcoholic cirrhosis presented with a 4-day history of increased confusion and a 2-week history of right shoulder pain. He complained of limited shoulder joint mobility, increasing redness and swelling, but denied fever, cough, sputum production, abdominal pain, vomiting or melena. The patient and his family endorsed compliance with his dietary restrictions and with his medication regimen, which included multivitamins, furosemide, spironolactone, lactulose and neomycin. He endorsed continued but stable alcohol use and denied illicit drug use. On exam, he was afebrile with stable vital signs, and had stigmata of chronic liver disease, as well as profound tenderness, erythema and edema of the right upper arm and shoulder. His abdominal, pulmonary and cardiovascular exams were unremarkable. Stool was hemoccult negative. Pertinent laboratory findings included a WBC count of 16.1, K of 4.3, INR of 2.4, albumin of 1.4, BUN of 28, creatinine of 1.2, ALT of 30, AST of 86, total bilirubin of 7.6 and an ammonia level of 87. Urinalysis was unremarkable. Abdominal ultrasound revealed no ascites and normal blood flow patterns. A shoulder X-ray demonstrated inflammation of the joint space and surrounding tissue. Arthrocentesis revealed 10 ml of purulent fluid. The patient underwent incision, drainage, and prosthesis removal. Blood and joint fluid cultures revealed penicillin-resistant S. pneumoniae. His mental status and shoulder symptoms improved. He was discharged on a 6-week course of vancomycin.
DISCUSSION: This case highlights the importance of conducting a thorough search and maintaining a high index of suspicion in order to uncover the underlying etiology for encephalopathy in a patient with chronic liver disease. HE is most commonly caused by one or more of the following: infection, gastrointestinal bleeding, excess dietary protein intake, medication noncompliance, drug or alcohol use, hypokalemia and portal/hepatic vein thrombosis. The underlying etiology of this patient's HE was SA caused by S. pneumoniae. SA is caused by S. pneumoniae in roughly 6% of cases, occurs most commonly in the 6th decade, and is more likely to affect patients with alcoholism, joint prosthesis, rheumatoid arthritis, immunosuppression or diabetes mellitus. Classically, pneumococcal SA is associated with concurrent pneumonia, meningitis or spontaneous bacterial peritonitis; however, up to 37% of cases present in isolation. Bacteremia is more likely to develop if underlying liver disease is present. Patients commonly present with the cardinal signs of inflammation localized most often to a large joint such as the knee, hip or shoulder. The diagnosis of SA is made by gram stain/culture of joint fluid. The treatment includes incision and drainage of the joint, and if applicable, prosthesis removal. Patients without prosthesis should receive 3 weeks of antibiotics; this should be extended to 6 weeks in those with prosthesis. Most strains of S. pneumoniae are sensitive to penicillin G or a 3rd generation cephalosporin. Vancomycin is reserved for resistant strains.

HIDING FROM DIAGNOSIS, LURKING IN THE VASCULATURE: INTRAVASCULAR LYMPHOMA. A. Friedenberg[1]; A.W. Moulton[2]. [1]Rhode Island Hospital/Brown Medical School, Providence, RI; [2]Rhode Island Hospital, Providence, RI. *(Tracking ID # 155844)*

LEARNING OBJECTIVES: 1. Recognize that certain lymphomas present with a normal CBC and without lymphadenopathy. 2. Diagnose intravascular lymphoma in a patient with splenomegaly and elevated lactate dehydrogenase (LDH) by bone marrow biopsy.
CASE: A 61-year-old woman with a past history of hypertension presented with lightheadedness, fatigue, and a 30-pound weight gain in the past month. She was evaluated several times in an outside emergency department for lightheadedness, and was found to be orthostatic, received intravenous fluids, and was subsequently discharged from the ED. On admission to our hospital, the patient presented with orthostasis, anasarca, a mildly tender abdomen, and an albumin of 1.7 mg/dL. The initial work up for her anasarca revealed a normal CBC, electrolytes, and urinalysis but her creatinine was 1.1 mg/dL. Her liver function tests were normal except for the low albumin and an INR of 1.4. Her TSH and cosyntropin stimulation tests were normal. Imaging studies revealed a normal right upper quadrant ultrasound with dopplers and an echocardiogram showed normal left ventricular function. During her hospital course she developed diarrhea and thus underwent a work-up for protein wasting enteropathy, including an upper endoscopy with biopsies that were normal. Incidentally, an LDH was found to be markedly elevated at 711 IU/L. Unfortunately the patient deteriorated with worsening orthostasis and declining renal function requiring hetastarch and albumin infusions. She also developed worsening abdominal pain so a CT scan of the abdomen was performed that showed splenomegaly with multiple areas of low attenuation concerning for lymphoma. Hematology was consulted and a bone marrow biopsy was performed that was initially nondiagnostic. However, a repeat bone marrow biopsy with immunohistochemistry showed small clusters of atypical lymphocytes with vesicular nuclei and prominent nucleoli which was diagnostic of intravascular lymphoma. On further review of her prior endoscopic biopsies evidence of intravascular lymphoma was found in her gastric mucosa. Based on these findings chemotherapy was initiated with high dose dexamethasone. Subsequently she received doses of cyclophosphamide and rituximab, but unfortunately she died after a prolonged stay in the intensive care unit.
DISCUSSION: As this case illustrates, it is important for the general internist to recognize that not all lymphomas present with lymphadenopathy or an abnormal CBC. Intravascular lymphoma is a rare form of lymphoma that often presents with either skin or CNS lesions. These patients rarely have nodal disease but hepatosplenic and bone marrow involvement is common. This is considered an aggressive lymphoma and is often found to be disseminated on presentation. It is more common in the elderly with a median age at diagnosis of 70. Overall survival is poor, but this may be from a delay in diagnosis. Any patient with an elevated LDH and hepatosplenomegaly should immediately raise the concern for lymphoma. Referral to oncology is warranted to pursue diagnosis by bone marrow biopsy. The primary care physician should be aware that multiple bone marrow biopsies with special staining may be necessary to diagnose intravascular lymphoma.

HIV SEROCONVERSION IN A 20-YEAR-OLD AFRICAN AMERICAN MALE. C. Shedlock[1]; H. Dehoff[1]. [1]Lehigh Valley Hospital, Allentown, PA. *(Tracking ID # 154009)*

LEARNING OBJECTIVES: 1. To recognize the signs and symptoms of acute HIV seroconversion. 2. To recognize the importance of a high clinical suspicion for the diagnosis of acute HIV seroconversion.
CASE: A 20-year-old previously healthy African-American male presented with five days of fevers, chills, sweats, myalgias, vomiting, diarrhea, anorexia, sore throat and near syncope. He denied recent travel, insect or animal bites, sick contacts, recent sexual contacts and ingestion of any unusual foods. He did admit to prior sexual contact with men. Initial physical examination revealed a temperature of 103.4, pulse 100, respirations 16 and blood pressure 86/48. He was ill-appearing and dehydrated; cervical lymphadenopathy was present. The remainder of his physical examination was unremarkable. Initial data revealed hemoglobin 13.2, WBC 5.3 with 10% bands, and platelets 142. His AST was elevated at 174; the remainder of his CMP was unremarkable. CXR, rapid strep and urine drug screen were negative. He was initially treated for an unspecified viral illness and admitted for IV fluids and monitoring. Blood and urine cultures, hepatitis panel, and HIV serologies were all negative. With IVF, his symptoms initially improved. However, the following day he had fever in excess of 103, gingival bleeding; his Hb dropped to 11.3 and his platelets fell to 83. At that time, his urine was noted to be coca-cola colored. At this point, there was concern for sepsis and DIC; broad-spectrum antibiotics were started. DIC panel revealed a D-Dimer of 15, but was otherwise normal. CMP was stable, LDH was approximately 5000, CK was minimally elevated at 350, UA demonstrated 3–4+ protein without evidence of casts. EBV, ASO, RPR, CMV, Parvovirus, Coxsackie virus, echovirus and Arbovirus serologies were negative; HIV viral load was pending. Over the next 48 hours, his symptoms completely resolved; his urine remained dark, but had begun to normalize. His hemoglobin remained low, but stabilized; his platelets improved to 100. Because he was feeling well, was afebrile, and able to tolerate a normal diet, he was discharged to home; discharge diagnosis was "Unspecified viral illness." Several days following discharge, his HIV viral load was found to be positive.
DISCUSSION: Acute HIV infection is a short-lived illness associated with a high viral titer and immune response to the virus. Approximately half of people infected with HIV will experience a symptomatic seroconversion. The signs and symptoms of acute HIV usually present days to weeks following initial exposure. The most common symptoms include fever, fatigue, and maculopapular rash. Other symptoms may be present, including headache, lymphadenopathy, pharyngitis, myalgias, arthralgias, and gastrointestinal upset; all of these were present in our patient. The diagnosis of acute HIV requires a high index of suspicion, as its presentation can often mimic other viral syndromes such as influenza or mononucleosis. Early detection of HIV disease allows patients to receive earlier medical care and monitoring; early diagnosis also has significant public health ramifications as spread of disease may be prevented. This case demonstrates the need for diagnostic acumen when presented with a nonspecific viral syndrome in those at risk for HIV transmission.

HIV/AIDS INFECTIONS AMONG THE ELDERLY: A NEED FOR IMPLEMENTING NEW SCREENING AND EDUCATIONAL MEASURES. P.A. Tabibian[1]; P. Chahal[1]. [1]VA Greater Los Angeles Healthcare System, Los Angeles, CA. *(Tracking ID # 155252)*

LEARNING OBJECTIVES: 1. Recognize the importance of obtaining a sexual history from elderly patients. 2. Recognize the need for constructing safe sex educational modules for the geriatric patients. 3. Assess the prevalence of HIV/AIDS and related infections among the geriatric population.
CASE: A 73 year-old male with history of coronary artery disease and hypertension was brought to the ED by his son for a one month history of 20 lbs unintentional weight loss, intermittent fevers, dry cough, and nausea. On examination, he had a temperature of 37 degrees C, BP of 113/76 mm Hg, HR of 118 beats/minute, RR of 24 breaths/minute, and oxygen saturation of 94% on room air. He had temporal muscle wasting, tachycardia without any murmurs, and left lower lung lobe crackles. Laboratory results indicated a WBC count of 3.8, Hb of 11, and platelets of 256. His albumin was 2.3, lactate dehydrogenase level of 316, and had normal transaminases. A chest X-ray was remarkable for left lower lobe atelactasis. Patient was discharged from ED with ten-day course of Levofloxacin for presumed pneumonia after IV fluid hydration. Two weeks later, patient returned to the ED with similar symptoms. This time, vitals were significant for a fever of 40 degrees C, RR of 26 breaths/minute, and oxygen saturation of 90% on room air. On physical examination, patient had oral thrush and had bilateral lower lobe crackles. A room air arterial blood gas showed oxygen pressure of 71 mm Hg. Chest X-ray revealed bilateral lower lobe infiltrates. A sexual history was obtained only after Pneumocystis Carinii pneumonia (PCP) was considered in the differential diagnosis. Patient denied any substance abuse but admitted to having unprotected sex with multiple

sexual partners since the death of his wife, five years ago. Subsequently, he was diagnosed with PCP, oral candidiasis, and tested positive for HIV. He was found to have a viral load greater than 100,000 and a CD4+ lymphocyte count of 81. Patient had never been tested for HIV.
DISCUSSION: The notion of the "asexual elder" is clearly a myth and no longer applies to the geriatric population of the 21st Century. Currently, 30% of males and 25% females above the age of 70 years continue to be sexually active. According to the Center for Disease Control, greater than 10% of HIV infections are occurring among people who are 50 years and older. Elderly are diagnosed at later stages of HIV because non-specific symptoms such as weight loss and anorexia are attributed to their other co-morbid conditions. The primary mode of HIV transmission in this age group is by sexual contact rather than blood transfusions, or intravenous drug use. This vignette underlines the importance of recognizing certain stereotypes regarding sex and elderly, obtaining a thorough sexual history, and screening elderly for HIV and other sexually transmitted infections. Moreover, safe sex education should routinely be used as a tool to reduce the prevalence of HIV infections in this population.

HOW LOW CAN YOU GO? RISK REDUCTION IN BRCA-1 CARRIERS. J. Reeder[1]; V.G. Vogel[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 151462)*

LEARNING OBJECTIVES: 1) To recognize the clinical presentation of a patient at high risk for breast cancer. 2) To list features of the family history that indicate an increased hereditary susceptibility for breast cancer. 3) To describe the current recommendations for prophylactic therapy in BRCA-1 carriers.
CASE: A 33-year-old woman presented to the breast cancer clinic for postsurgical management of a recently resected breast mass. The patient's symptoms began two weeks postpartum with a palpable "golf-ball sized" mass in her right breast. Four weeks later, the mass had grown to "grapefruit size". A mammogram showed a large sharply-defined dense mass in the lower outer quadrant. An ultrasound revealed a 7 cm mass that was predominantly cystic, but with a significant solid component. Due to her age and the cystic appearance of the mass, there was low suspicion for malignancy. The patient therefore underwent resection without neoadjuvant therapy or lymph node dissection. Pathology revealed a poorly differentiated mammary carcinoma, ductal cell type that was weakly ER/PR positive and Her2 negative. The patient then presented to our clinic for further treatment recommendations. The patient's family history of breast cancer was extensive. Her maternal grandmother and great-grandmother had both died of complications related to breast and ovarian cancer. Her mother had bilateral breast cancer, first diagnosed at age 45. Her mother's sister had breast cancer and was a known carrier of a BRCA-1 mutation. The patient's estimated chance of having the gene was nearly 99% and she was therefore considered a BRCA-1 carrier. It was recommended that she undergo right total mastectomy with lymph node dissection. We also discussed her options for prophylactic therapy to reduce her risk of developing breast and ovarian cancer in the future.
DISCUSSION: Breast Cancer 1 Gene (BRCA-1) is a genetic mutation that has been found to greatly increase a carrier's risk of cancer susceptibility. The counseling and treatment for patients with BRCA mutations are significantly different than for those with sporadic breast cancer. Therefore, the early identification of patients with this mutation is critical. Several features of the family history can help identify high-risk patients who should be screened. These include early age at diagnosis (<50 years), bilateral breast cancer, breast cancer in multiple relatives of the same lineage, male breast cancer, relatives with both breast and ovarian cancer, Ashkenazi Jewish ancestry, and a relative with a known BRCA mutation. In discussing risk reduction with BRCA-1 carriers, options such as surgery, chemoprevention with tamoxifen, and oral contraceptives should all be discussed. Although none of these completely eliminate the risk of developing cancer, the most effective option appears to be prophylactic surgery. Studies indicate that BRCA carriers who receive bilateral mastectomies and oophorectomies may reduce their risk of developing cancer by up to 90%. This case illustrates the importance of identifying potential BRCA carriers early so that patients know their options and can choose the most appropriate therapy.

HYPERPHOSPHATEMIA RESULTING FROM BOWEL PREPARATION FOR COLONOSCOPY. J. Schell[1]; N. Maruthur[2]; S.D. Sisson[1]. [1]Johns Hopkins University, Baltimore, MD; [2]Johns Hopkins Hospital, Baltimore, MD. *(Tracking ID # 154507)*

LEARNING OBJECTIVES: 1. To recognize the clinical manifestations of hyperphosphatemia 2. To learn the management of hyperphosphatemia. 3. To recognize an uncommon complication of phosphate-containing enemas used for bowel preparation.
CASE: An 84-year-old female with a history of hypertension, diabetes and anemia presented with syncope in the setting of bowel preparation for a colonoscopy done to evaluate hemoccult-positive stool. According to family members, the patient appeared to "fall asleep" twice, during which time she was unable to be aroused. On physical exam, the patient was afebrile with unremarkable vital signs; she was not orthostatic. Physical examination initially was entirely normal, except for the patient's inability to correctly recall the year. Noncontrast CT of the brain was normal; EKG demonstrated a prolonged QT interval and 1st degree heart block. Laboratory data was significant for a creatinine of 3.0 mg/dL (creatine 0.5 mg/dL three months prior), phosphate of 16.2 mg/dL and calcium of 6.6 mg/dL. Following admission, the patient developed visual hallucinations and epigastric paresthesias. Chvostek's sign was positive. She was treated with intravenous hydration and acetazolamide, as well as sevelamer. As the phosphate level fell and the calcium level normalized, neurologic signs and symptoms resolved. Serum creatinine was stable. Renal insufficiency was diagnosed as acute phosphate nephropathy.
DISCUSSION: Phosphate homeostasis is maintained through a balance of gastrointestinal absorption and renal excretion. Hyperphosphatemia may occur due to increased production, decreased excretion, or increased absorption of phosphate. Increased production occurs with accelerated cell turnover such as in tumor lysis syndrome, rhabdomyolysis and hemolysis. Reduced excretion occurs with renal insufficiency or elevated parathyroid hormone levels. Increased absorption may occur iatrogenically with intravenous and oral supplementation. Although phosphate is pervasive in the diet (especially high-protein foods and dairy products), hyperphosphatemia due to dietary intake rarely occurs if renal function is normal. An exception to this is vitamin D intoxication, which will result in increased intestinal and renal absorption of phosphate. Finally, increased absorption may result from phosphate-containing enemas, such as seen in the patient described here. The clinical manifestations of hyperphosphatemia are due to hypocalcemia caused by binding of calcium by excess phosphate. These include depression, hallucinations and psychosis. Also seen are hyperreflexia (including Chvostek's and Trousseau's signs) and paresthesias. Metastatic calcification may be seen. Acute phosphate nephropathy, due to diffuse tubular injury and nephrocalcinosis, may occur, particularly in the setting of phosphate-containing bowel preparations, as seen in this patient. Risk factors include inadequate hydration, age, chronic kidney disease, and hypertension. The creatinine rarely returns to normal. Management of acute hyperphosphatemia includes forced diuresis with intravenous saline and acetazolamide (which decreases proximal tubular reabsorption of phosphate). Management of chronic hyperphosphatemia consists of the enteral administration of phosphate binders such as sevelamer, calcium acetate, or aluminum hydroxide.

HYPOGLYCEMIC CRISIS FORM GLYBURIDE–CIPROFLOXACIN INTERACTION: AN UNCOMMON REACTION FROM TWO COMMON MEDICATIONS. I. Singla[1]; R. Aggarwal[1]; R. Granieri[1]. 1University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 151553)*

LEARNING OBJECTIVES: 1. To recognize complex drug-drug interaction in patients taking multiple medications. 2. To describe pharmacokinetics of commonly used drugs. 3. To recognize the risk of hypoglycemia in diabetic patients on sulfonylureas and fluroquinolones.
CASE: A 78 year old male with past medical history of bladder cancer, hypertension and Type II diabetes mellitus presented with dysuria. He was found to have culture-documented urinary tract infection. He was prescribed ciprofloxacin, with the dose adjusted to his chronic renal insufficiency (Cr 3.7; estimated GFR 17 ml/min). His chronic medications were glyburide 1.25 mg qd, fluoxetine 20 mg qd, lisinopril 40 mg qd, omeprazole 20 mg qd, furosemide 20 mg qd. After two doses of ciprofloxacin, he developed dizziness and confusion and was found to have glucose 40 mg/dl He was admitted to the hospital. On admission, his BP was 168/98, and pulse was 80. On exam was alert and oriented to time, place, person and had normal neurological examination His laboratory tests revealed 4+ bacteria and 11–20 WBCs on urinalysis. Glyburide was stopped. His blood glucose over next 24 hrs was 70–80 mg/dl. He did not have any repeat episodes of hypoglycemia.
DISCUSSION: Fluroquinolones are commonly prescribed antibiotics for both respiratory and urinary tract infections. Gatifloxacin, moxifloxacin, levofloxacin and ciprofloxacin have all been associated with hypoglycemia or hyperglycemia. Most of the glucose homeostasis abnormality has been associated with use of gatifloxacin (477 events per 10,000,000 prescriptions) and least with use of ciprofloxacin (4 events per 10,000,000 prescriptions). Glyburide, also known as glibenclamide, is second generation hypoglycemic agent commonly used in Type II diabetes to improve glycemic control. Glyburide acts by blocking ATP-sensitive potassium channels in the beta cells, which leads to membrane depolarization and release of insulin. Aging appears to have no effect on pharmacokinetics of glyburide. Some circumstances do require adjustment of glyburide dosing, including severe renal failure (creatinine clearance <5 mL/min), low albumin, hepatic impairment and concomitant administration of other interacting drugs. The exact mechanism for ciprofloxacin- glyburide interaction causing hypoglycemia is not clear. Several mechanisms have been proposed. In one study elevated glyburide levels have been noted with concomitant administration of ciprofloxacin. Ciprofloxacin inhibits P450 enzyme system which also metabolizes glyburide. Hypoglycemia could be due to ciprofloxacin itself due to its effect on blockage of ATP-sensitive potassium channels in beta cells of pancreas casing insulin release. Although glyburide levels were not obtained in this patient, we believe that the cause of his hypoglycemia was due to the initiation of ciprofloxacin due to the temporal relationship and no other obvious cause. Since glyburide and ciprofloxacin are commonly prescribed medications in the outpatient setting, primary care physicians should be aware of the adverse interaction of these 2 drugs. In addition, physicians should educate their patients of potential risk of hypoglycemia and advise them to monitor their glucoses closely.

HYPOXIA AND PULMONARY INFILTRATE MASQUERADING AS PNEUMONIA. C. Skagen[1]; A. Wilk[1]. [1]University of Wisconsin-Madison, Madison, WI. *(Tracking ID # 153968)*

LEARNING OBJECTIVES: 1. Recognize typical symptoms and signs of pulmonary arteriovenous malformations (AVMs). 2. Learn radiologic modalities utilized for diagnosis. 3. Identify complications associated with pulmonary AVMs.
CASE: A 50 y.o. woman with a history of thoracic outlet syndrome, tobacco use and distant DVT presented to clinic with persistent hypoxia following an episode of pneumonia. Her initial presentation was characterized by cough, hypoxia, and a right middle lobe pulmonary infiltrate. Despite receiving a full course of

intravenous antibiotics, she was discharged on four liters of oxygen therapy. Since that time she had dyspnea without chest pain and minimal response to inhaled beta agonists. She was obese with a saturation of 89% on four liters of supplemental oxygen. Though she had normal cardiovascular and pulmonary examinations without edema, cyanosis, or clubbing, her CXR continued to show a right middle lobe infiltrate and PFTs demonstrated a low DLCO. Further evaluation included a normal sleep study and a non-contrast echocardiogram showing diastolic dysfunction and pulmonary hypertension. These findings raised concern for chronic pulmonary emboli, and a CT scan of the chest was performed. This confirmed the presence of two AVMs, the larger of which was located in the right middle lobe. She underwent bilateral embolization and subsequently discontinued oxygen therapy. Further family screening revealed a daughter with cerebral AVMs. This, together with the patient's new-onset epistaxis, suggested a diagnosis of hereditary hemorrhagic telangectasias (HHT).
DISCUSSION: Pulmonary AVMs are a rare clinical finding with an incidence as low as 0.02%. Seventy percent of these patients have HHT, which has autosomal dominant transmission. However, patients do not typically present with pulmonary AVMs until the fourth through sixth decades of life. Epistaxis, dyspnea, and hypoxia are the most common presenting signs. Other associated findings include platypnea, hemoptysis, and cutaneous telangiectasias. The CXR is abnormal in about 98% of these patients, and may show a nodular mass, particularly in the lower lung fields. In the case of this patient, the radiologic findings may be less specific, manifesting as an acute infiltrate and interpreted as pneumonia. Both CT imaging with contrast and pulmonary angiography are standards for diagnosing pulmonary AVMs. However, a recent study showed 100% sensitivity and negative predictive value when CXR was combined with contrast echocardiogram for screening. Of those patients with pulmonary AVMs, about 30% develop CNS complications such as migraines, strokes, TIAs, and brain abscesses. Thus, early diagnosis is critical for appropriate treatment and monitoring.

IATROGENIC RESTLESS LEGS: AN UNUSUAL MANIFESTATION OF IRON DEFICIENCY. K.T. Johnston[1]; J. Potter[2]. [1]Beth Israel Deaconess Medical Center, Brookline, MA; [2]Harvard University, Boston, MA. *(Tracking ID # 155751)*

LEARNING OBJECTIVES: 1) Recognize common presentations of secondary restless leg syndrome 2) Manage severe restless leg syndrome and complications of treatment.
CASE: A 43 y/o F with polycythemia vera managed by phlebotomy, presented 4 months into treatment with complaints of fatigue and electric-like tingling in all four extremities, occurring late in the day while watching TV and at night while trying to sleep. She denied pain and paresthesias, and described the sensations as "wanting to sneeze and not being able hold back." Upon moving an extremity her symptoms subsided briefly but returned 10–15 minutes later. ROS: no weight loss, heavy menses, black or bloody stool, neck or low back pain. No edema or rashes. She had no history of snoring, apneic spells, hypnagogic hallucinations, cataplexy, sleep paralysis. PMH: polycythemia vera, migraine with aura, pulmonary embolism during pregnancy. MEDS: aspirin 325 mg daily, multivitamin NKDA. Social and family history noncontributory, quit tobacco one year ago, no alcohol or other substance abuse. Examination notable for BMI 22, normal HEENT, heart, lungs and abdomen. Neurologic exam with intact cranial nerves, symmetric reflexes, downgoing toes, intact sensation and cerebellar functions. Pertinent laboratory data: Hgb/hct 10.8/38.8, iron 16, ferritin 4.8, B12 669, electrolytes normal range. A diagnosis of restless leg syndrome was made, and treatment was initiated with pramipexole 0.25 mg po hs. Two months later, she returned, noting dose escalation to 1 mg po hs for relief and stated symptom emergence at 3 pm daily. Dose was decreased to 0.25 mg hs and clonazepam 0.5 mg hs was added. 1 year later, symptoms remain controlled.
DISCUSSION: Restless leg syndrome (RLS) affects 6.6–14.2% of the population, predominantly women, and is thought to be a CNS disorder of iron use and metabolism. Diagnosis according to the International Restless Legs Syndrome Study Group (IRLSSG) requires: 1) An urge to move the legs, accompanied by unpleasant sensation; 2) predominantly occurring in the evening; 3) beginning or worsening during periods of rest or inactivity; 4) relieved by moving the affected limb. Common secondary causes include: 1) Iron deficiency, frequently with normal hemoglobin/hematocrit; 2) pregnancy; 3) uremia. Recommended evaluation includes complete neurologic exam and serum ferritin. When serum ferritin or clinical scenario suggests iron deficiency, a trial of iron supplementation is recommended, if not contraindicated by comorbid illness. Intermittent RLS usually requires no therapy. Recommended treatment for daily RLS includes low dose dopaminergic agents. Severe RLS is usually refractory to low dose dopaminergic agents. In this setting, adjunctive therapy with opiates or anticonvulsants can be helpful. If these agents are not tolerated, benzodiazepines are also effective. During treatment, clinicians must monitor for augmentation and rebound symptoms. Augmentation is caused by dopaminergic treatment. Symptoms emerge earlier in the day than previous, become more severe in nature, and possibly involve other limbs. Rebound symptoms appear if a prescribed medication's effect has worn off prematurely. It characteristically leads to symptoms emerging in the early morning. References: Hogl B. et al. Restless legs syndrome: a community-based study of prevalence, severity, and risk factors. Neurology. 2005 Jun 14;64(11):1920–4.Trenkwalder C. et al. The restless legs syndrome. Lancet Neurology. 2005 Aug;4(8):465–75.

IDIOPATHIC PULMONARY EMBOLISM AND HYPERHOMOCYSTEINEMIA. A.K. Han[1]; E.H. Green[1]. [1]Albert Einstein College of Medicine, Bronx, NY. *(Tracking ID # 152240)*

LEARNING OBJECTIVES: 1. To realize that a high suspicion of pulmonary embolism is always necessary. 2. To understand the importance of hyperhomocysteinemia as a risk factor for thromboembolic disease.
CASE: The patient is a 73 y/o female who presented with one day of left sided mid-scapular pain. She first noted the pain upon awakening, but was able to go about her usual day including brisk walking and tai chi. The pain was dull, constant, 2/10 in intensity, and worse with deep inspiration. She denied chest pain, shortness of breath, fevers, nausea, leg pain, and prolonged bed rest/immobility. She denied any medical/surgical history or medication use. She had a normal mammogram 10 years ago and colonoscopy 8 years ago. She denied ETOH and smoking. She reported no family history of cancer, blood clots, or first trimester abortions. Examination was notable for HR of 102, 99% O2 sat on room air, clear lungs, nl heart exam, varicose veins and superficial thrombophlebitis on legs, negative Homan's sign, and no calf tenderness. Labs were only significant for slight increase in AST/ALT. EKG only showed sinus tach at 101. The chest X-ray showed no infiltrate or effusions. Because of persistent symptoms, a CT scan of the chest was done which revealed 2 pulmonary emboli. A thrombophilia panel showed a homocysteine level of 55.4 (3.3–11.6). Later, the patient was found to have a vit B12 level of <100 (205–910) and a methylmalonic acid of 2931 (88–243).
DISCUSSION: Hyperhomocysteinemia is a risk factor for venous thromboembolic disease (VTE) and can be caused by genetic or acquired disorders. About 5–7% of the population has mild elevations in homocysteine (H) and studies have found an odds ratio of 2.5 to 2.95 for VTE in patients with H levels more than 2 SDs above the mean value of controls. Thus, patients with elevated H levels are at higher risk for VTE than the rest of the population. H is a naturally occurring molecule in the body and is broken down into cysteine and methionine. If the breakdown pathways are compromised, elevated levels of H are seen. Three enzymes are needed for breakdown: methylenetetrahydrofolate reductase (MTHFR), cystathionine beta-synthase (CBS), and methionine synthase (MS). These breakdown reactions require vit B12, folic acid, and vit B6. The patient was found to have a low vit B12 level, thus likely causing the high H level. Furthermore, if vitamin deficiencies are not found, rare causes of high H are CBS deficiency and MTHFR gene mutation. In CBS deficiency, 50% of affected patients present with venous or arterial thrombosis by the age of 29. MTHFR gene mutation can cause mild hyperhomocysteinemia in 5–15% of White and East Asian populations, but its relation to VTE is controversial. In addition, renal failure, hypothyroidism, increasing age, and smoking are risk factors for hyperhomocysteinemia. Thus, if a patient presents with idiopathic pulmonary embolism, a thrombophilia workup is recommended. If hyperhomocysteinemia is found, folic acid, vit B12 and vit B6 levels should be checked and if found to be low, should be supplemented. In addition, if the patient does not have any vitamin deficiencies, though rare, CBS deficiency and MTHFR gene mutation should be investigated. The patient was discharged on folate and vit B12 injections. She was also instructed to take anticoagulation medication for 6 months. In the future, if the patient were to develop another thrombosis, she would then be instructed to be anticoagulated for life.

INCREASED FREQUENCY AND NOCTURIA IN AN MIDDLE AGED MALE MAY NOT ALWAYS BE DUE TO BENIGN PROSTATIC HYPERTROPHY (BPH). K. Gaurav[1]. [1]University of Tennessee, College of Medicine - Chattanooga Unit, Chattanooga, TN. *(Tracking ID # 151324)*

LEARNING OBJECTIVES: 1. Discuss the signs and symptoms of BPH and the work up of a male with urinary symptoms. 2. Recognize a rare type of bladder tumor in a middle aged male.
CASE: A 58 year old previously healthy Caucasian male presented with increased frequency of urination, feeling of incomplete emptying of the bladder and nocturia over the last five months. He had no history of fever, hematuria, nausea, vomiting or diarrhea. He had an 80 pack per year smoking history. Physical examination revealed a healthy appearing male with stable vitals and the only abnormality was a slightly enlarged non tender prostate on his rectal exam. His Laboratory data revealed Hb 10.3 g/dl, BUN 24 mg/dl, creatinine 2.8 mg/dl, PSA level 0.18 ng/ml. Urinalysis was negative for red blood cells, white blood cells, bacteria, nitrates, casts or protein. Renal CT showed bilateral hydronephrosis and hydroureter. Renogram showed bilateral poor renal function. Cystography showed marked thickening of urinary bladder trabeculae. Cystoscopy showed entire bladder mucosa to be thickened, edematous with an exaggerated granular appearance and bilateral uretero-vesical junction stenosis. Biopsy, staining and pathology report of bladder tissue suggested primary signet ring cell carcinoma of urinary bladder. Patient underwent cystectomy and is undergoing radiotherapy.
DISCUSSION: BPH typically presents symptoms of increased frequency, nocturia, hesitancy, urgency or weak urinary stream. Correlation between symptoms and presence of prostate enlargement on rectal exam is poor. Some diagnoses to be considered with such symptomatology are urethral stricture, bladder neck contracture, carcinoma of prostate and bladder, bladder calculi, urinary tract infection, prostatitis or neurogenic bladder. Diagnostic workup of a patient presenting with such lower urinary tract symptoms should include urinalysis and serum creatinine. Serum PSA, a maximal urinary flow rate and post void residual urine are optional but useful. Other tests like pressure-flow studies, urethrocystoscopy, intraveneous ultrasonography, and abdominal X-rays can be used if indicated. Signet ring cell carcinoma, a type of adenocarcinoma, is a relatively rare neoplasm mostly arising in the stomach, colon, breast, gall bladder and rarely in urinary bladder. It is very rare in the US with less than 100 cases reported in the literature. Most of the cases have been middle aged males who present with hematuria and dysuria. Our patient presented with increased frequency and renal insufficiency which is extremely unusual. This tumor is thought to arise from totipotent cells of transitional epithelium. It can involve the bladder in a linitus plastica like pattern and is advanced at time of diagnosis. Most cases have undergone total cystectomy. Radiotherapy and

chemotherapy have not been proven to be effective. There is no effective treatment reported in literature.

INTERFERING INTERFERON: AUTOIMMUNE HYPOTHYROIDISM AS A CONSEQUENCE OF INTERFERON-ALPHA. P.A. Lamont[1]; R. Granieri[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 151611)*

LEARNING OBJECTIVES: 1. Recognize the relationship between interferon-alpha (IFNa) and secondary hypothyroidism. 2. Identify factors that increase the likelihood of developing hypothyroidism as a consequence of IFNa therapy. 3. Recognize the significance of screening for hypothyroidism prior to, during, and after completion of IFNa therapy.
CASE: A 29 year old female with a history of acute hepatitis C (HCV) infection secondary to a needle stick injury presented with complaint of progressive fatigue and muscle stiffness over several weeks. One month prior to presentation she had completed a six month course of IFNa/ribavirin therapy for acute HCV infection. On review of systems she endorsed a depressed mood, amenorrhea, decreased appetite, and hair loss. Physical exam was remarkable for blood pressure of 108/64 mm Hg, pulse of 58 beats/min, and a non-tender, mildly enlarged thyroid gland with absence of cervical lymphadenopathy. The cardiac exam revealed sinus bradycardia, clear lungs, and normal, symmetric reflexes without a delayed relaxation phase. Review of past medical records demonstrated a normal TSH both at the start of IFNa and three months into the treatment course. Despite the recent evidence of normal thyroid function, laboratory tests were repeated and revealed a TSH of 117 μIU/ml and T4 level of 3 ug/dL (normal 7–12 ug/dL). Testing for thyroid autoantibodies showed markedly elevated anti-thyroglobulin antibodies at 788 IU/ml (normal <60 IU/ml). Anti-thyroid peroxidase antibodies were negative. The patient was diagnosed with autoimmune hypothyroidism as a consequence of IFNa and started on levothyroxine 1.5 mcg/kg. Six weeks after initiation of levothyroxine the TSH and free T4 were within the normal range and her presenting complaints had resolved.
DISCUSSION: IFNa has become the standard treatment for HCV infection. The IFNa/ribavirin treatment combination offers a substantial chance for HCV clearance, particularly during the acute phase of illness. However, IFNa is not without the potential for adverse effects specifically through autoimmune induction. Hypothyroidism resulting from thyroid autoimmunity has been widely reported as a consequence of IFNa with an incidence ranging 5–30%. The pathogenesis remains unclear but is thought to be related to inhibition of suppressor T cell function coupled with enhanced expression of MHC antigens on thyroid epithelial cells. The risk of developing hypothyroidism as a consequence of IFNa is greatest in patients who demonstrate increased anti-thyroid antibodies prior to the initiation of treatment. Among the anti-thyroid antibodies, the presence of anti-thyroid peroxidase antibody confers the greatest risk for thyroid disease. Additional risk factors include female gender, autoimmune disease, and advanced age. The time frame for thyroid dysfunction is broad, and can range from weeks after beginning treatment to several months following cessation of therapy. When hypothyroidism develops during treatment, the withdrawal of IFNa leads to normalization of the TSH in many instances. By contrast, high autoantibody levels during therapy correlates with an increased risk for the subsequent development of chronic hypothyroidism. This case demonstrates hypothyroidism as a side effect of IFNa in the presence of an anti-thyroglobulin antibody. It is important that primary care physicians recognize both the relationship between IFNa and secondary hypothyroidism and the variable time course during which thyroid dysfunction can occur.

INTERNISTS TAKE CHARGE: IT'S OUR DUTY!. A. Jindeel[1]. [1]Harbor-UCLA Medical Center, Torrance, CA. *(Tracking ID # 154036)*

LEARNING OBJECTIVES: 1. Detect chronic lower extremity peripheral arterial disease (PAD) in patients not presenting with intermittent claudications (IC). 2. Recognize the critical role of internists in screening and managing PAD 3. Review importance of checking ABI, its indication and interpretation.
CASE: A 74-year-old female was seen for a routine check-up. She has no complaint but has been less active, "I am just getting old". She does not take medications and does not smoke. On exam, blood pressure in both arms was 156/74. Pulse was 70 and regular. Neck, heart, lung and abdominal exams were normal. Extremities exam revealed diminished right dorsalis pedis and posterior tibial artery pulses. Right and left ABI were 0.6 and 0.8 respectively. Patient was started on HCTZ 12.5 mg, atenolol 25 mg and aspirin 81 mg/day. Four weeks later, BP was 144/70, pulse 68. Lab results were normal except LDL cholesterol (154 mg/dL). She was started on lisinopril 10 mg/day and Simvastatin 40 mg/day and was referred to a supervised exercise program. Six months later she was happy to be able to do her own shopping again.
DISCUSSION: Prevalence of PAD is 2% at age of 50 and 20% at 75. Only 10–35% of patients with PAD have IC. Furthermore, 1/3 of them consider their symptoms a part of aging and will not seek medical advice. The remaining PAD patients are asymptomatic (20–50%), present with atypical leg pain (40–50%) or critical limb ischemia (1–2%). PAD risk factors are age, smoking, diabetes, hypertension, hyperlipidemia, hyperhomocystenemia and elevated C-reactive protein. High risk groups for PAD are patients 70 years and older, those 50–69 with history of smoking or diabetes, those less than 50 with diabetes and one other risk factor and patients with known coronary, carotid, or renal artery disease. Internists should screen these groups by performing an ABI if the focused vascular history and vascular exam are suggestive of PAD. ABI exam is easy, inexpensive and more specific and sensitive than commonly used exams like mammogram, Pap smear and flexible sigmoidoscopy. Normal ABI is 0.9–1.3; ABI < 0.9 is diagnostic of PAD and highly predictive of morbidity and mortality from cardiovascular disease; ABI > 1.3 indicates poorly compressible blood vessels. Coronary artery disease is present in up to 90% of patients with PAD, and 40–50% has coexisting cerebrovascular disease. Five-year all cause mortality after diagnosis of PAD was 30%, compared with 10% in the control group. The survival rate of patients with PAD is worse than that of patients with breast cancer or Hodgkin's disease. Despite this, only 8% of internists will check ABI, even if the patient has absent peripheral pulses. Supervised exercise is the most effective therapy for PAD. It is associated with up to 150% increase in maximal walking distance. It is the internist's responsibility to detect and manage PAD. In part, our inaction has caused some PAD patients to unnecessarily land on the vascular surgeon table. We have the tools to prevent, detect and manage most PAD cases if we internists take charge.

INTRA-PULMONARY SHUNT: AN UNCOMMON SOURCE OF PARADOXICAL EMBOLI. F. Awan[1]; S.R. Ganesh[1]. [1]University of Pittsburgh Medical Center, Pittsburgh, PA. *(Tracking ID # 151440)*

LEARNING OBJECTIVES: 1. Recognize various sources of paradoxical emboli. 2. Describe the pathophysiology of intra-pulmonary shunts.
CASE: An 18 year old female with no significant past medical history presented to the emergency room with complaints of pain and discoloration of the third and fourth digit of the right hand. The pain and discoloration started simultaneously, 5 days prior, and did not respond to the oral antibiotics prescribed by the pateint's primary care physician for a presumed cellulitis. Patient denied any history of smoking or intravenous drug use and admitted to the use of oral contraceptives for the last three months. Examination was only significant for a dusky cyanosis of the distal third of the third and fourth digit without loss of sensation or function. Palpation of the brachial and radial arteries revealed 2+ pulses bilaterally. Lower extremity pulses were also 2+ and equal bilaterally. Cardiac examination did not reveal any murmurs, rubs or gallops. Angiography performed on the right upper extremity revealed an embolic occlusion of the right proper digital artery without evidence of a proximal embolic source. Transthoracic echocardiography revealed a late appearing right-to-left shunting of contrast enhanced saline and a cardiac source of emboli was ruled out by a negative trans-esophageal echocardiogram. Further workup did not show any evidence of a hypercoagulable state. Patient was started on anticoagulation which resluted in limiting the extent of the ischemia caused by the emboli.
DISCUSSION: Anatomic shunts that permit venous admixture with arterial blood may be a source of paradoxical emboli. The most frequently implicated source is a patent foramen ovale. Though uncommon, well-recognized causes of anatomic shunts include intrapulmonary right-to-left shunts (such as occurs with arteriovenous malformations or intrapulmonary vascular dilatation in hepatopulmonary syndrome or pulmonary telangiectasia), and intracardiac shunt with predominately right-to-left flow (such as may accompany atrial septal defect or ventricular septal defect with Eisenmenger's physiology). Diagnosis of an intrapulmonary shunt is established through echocardiographic evidence of delayed appearance of contrast bubbles in the left atrium after administration of agitated contrast-enhanced saline during a trans-thoracic echocardiogram, and can be confirmed by performing a pulmonary angiogram or a "shunt run", which involves direct measurement of oxygen content at distinct sites in the cardiopulmonary system. Physiologically significant shunts may also cause considerable hypoxia and be a reason for the orthodeoxia syndrome. Our case, therefore, highlights the importance of an aggressive approach for diagnosing paradoxical sources of arterial emboli in an effort to limit the development of significant and potentially life threatening sequelae.

IRON FOR THOSE WHO ARE STRONG OF HEART. M. Kurkjian[1]; C. Donald[1]. [1]Tulane University, New Orleans, LA. *(Tracking ID # 156992)*

LEARNING OBJECTIVES: 1. Recognize that hypoxemia caused by iron deficiency may lead to myocardial ischemia. 2. Identify the mechanism of iron deficiency in menorrhagia and appropriate therapy of iron-deficiency anemia.
CASE: A 50 year-old woman presented with four days of intermittent left-chest tightness and burning, retrosternal pain. Baking soda and omeprazol did not relieve her discomfort. She denied nausea, vomiting, shortness of breath, or diaphoresis, but did note that she had been fatigued for two weeks and a history of heavy menstrual periods. Her father had died from a fatal myocardial infarction at 51 years of age, and she had a 10-pack-year tobacco history. Her BP was 165/95 mmHg and her heart rate was 92 beats/min. The remainder of her physical examination was normal. Her hemoglobin was 7.6 g/dl and her troponin was 3.76. An EKG revealed T wave inversions in leads V4-6 without other significant ST or T changes. Iron studies drawn prior to transfusion revealed an iron-deficiency anemia (Fe 10, TIBC 435 and iron saturation of 2%). A left-heart catheterization revealed non-obstructive cardiac disease with a normal ejection fraction. After further questioning, she recalled that she had been diagnosed with a fibroid tumor in 1982, and ultrasound confirmed multiple leiomyomas were still present. Without evidence of obstructive coronary disease, hyperlipidemia, or hypertensive emergency, it was determined the she had suffered significant ischemia to her lateral wall secondary to iron-deficiency anemia, related to her untreated uterine fibroids and menometorrhagia.
DISCUSSION: Iron deficiency is the most common cause of anemia worldwide. Menstrual blood loss in women plays a major role in iron metabolism, with the average monthly menstrual blood loss being 50 mL. However, menstrual blood loss may be five times this amount, requiring 3–4 mg/d of iron to maintain adequate iron stores. The average American diet contains 10–15 mg of iron per day with only 10% absorbed. Therefore, women with menorrhagia of this degree

will almost always become iron deficient. In the setting of unexplained cardiac ischemia, severe iron deficiency due to menorrhagia or other causes of blood loss should be considered. Standard protocols for management of suspected cardiac ischemia include the initiation of anticoagulants. Strict adherence to these protocols, without considering loss of oxygen delivery due to prolonged anemia, may exacerbate the ischemia. While urterine leiomyomas are considered benign, physicians should advocate for removal if the resulting menorrhagia results in repeated iron deficiency. Since 1982, our patient had been repeatedly treated with transfusions to correct the recurrent iron-deficiency anemia from the leiomyomas.

IS IT JUST A GOUTY ATTACK?. A.S. Morrow[1]; L. Lu[1]. [1]Baylor College of Medicine, Houston, TX. *(Tracking ID # 154680)*

LEARNING OBJECTIVES: 1) Recognize the importance of performing arthrocentesis in evaluating acute swollen joints in patients with a known history of gout. 2) Recognize that septic arthritis and gout can occur concurrently.
CASE: An 80 year old man with a history of gout presented to the emergency room with right elbow, thumb, and big toe pain and swelling. On presentation, patient reported increased pain, which was worse than his previous gouty attacks, along with subjective fevers and chills. His prior gouty attacks usually involved only his lower extremities. On admission, his vital signs were Temperature 97.7 BP 180/65 HR 105 RR 14. Physical examination revealed tenderness, erythema, and edema in his right elbow, right first metatarsal and metacarpal joints, with limited range of motion. His WBC was elevated at 12.4 with 80% neutrophils. Arthrocentesis was performed on his elbow and patient was started on prednisone for presumed gout. Results revealed cell count of 3210 (99 segs, 1 lymph, 3 macros), glucose of 21, and protein of 3.6; negatively birefringent crystals were seen. The next day the gram stain from the aspirated joint fluid revealed gram negative rods, and the patient was started on ceftriaxone. Orthopedic surgery was consulted, and repeat arthrocentesis showed cell count 10,425 w/99 segs and 1 lymph, gram stain with gram negative rods, and needle-shaped crystals. Patient was taken to surgery for incision and drainage of his elbow and was subsequently treated with ceftriaxone for 3 weeks. Cultures from both arthrocenteses and I&D remained negative. A urinalysis done 2 days after the initiation of antibiotics had 7 wbc and few bacteria. Gouty symptoms were treated with colchicine once concomitant infection was realized.
DISCUSSION: Although joint damage from pre-existing arthritis is considered a predisposing factor for septic arthritis, this is true for rheumatoid arthritis, but not gout. Concomitant gout and septic arthritis is rare; thus, a high index of suspicion is necessary in order to make the diagnosis. The first case was documented in 1969, and since then there have been a small number of case reports in the literature, including a recent "large" review of 30 additional cases. The presentation of gout and septic arthritis could be almost identical; both could present with an acutely inflamed joint, fever, and leukocytosis. If the former two signs are present, the American College of Rheumatology recommends performing arthrocentesis even in the patient with a known arthritis. Further factors that might favor performing the procedure include a polyarticular presentation, involvement of the upper extremities, or no prior arthrocentesis confirming the prior diagnosis of gout. As either a positive gram stain or culture can confirm a diagnosis of pyarthrosis, both tests should be sent in addition to cell count and crystal studies. Various studies have noted that the gram stain is positive in about 50% of patients with septic arthritis, while the sensitivity of the culture has varied from 30% to 75%. Other tests that should be obtained include plain radiographs, blood cultures, and cultures of potential sources of infection. Even though the exact origin of infection in our patient was not clearly identified, the urine was considered to be a possible source as the urinalysis still revealed numerous wbc and few bacteria even after 2 days of antibiotic treatment.

IS LUPUS A PERIOPERATIVE CARDIAC RISK FACTOR?. A. Saxena[1]; D. Mercado[1]. [1]Baystate Medical Center, Springfield, MA. *(Tracking ID # 155704)*

LEARNING OBJECTIVES: Premature coronary heart disease (CHD) has emerged as a major cause of morbidity and mortality in patients with systemic lupus erythematosus (SLE). Overall, SLE patients have a 5–6-fold increased risk of CHD. This risk is especially pronounced in younger women in whom the CHD incidence may be >50-fold. The resulting CHD may be significant enough to represent a risk for perioperative cardiac events.
CASE: A 45 year old female history of SLE for 20 years presented to the hospital for right total hip replacement because of severe avascular necrosis. Her past medical history was notable for end stage renal disease secondary to lupus nephritis followed by a successful cadaveric renal transplant. She had been on chronic immunosuppression and had done well up until hospitalization for surgery. Her cardiovascular risk assessment revealed CHD risk factors of HTN and obesity, but no true perioperative cardiac risk factors as defined by the ACC/AHA guidelines. She had a borderline functional capacity because of the limitations in movement from her joint symptoms. She denied anginal or heart failure symptoms in the past. On postoperative day one, she had several hours of asymptomatic hypotension which was unresponsive to multiple fluid boluses and a blood transfusion. She had no chest pressure, chest pain, CHF, diaphoresis, lightheadedness, or nausea. An EKG showed nonspecific changes in the inferior leads, and a Troponin T was elevated at 0.2 ng/ml. An echocardiogram showed a new inferobasal wall motion abnormality, and her clinical picture was felt to be consistent with a postoperative myocardial infarction.
DISCUSSION: SLE is a multisystem autoimmune disease with a strong female predilection. Cardiovascular morbidity and mortality is a frequent complication, particularly in females aged 35–44 years. The mechanisms underlying this increased risk are not fully understood. Certain traditional risk factors, such as hypertension and diabetes mellitus, are more common in SLE patients than in the general population. These factors do not, however, completely account for the increased cardiovascular risk; factors such as renal impairment, increased homocysteine levels and early menopause probably have an additional role. In addition, several factors more specifically related to SLE are proposed to be of importance, including chronic inflammation, antiphospholipid antibodies and therapy, especially corticosteroid use which has been shown to accelerate CHD. Lipid abnormalities may also play a major role in increasing cardiovascular risk in SLE patients. Researchers have recommended a more aggressive approach to risk factor management based on viewing SLE as a CHD equivalent condition. In this context, a significant proportion of SLE patients would require statins and the majority should be treated with daily aspirin prophylaxis. Treating SLE as a CHD equivalent raises the necessity of more vigorous preoperative cardiac assessment in such patients. In summary, there is a need to redefine the approach to risk-factor management in SLE patients. Like diabetes mellitus, SLE should be considered a coronary heart disease equivalent condition when managing patients perioperatively.

IS THIS NOT ACUTE APPENDICITIS?. M. Amin[1]; N. Sthalekar[1]; V. Delgado[1]; C. Mendez[1]. [1]John H. Stroger Jr. Hospital of Cook County, Chicago, IL. *(Tracking ID # 155673)*

LEARNING OBJECTIVES: 1. Distinguish gonadal vein thrombosis from acute appendicitis. 2. Identify gonadal vein thrombosis as a rare but serious cause of abdominal pain in a young female. 3. Gain knowledge of the etiology, diagnostic work-up and treatment of gonadal vein thrombosis.
CASE: A young, healthy female of 30 yrs presented with one day of severe, continuous right lower quadrant (RLQ) abdominal pain and fever. She had nausea and had vomited once. Laboratory investigations revealed leukocytosis of 17,400 cells/μ. Palpation elicited tenderness and voluntary guarding in her RLQ. McBurney's sign was positive. Her stool was negative for occult blood. Pelvic exam showed tenderness in the vaginal right lateral fornix, with no cervical motion tenderness and no bleeding per vaginum. Her last menstrual period was ten days prior to admission and a pregnancy test was negative. Six months ago she was diagnosed with a right multiloculated adnexal cyst, reported as a possible hydrosalphinx on a CT scan and pelvic ultrasound. Her gonococcal and chlamydia DNA PCR tests were negative. This admission, a CT scan of her abdomen with intravenous contrast surprisingly ruled out appendicitis. Her previous right adnexal cyst was unchanged in size. However, it showed an unexpected finding of a large thrombus in the right gonadal (ovarian) vein. A doppler ultrasound confirmed this and ruled out torsion of the ovary. She was started on anticoagulation and intravenous antibiotics and pain improved. Laboratory testing for coagulation disorders including factor V Leiden mutation, ANA screen, lupus anticoagulant, homocysteine, protein C and protein S levels were normal. It was concluded that she may have had septic thrombophlebitis of the gonadal vein related to infection from the hydrosalphinx. She was discharged on oral antibiotics. On follow-up after 6 weeks, patient has had no further episodes of abdominal pain.
DISCUSSION: Though a very rare cause of RLQ abdominal pain, gonadal vein thrombosis closely mimics appendicitis, as was the case in our patient. Gonadal vein thrombosis must be recognized and treated early to reduce the risk of serious complications, including extension into the inferior vena cava (IVC), pulmonary embolism, sepsis, peritonitis and ureteral obstruction. Unrecognized cases have resulted in death. This case underscores the importance of including this condition in the list of differential diagnoses for abdominal pain in women. Etiology: Ovarian vein thrombosis arises classically in the post-partum period. It also occurs in hypercoagulable diseases such as anti-phospholipid antibody syndrome. A diagnostic work-up for hypercoagulable diseases should be initiated if the patient is not post-partum. Septic ovarian vein thrombosis is the other main cause. A few idiopathic cases have also been reported. Treatment: Surgery is not necessary and treatment consists of anticoagulants and antibiotics. Anticoagulation is done in most cases for a short-term period of 6–8 weeks. If there is extension in the IVC, an IVC filter may be needed. Antibiotics are required if the cause is septic thrombophlebitis. When they are diagnosed in a timely manner and treated appropriately, the response is good and potential serious complications, including thromboembolism and death may be averted. Radiological imaging is useful in the diagnostic work-up of this condition. Early recognition of the condition is of paramount importance to institute the adequate treatment and avoid potential serious sequelae.

IT'S ALL IN THE FAMILY: AN UNUSUAL SOURCE OF HYPERTENSION IN A YOUNG ADULT. J. Ridgway[1]; A. Porzig[1]; C. Lai[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 154306)*

LEARNING OBJECTIVES: 1. Recognize the importance of a thorough family history and physical examination in a young patient who presents with hypertension (HTN). 2. Learn the clinical presentation, diagnosis, and management of pheochromocytoma. 3. Recognize the clinical manifestations of Von Hippel Lindau disease and the importance of genetic testing for first-degree relatives.
CASE: A 20 year old previously healthy man presented with sudden onset of severe headache, nausea, vomiting, and right-sided weakness. He endorsed marijuana use but denied other drugs. Exam revealed a thin, intubated man with BP 230/115, pulse 118, decreased strength and sensation on the right, severe horizontal nystagmus bilaterally, decreased gag reflex, and rapidly progressive somnolence. Head CT and MRI showed a 3-cm hemangioblastoma with intraventricular bleed at the inferior cerebellar vermis. Further questioning

of family revealed Von Hippel Lindau (VHL) disease in three maternal relatives, although the patient had not been previously evaluated for VHL. Abdominal CT showed pancreatic cysts and a 5-cm right adrenal mass consistent with pheochromocytoma; 24-hour urine confirmed elevated norepinephrine, normetanephrine, and VMA. The patient was treated with phenoxybenzamine for 7 days, and metoprolol for 5 days prior to right adrenalectomy. Following adrenalectomy and drainage of his head bleed, his condition stabilized, allowing for tracheostomy and physical therapy. Removal of the hemangioblastoma is planned. The patient's mother plans to send her other children to a genetics clinic to be tested for VHL and if positive, to be screened for associated tumors.
DISCUSSION: Our patient's intracranial hemorrhage and related neurological deficits were caused by acute, severe HTN stemming from VHL-related pheochromocytoma. Though essential HTN is very common in the older population, HTN in young adults is much less common and thus secondary causes must be pursued. Evaluation of HTN in a young patient should focus on a careful history, physical exam, and family history to uncover endocrinologic, renal, and cardiac diseases. A review of medications and illicit drugs is also critical, as young patients may use oral contraceptives, amphetamines, and performance-enhancing drugs. Relevant physical findings include tachycardia (hyperthyroidism and pheochromocytoma), obesity or adenotonsillar hypertrophy (obstructive sleep apnea), edema or hematuria (renal disease), and HTN in arms with diminished femoral pulses (coarctation of aorta). Our patient's presentation of severe HTN and tachycardia, coupled with his family history of VHL, suggested pheochromocytoma. VHL is an autosomal dominant syndrome characterized by highly vascularized tumors such as pheochromocytomas, hemangioblastomas, and pancreatic tumors. Pheochromocytoma should be considered in patients with episodic headaches, sweating, tachycardia, and sustained or paroxysmal HTN. Diagnosis is made by elevated urinary or plasma metanephrines and catecholamines. Prior to surgical removal, selective alpha-adrenergic blockers must be initiated to prevent potentially fatal catecholamine surge during surgery. Our case illustrates two key points: (1) the importance of connecting family history, patient's age, and clinical presentation; and (2) the importance of genetically testing first-degree relatives for VHL and screening for associated tumors, as this patient's complications were preventable had the pheochromocytoma and hemangioblastoma been identified earlier.

IVIG: IT'S VITAL IN GROSS HEMOPTYSIS. A.L. Berg[1]; P. Leandro[2]; L. Samavati[2]. [1]Tulane University, New Orleans, LA; [2]Wayne State University, Detroit, MI. *(Tracking ID # 153529)*

LEARNING OBJECTIVES: 1) To recognize diffuse alveolar hemorrhage as a complication of microscopic polyangiitis (MPAN). 2) To recognize IVIG as an alternative treatment in MPAN refractory to standard treatment.
CASE: A 61 year-old hypertensive female presented to her primary care physician's office with unplanned 12-lb weight loss, dark urine, blood tinged sputum and gradually worsening dyspnea over the preceding three months. Her blood pressure was elevated, and physical exam was significant only for pallor. She had microcytic anemia (hemoglobin 6.5 g/dL), hematuria, proteinuria, hyaline casts, and a creatinine level of 3.9. She was admitted for transfusion. Her chest x-ray showed a new nodular opacity laterally at the left midlung. A work up was begun and she was found to have antibodies against myeloperoxidase (P-ANCA), serine protease 3 (C-ANCA), double stranded DNA and lupus anticoagulant. A renal biopsy demonstrated a necrotizing, pauci-immune crescentic glomerulonephritis. These findings lead to the diagnosis of microscopic polyangiitis, for which an aggressive regimen of cyclophosphamide and pulse high dose steroids was initiated. Eleven days after discharge she presented with massive hemoptysis that began 3 days prior. She was tachycardic and tachypneic. She required prolonged mechanical ventilation. A bronchoscopy demonstrated diffuse alveolar hemorrhage, but was otherwise unrevealing. Intravenous Immunoglobulin was added to her immunosuppressive regimen; this lead to slow but steady improvement in her vasculitis, her ANCA levels decreased considerably and her complement levels normalized.
DISCUSSION: Microscopic polyangiitis is a small vessel vasculitis whose symptoms are responsive in 80% of patients to a combined regimen of cyclophosphamide and steroids. Patients refractory to treatment usually present within the first few days after treatment is initiated. Relapse doesn't occur until cyclophosphamide and steroids are tapered or terminated. This patient's massive hemoptysis began while on the same dose of cyclophosphamide and steroids. Within 48 hours of receiving IVIG her respiratory symptoms diminished. Her aggressive symptoms quickly abated once she received a treatment that cleared many of her autoantibodies. Although further trials are needed to establish the indications of IVIG in vasculites it is vital for physicians to recognize IVIG as an important therapy in MPAN patients.

JUST ANOTHER HEADACHE: A CASE PRESENTATION. S. Ortega-Gutierrez[1]; M. Lopez Vicente[1]; L. Moraski[1]; M. Malkin[1]; K. Pfeifer[1]. [1]Medical College of Wisconsin, Milwaukee, WI. *(Tracking ID # 156402)*

LEARNING OBJECTIVES: 1. Review a case of an unusual presentation of chronic progressive headache. 2. Illustrate the importance of performing a complete history and physical examination.
CASE: A 53 year-old female with a history of obesity, hypertension and migraine headaches presented to the hospital after visits to her primary physician and a neurologist found no cause for a two month history of progressive headache. The headache was accompanied by intermittent episodes of paresthesias, visual changes, nausea and vomiting. Her exam was remarkable for decreased right visual acuity, decreased adduction of both eyes, and decreased joint position sense in the left limbs. Lab testing revealed a significant elevation of her erythrocyte sedimentation rate. MRI of the brain with gadolinium showed diffuse meningeal enhancement. Lumbar puncture after the MRI showed an increased opening pressure and elevated protein. The patient underwent a leptomeningeal biopsy which showed leptomeningeal metastasis consistent with a primary adenocarcinoma of the breast. Retrospectively, a detailed breast exam revealed a 9×9 cm right breast mass with axillary lymphadenopathy, confirmed with mammography and CT scan. Breast and axillary biopsy showed intraductal carcinoma. IV corticosteroids were started with immediate improvement of her symptoms. Further definitive treatment was continued as an outpatient.
DISCUSSION: Leptomeningeal carcinomatosis is diagnosed in 4% to 15% of patients with solid tumors. Among them, breast cancer accounts for most of the cases in large series of this disorder. The most common manifestation is headache, with or without mental status changes. However, the patient can often present with multifocal neurological signs and symptoms difficult to localize to a single lesion. The most useful diagnostic approach is the combination of CSF exam and MRI with gadolinium. Median survival without treatment is 4–6 weeks. Of the solid tumors breast cancer responds best to treatment with a median survival of 6 months. The primary role of radiotherapy is to decrease bulky disease and to palliate symptoms. The currently preferred intrathecal chemotherapy options are methotrexate and cytarabine. Our patient's diagnosis was obvious but we didn't make the association until much later, after a focused review of the breast exam and a detailed review of the patient's family history. This case illustrates the cost effectiveness and efficiency of a comprehensive history and physical exam.

LAST CALL FOR ALCOHOL. C. Miller[1]; J. Wiese[1]. [1]Tulane University, New Orleans, LA. *(Tracking ID # 157008)*

LEARNING OBJECTIVES: 1. Recognize the importance of clinical reasoning in determining an uncommon etiology of a familiar disease. 2. Interpret laboratory data indicative of autoimmune disease. 3. Manage portal vein thrombosis.
CASE: A 53-year-old Hispanic woman presented with a two-day history of progressive abdominal pain and increasing abdominal girth. She had been admitted on multiple occasions during the previous month for similar complaints and had been diagnosed with alcoholic hepatitis. She reported drinking three pints of vodka each weekend for twenty-five years. Her vital signs were normal. She was icteric, and had sublingual jaundice. There were scattered telangiectasias on her chest, and she had palmar erythema. Her abdominal exam revealed mild tenderness below the umbilicus, a fluid wave, and distended bridging veins. Her liver and spleen could not be palpated, and the remainder of the physical exam was normal. Her laboratory values were normal with the exception of the albumin level that was 2.3 g/dL, the AST that was 129 U/l, and the total bilirubin that was 11.3 mg/dL. A viral hepatitis panel was negative for A, B, and C. An abdominal ultrasound revealed a nodular liver and a portal vein thrombus.
DISCUSSION: Although alcohol contributed to our patient's liver injury, the diagnosis of alcoholic hepatitis did not fully explain the portal vein thrombus. A more detailed evaluation revealed an ESR of 110 mm/h, a positive rheumatoid factor, and a positive speckled ANA in a greater than 1:360 dilution. In addition, anticardiolipin A and smooth muscle antibodies were highly positive. Further history revealed that despite three pregnancies carried to term, she had two second trimester abortions in her twenties. She was diagnosed with autoimmune hepatitis and antiphospholipid antibody syndrome. She was started on prednisone and a Greenfield filter was placed; a pneumococcal vaccine was given. Her symptoms improved and she stopped drinking, but was lost to follow-up after Hurricane Katrina. Our patient had been evaluated for similar complaints on several occasions. Each time, she was dismissed with the admonition to stop drinking. While this counseling was important, it was equally important to recognize that non-alcohol related disease is still possible in alcoholics. A disciplined method enabled discerning the primary cause of her ascites (portal vein thrombosis), enabling the appropriate management. The finding of anticardiolipin antibodies and a positive rheumatoid factor greatly increased the likelihood of this diagnosis. Hepatic biopsy is necessary for definitive diagnosis and to follow response to treatment. Intermediate intensity warfarin (INR of 2.0 to 2.9) has been shown to reduce rates of recurrent thrombosis in patients with antiphospholipid antibody syndrome. We chose not to start warfarin with this patient because of multiple risks for a GI bleed, including a history of a bleeding peptic ulcer. Although this case posed numerous obstacles, it was the internist's clinical reasoning and that ultimately led to a complete diagnosis and initiation of proper treatment.

LEMIERRE'S SYNDROME: THE FORGOTTEN SEQUELA OF A SORE THROAT. L.V. Maramattom[1]; K. Pfeifer[1]. [1]Medical College of Wisconsin, Milwaukee, WI. *(Tracking ID # 154076)*

LEARNING OBJECTIVES: 1. Create clinician awareness of a potentially fatal but curable complication of oropharyngeal infections. 2. Emphasize that the diagnosis of Lemierre's syndrome rests on a high degree of clinical suspicion. 3. Recognize that early diagnosis and prolonged antibiotic treatment with anaerobic coverage are crucial to reduce morbidity and mortality related to Lemierre's syndrome.
CASE: A previously healthy 18 year-old woman presented to her physician because of a one-day history of sore throat, fatigue and difficulty swallowing. Examination at that time revealed tonsillar exudates, but a rapid streptococcal antigen assay was negative. She was suspected to have infectious mononucleosis and was sent home with oral steroids. Five days later, the patient returned to

her physician with a worsening sore throat, dysphagia and bilateral neck pain, worse on the right and extending down into the shoulders. She also described having rigors with a fever to 101 degrees F but denied any vomiting, abdominal pain or diarrhea. On repeat examination she was afebrile and had a blood pressure of 90/62 and pulse of 136. Oral exam showed enlarged tonsils with no obvious asymmetry or exudates. The left side of her neck demonstrated erythema, induration and tenderness to palpation, but the remainder of her physical examination was unremarkable. Lab studies were remarkable for a white cell count of 31,600/cu mm with 32% bands and a platelet count of 50,000. Examination of a peripheral blood smear did not reveal schistocytes but showed toxic granulations and vacuolated neutrophils. Neck CT showed a 1×2 cm left peritonsillar abscess with thrombus in the external jugular vein extending inferiorly to the thoracic inlet. The left internal jugular vein and carotid artery were patent. Chest CT showed multiple small nodules consistent with septic emboli and significant bilateral pleural effusions. Blood cultures grew anaerobic Gram-negative rods resembling Fusobacterium necrophorum, but transthoracic echocardiogram showed no gross vegetations or thrombus. Further investigation revealed the patient recently had a dental abscess requiring a root canal.
DISCUSSION: Although several cases were reported earlier, Dr. Andre Lemierre was the first to publish a comprehensive review of 20 cases of "anaerobic septicemias" with 18 deaths. Review of the literature identified fewer than 160 cases of classic Lemierre's syndrome (oropharyngeal infection complicated by jugular vein thrombosis and Fusobacterium sepsis and septic emboli) with about one third occurring since 1988. Between 1950 and 1974, reports matching Lemierre's description were rare, possibly due to the widespread use of antibiotics to treat pharyngeal infections. It is now also known as the "forgotten disease" for this same reason. Recent years have seen an increase in the incidence of reported Lemierre's syndrome cases. This increased reporting of cases has been attributed to more restricted use of penicillin to treat pharyngeal infections, improved blood culture methods and improved anaerobic bacterial identification. It was almost universally fatal in the pre-antibiotic era, but earlier detection through diagnostic imaging, aggressive use of intravenous antibiotics and improved critical care modalities have reduced the mortality to approximately 8%. Since the 1970's at least 50 cases have been reported, emphasizing the fact that clinicians need to be familiar with this syndrome in order to prevent its serious consequences.

LESSONS IN TRANSPLANT MEDICINE–SIROLIMUS INDUCED INTERSTITIAL PNEUMONITIS. H. Hussain[1]; M. Javed[1]; A. Cooper[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 151484)*

LEARNING OBJECTIVES: 1. To recognize sirolimus as a cause of interstitial pneumonitis in transplant patients 2. To list criteria used for diagnosis of sirolimus induced interstitial pneumonitis.
CASE: A 45-year-old female with past medical history of orthotopic heart transplant six years ago for familial cardiomyopathy was admitted to the hospital with abdominal pain, nausea and vomiting of two weeks duration. She was on immunosuppression with sirolimus (for one and a half year) and cyclosporine (since transplant). An extensive workup of her abdominal pain including liver function tests, an esophageo-gastroduodenoscopy and a computerized tomography (CT) scan was negative, and the pain resolved spontaneously on day 5 of admission. On day 7 she became progressively dyspneic with increasing oxygen requirements. A chest CT showed diffuse ground-glass opacities. A transthoracic echocardiogram showed normal left ventricular function, and a right heart catheterization revealed normal pulmonary capillary wedge pressures. An endo-myocardial biopsy was negative for rejection and work-up for opportunistic infections was unremarkable. Empiric treatment with antibiotics was begun. Her rapamycin levels were, and had always been normal since drug therapy was instituted. A bronchoalveolar lavage (BAL) and open lung biopsy showed diffuse alveolar damage. With a suspicion of sirolimus-induced interstitial pneumonitis, the drug was discontinued and she was started on high dose steroids. An air leak developed after the lung biopsy that transformed into a right-sided pneumothorax, and a chest tube was placed. Meanwhile, her respiratory status continued to deteriorate. She subsequently developed Klebsiella sepsis and eventually succumbed to multi-system organ failure. No resuscitative efforts were made because of patient preference.
DISCUSSION: Sirolimus is commonly used as a potent immunosuppressant for both induction and maintenance therapy in post solid-organ-transplant patients. Potential dose-dependent adverse effects of sirolimus are myelosuppression, hypertension, hyperlipidemia, glucose intolerance, and infection. There have been several recent case reports where sirolimus is associated with varying degrees of pulmonary toxicity that is typically mild and is fully reversible after discontinuation of the drug or dose reduction. The pathophysiology of sirolimus-induced lung injury remains unclear. The spectrum of lung toxicity includes interstitial pneumonitis, bronchiolitis obliterans organizing pneumonia (BOOP), and diffuse alveolar hemorrhage. Pneumonitis is commonly considered to be dose dependant although there have been reports of rapidly progressive, bilateral interstitial pneumonitis even with normal levels of the drug. BAL usually shows alveolitis and lymphocytosis that are consistent with drug-induced lung toxicity. Morelon and colleagues have described the criteria for diagnosis of sirolimus-induced lung toxicity. These are (a) exposure to drug before the onset of pulmonary symptoms; (b) exclusion of an infective agent or other pulmonary disease (such as collagen vascular disorder); (c) exclusion of other offenders (other drug related toxicities) and (d) resolution of symptoms after cessation or dose-reduction. Early recognition of sirolimus as an offensive agent may avoid invasive procedures like lung biopsies in already immunocompromised patients. Whether dose reduction will prevent complications altogether and whether retreatment at lower doses is safe remains undetermined.

LISTEN TO YOUR HEART: A CASE OF SEPTIC ARTHRITIS FROM GROUP G STREPTOCOCCI ENDOCARDITIS. J. Chuang[1]; P. Balingit[1]. [1]Olive View/University of California, Los Angeles Medical Center, Sylmar, CA. *(Tracking ID # 154135)*

LEARNING OBJECTIVES: 1) Suspect endocarditis in patients with bacteremia. 2) Recognize endocarditis as a potential cause of septic arthritis. 3) Recognize potential causes of group G streptococci bacteremia.
CASE: A 65 year-old woman with a history of diabetes mellitus and arthritis presented with left knee pain, fevers and chills after a fall. She was in her usual state of health until two weeks prior to admission when she lost her balance and landed on her left knee. She denied any scrapes, open wounds or complications until three days after the fall when her left knee started to hurt. She was uncomfortable for another week before she developed subjective fevers and chills. She denied having cough, dysuria or diarrhea. Initial vital signs included temperature 39.4 °C and heart rate 130 with normal blood pressure and respiratory rate. She appeared extremely uncomfortable. Her head, eyes, ear, nose and throat exam were normal. She had no lymphadenopathy. She had a systolic murmur. Her lungs were clear. Her abdomen was benign. Her extremity exam revealed a warm, erythematous and fluctuant left knee joint. A left knee X-ray showed only mild osteoarthritic changes. A needle was inserted into the knee revealing purulent drainage, which was sent for culture. Blood cultures were obtained prior to starting empiric antibiotic therapy with piperacillin/tazobactam and vancomycin. Group G beta hemolytic streptococcus was isolated from blood cultures and joint aspirate. 2D echocardiogram revealed vegetations on the mitral valve. Her symptoms improved with administration of intravenous antibiotics, and she was surgically evaluated by orthopedics for arthroscopic surgery.
DISCUSSION: Group G streptococci are Gram-positive cocci in chains similar to group A streptococci. They are a part of normal human flora in multiple areas of the body, including the pharynx and skin, causing pharyngitis and cellulitis, respectively. They can also cause bacteremia and abscesses. Cellulitis tends to be the main cause of group G bacteremia, but other predisposing conditions should be considered as well. Patients with group G infections tend to be elderly, fragile or immunocompromised. They also tend to have underlying cardiovascular disease, diabetes mellitus, cirrhosis, bone and joint disease or dermatologic processes. Once group G bacteremia occurs, the infection can cause endocarditis and septic arthritis from emboli. Although streptococci rarely cause endocarditis, they have a higher chance of causing emboli and abscesses. Predisposing factors for septic arthritis from group G bacteremia include rheumatoid and traumatic arthritis. Once group G bacteremia has been isolated from culture, it is important to evaluate the patient for underlying abscesses, endocarditis or malignancies. Treatment includes intravenous antibiotics. Penicillins work extremely well against streptococci, but treatment should be tailored to the minimum inhibitory concentration for the isolate. For our case patient, we thought that her septic arthritis might have been caused by endocarditis rather than the other way around since she denied ever having any skin abrasions during her fall. Her group G bacteremia was thought to be due to previous foot infections as a diabetic or from a gastrointestinal source, such as diverticuli.

LIVING LOCULATED IN THE LIVER: A CASE OF KLEBISELLA HEPATIC ABSCESS. M. Kuo[1]; J. Yeh[1]; B. Lee[2]. [1]St. Mary Medical Center, Long Beach, CA; [2]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 155941)*

LEARNING OBJECTIVES: 1) Identify common causes of pyogenic liver abscesses. 2) Review treatment of bacterial liver abscesses.
CASE: 53 year old Taiwanese male with no medical history presented with fever, chills, nausea, vomiting, anorexia, and abdominal pain for one week. He had traveled to China and Mexico the previous year. His father and brother both had hepatic cancer. The patient denied tobacco or alcohol use. Vital signs revealed a temperature of 102.3, pulse 110 bpm, blood pressure 100/67, respiratory rate 20, and oxygen saturation of 97%. He had a few rhonchi and rales at the bilateral lung bases. His abdomen was soft with slight RUQ tenderness. Initial lab work showed WBC 12.9, Hgb 13.5, AST 162, ALT 119, LDH 248. Hepatitis panel revealed that the patient was vaccinated against hepatitis B and hepatitis C Ab was negative; AFP was also negative. CXR showed a right pleural effusion. CT abdomen and pelvis revealed an $8 \times 7 \times 9$ cm hypodense mass consistent with liver abscess. Abdominal ultrasound showed a liver lesion suggestive of abscess and a small septated fluid collection adjacent to the gallbladder without stones. Piperacillin-tazobactam and metronidazole were started, and the patient underwent a CT-guided aspiration of the abscess. Gram stain showed gram-negative rods and few WBCs. The culture grew out Klebsiella pneumoniae. He later underwent upper endoscopy and colonoscopy, which were negative for malignancy, and was continued on levofloxacin and metronidazole for two weeks with improvement of symptoms.
DISCUSSION: Liver abscesses can be secondary to microorganisms, such as amoebae, fungi, and bacteria. Bacterial liver abscesses are relatively uncommon. Though the liver receives blood from the portal and systemic circulations, its Kupffer cells can clear bacteria so efficiently that infection rarely happens. When it does occur, potential processes associated with its development include biliary tract disease, which is the most common and likely the etiology in our patient; appendicitis; trauma; and hematogenous spread from systemic bacteremia. The most frequent symptoms are fever and chills, nausea and vomiting, RUQ pain, loss of appetite, and weakness. On examination, tender hepatome-

galy is often noted. With timely administration of drainage procedures and antibiotics, mortality occurs in 5–30% of cases. The most common bacteria that cause liver abscesses are Escherichia coli, Klebsiella, Staphylococcus, Streptococcus, and Bacteroides. Enterobacteriaceae are especially prominent when infection is of biliary origin. Culture of the abscess fluid is key in establishing microbiologic diagnosis. CT scan with contrast and ultrasonography remain the radiologic modalities of choice as screening procedures and can be used to guide percutaneous aspiration and drainage as well. Untreated, bacterial liver abscesses are uniformly fatal from complications such as sepsis, peritonitis from abscess rupture, and empyema. Percutaneous aspiration or catheter drainage along with prolonged antimicrobial therapy is now the treatment of choice in most cases. Current indications for surgical treatment and drainage are peritonitis, failure of previous drainage attempts, and the presence of a complicated, multiloculated, thick-walled abscess.

LUMBAR POLYRADICULOPATHY AS A PRESENTING SYMPTOM OF WEST NILE VIRUS INFECTION. S. Surapaneni[1]; K. Pfeifer[1]; J. Bellizzi[1]; B. Alexandru[1]; W. Golgert[1]. [1]Medical College of Wisconsin, milwaukee,WI. *(Tracking ID # 151570)*

LEARNING OBJECTIVES: 1. Recognize radiculopathy as a presenting complaint of West Nile Virus (WNV) infection 2. Diagnose WNV infection based on serology and cerebrospinal fluid laboratory findings.
CASE: A 59 year-old woman with controlled type 2 diabetes mellitus, hypertension, and chronic low back pain presented with one week of low-grade fever, leg pain and weakness. Ten days prior to admission she noted malaise and transient diarrhea, followed by radicular pain and weakness in the left and, to a lesser degree, right leg. The pain and weakness progressively worsened to the point that she was unable to stand without assistance. She resided in Milwaukee but had traveled to Zambia four weeks earlier and to northern Wisconsin just prior to the onset of her symptoms. In the nine months before her trip she was vaccinated against polio, hepatitis A, typhoid and yellow fever and took prophylaxis for malaria prior to travel. She was unaware of contact with animals and had not removed ticks, but had waded into Lake Malawi. She reported fever to 102 degrees F at home but was afebrile on presentation. Her strength right/left was: hip flexors 3/2, hip adductors 4/2, hip abductors 4/2, knee extensors 5/4, knee flexors 4/3, foot dorsiflexors 5/4, and plantar flexors 5/5. Deep tendon reflexes were absent in the left leg but otherwise normal. Sensation was diminished to vibration in the left toes only, and bladder function was intact. There were no other neurologic deficits, and the remainder of her physical exam was normal. Her CBC, electrolytes, creatinine, hepatic panel, creatine kinase and urinalysis were normal. Serology was negative for syphilis, Lyme disease, malaria, HIV and schistosomiasis. MRI of the lumbar spine showed diffuse enhancement of the cauda equina. Electroneuromyography showed findings consistent with lumbar, asymmetric polyradiculopathy. CSF analysis showed normal glucose, an elevated protein of 120 g/dL but no oligoclonal bands, and WBC 36/cubic mm with 81% lymphocytes, 13% monocytes, and 2% polymorphonucleocytes. CSF PCR testing for Varicella, Herpes Simplex, Cytomegalovirus, and Enterovirus panel was negative. CSF bacterial, viral and mycobacterial cultures were negative. IgM and IgG to West Nile Virus (WNV) was detected in serum and in the CSF. WNV CSF PCR was negative. Her weakness improved slowly over 3 months, and her pain responded very well to high dose intravenous corticosteroids.
DISCUSSION: WNV is an arthropod-borne flavivirus that can present with a broad range of clinical symptoms, including fever, meningitis, encephalitis, cerebellar ataxia, seizures and a polio-like flaccid paralysis. Polyradiculitis is not a common presentation of WNV infection and suggests other differential diagnoses of polyradiculopathy, especially in a diabetic patient. Gadolinium-enhanced MRI can be very helpful in establishing the diagnosis of an infectious/immune polyradiculitis. The specific diagnosis of WNV infection is confirmed by the demonstration of IgM+/−IgG in the CSF since PCR for WNV is relatively insensitive. However, significant serologic cross-reactivity occurs with other flaviviruses, and a definitive diagnosis can be problematic, particularly in patients who have undergone recent vaccination for these viruses. The severity of symptoms and potential for serious morbidity and mortality illustrate the importance of early supportive treatment.

LUPUS: A GUT DIAGNOSIS. S. Kafaja[1]; G.Y. Dunn[1]. [1]Olive View/University of California, Los Angeles Medical Center, Sylmar, CA. *(Tracking ID # 154730)*

LEARNING OBJECTIVES: Recognize gastrointestinal complaints as presenting symptoms of SLE. Consider polyglandular autoimmune syndromes in the setting persistent hypotension in patients with SLE Emphasize the importance of the history and physical in an acutely ill patient.
CASE: A 20 year old man with no past medical history presented to the emergency department with a two month history of intermittent fevers, chills, nausea, vomiting, diarrhea, diffuse abdominal and lower extremity pain. He was admitted twice in the past two months at outside hospitals for similar symptoms and was given the diagnosis of viral syndrome. On exam his temp was 38.9 C, BP 50/30, pulse 129 and RR 19. He was alert and oriented, lungs were clear, heart was tachycardic without murmurs, abdomen was soft, diffusely tender to palpation without guarding or rebound, and extremities were edematous but non-pitting. He was fluid resuscitated and was transferred to the ICU where he was begun on broad-spectrum antibiotics for presumed sepsis. Initial laboratory results were significant for mild hyponatremia, with normal creatinine and bicarbonate, anemia (Hgb 9.1, MCV 87), absolute lymphopenia and mildly elevated transaminases with a normal alkaline phosphatase and bilirubin level. His INR was normal and PTT was slightly elevated. Lactate level was 1.0 and HIV was negative. At this point, the differential diagnosis was quite extensive. CT of the abdomen revealed thickening of the gallbladder without stones, bilateral pleural effusions, and edema of the distal small bowel and colon. Enteroscopy was performed, but biopsies of the antrum and jejunum were negative. Echocardiogram revealed no vegetation or pericardial effusion. Blood cultures were negative, but the patient continued to spike fevers despite antibiotics. Upon further questioning, the patient noted that his leg pain was in his knees and on closer examination the patient was noted to have facial post-inflammatory hyperpigmentation in a malar distribution, oral ulcers, as well as bilateral knee effusions. Shortly thereafter, his ANA returned at 1:2560, ds-DNA > 1:160, low C3 and C4 complement levels, and anti-cardiolipin antibodies were positive. In addition, his AM cortisol level was 2. Having met many of SLE criteria, the patient was diagnosed with lupus as well as adrenal insufficiency. Renal biopsy showed lupus nephritis reaffirming the clinical diagnosis of SLE. The patient was started on cellcept, florinef, and corticosteroids. After several subsequent visits his symptoms completely resolved and blood counts normalized.
DISCUSSION: Systemic lupus erythematosus (SLE) is a chronic inflammatory disease that may affect any organ system. The gastrointestinal tract is involved in 20–40% of SLE patients, and may present as dysphagia, abdominal pain, peptic ulcer disease, mesenteric vasculitis, pancreatitis, liver disease, or protein losing enteropathy. Rarely however, do we find GI symptoms to be the predominant presenting factor, and when such symptoms are present they are often attributed to other causes or overlooked. Our case demonstrates that SLE must be considered in the differential diagnosis of abdominal pain when associated with a host of other symptoms, even in the absence of vasculitis on pathology. Rarely, adrenal insufficiency can occur in the setting of SLE and their coexistence should raise suspicion for possible polyglandular autoimmune syndrome.

LYME DISEASE AS A CAUSE OF THIRD DEGREE HEART BLOCK. E. Mueller[1]; V. Mallavarapu[1]; M. Rai[1]; S. Salguti[1]; R. Dee[1]; M. Muttreja[1]. [1]Abington Memorial Hospital, Abington, PA. *(Tracking ID # 156912)*

LEARNING OBJECTIVES: Lyme disease is becoming an increasingly recognized cause of carditis and cardiac conduction disturbances. We present a case where symptoms of a third degree heart block secondary to Lyme disease prompt the initial presentation for medical care. This case will illustrate the diagnosis and treatment of Lyme disease as a cause of heart block.
CASE: A 36 year old male presented to the emergency department with a chief complaint of a slow heart rate. Approximately seven weeks prior to the admission, he had spent two weeks doing outdoor activities in Long Island, NY. He recalls removing a small pinhead sized tick from his penis during that period. Five weeks prior to admission he suffered from a flu-like illness that lasted for roughly two weeks, during which time he experienced a subjective fever, chills, myalgias, and arthralgias. Approximately three weeks prior to admission he developed the classic dermatologic findings of erythema migrans. The rash first appeared on his abdomen. It was oval in shape, raised, erythematous, pruritic, and it spread outwards with a dark red border and an area of central clearing. Later he developed a blotchy rash on his torso, arms, and legs. The rash resolved one to two days prior to the admission. Four days prior to admission he had palpitations while resting in bed. The following morning when he awoke, his heart rate was in the low 40's. He experienced lightheadedness, dizziness, and dyspnea on exertion beginning 4 days prior to admission. The patient has no significant past medical or surgical history and takes no medications. The only significant physical exam finding was bradycardia with a rate of 55 bpm. EKG showed sinus rhythm with a complete heart block and a ventricular rate of 55 bpm. Admission laboratory values were unrevealing. The patient was admitted to the hospital with a diagnosis of third degree heart block secondary to Lyme disease. He was monitored on telemetry and treated with ceftriaxone 2 gm IV Daily. He remained bradycardic with a third degree heart block throughout the hospital admission, however was asymptomatic without any pauses. He was discharged home on the third hospital day to complete a two-week course of ceftriaxone. Lyme serology was positive, including western blot confirmation. Upon follow-up after completion of antibiotics, the patient was documented to be back in normal sinus rhythm.
DISCUSSION: It is important for clinicians to recognize that Lyme disease can cause complete heart block. Lyme serology should be performed in patients presenting with cardiac conduction disturbances who have been exposed to Lyme endemic areas. Such patients should be questioned about recent tick bites, rash, or fever. Cardiac conduction disturbances due to Lyme disease resolve with antibiotic treatment and do not require the insertion of a permanent pacemaker. The recommended treatment for complete heart block due to Lyme disease is ceftriaxone 2 gm IV daily for 14–21 days.

M.R.E. (MEALS READY TO EXACERBATE). J. Feagans[1]; J. Wiese[1]. [1]Tulane University, New Orleans, LA. *(Tracking ID # 156886)*

LEARNING OBJECTIVES: 1) Recognize the importance of sodium restriction in the setting of CHF 2) Consider the balance of neurohormonal interactions in managing patients with CHF.
CASE: A 77 year-old man with a history of congestive heart failure presented with one week of dyspnea and lower extremity edema. The dyspnea was exacerbated with activity and associated with orthopnea and a non-productive cough. He had evacuated temporarily from New Orleans to Lake Charles, Louisiana after Hurricane Katrina. Upon his return to New Orleans he has been receiving food supplies from the National Guard in the form of Meals Ready to Eat (MRE). His diet has consisted of three square MRE's a day. He noted full

compliance with his medical regimen. He had a BP130/57 mmHg, a heart rate of 62 beats/min., and a respiratory rate of 22 beats/min. He had a JVP of 7 cm, bibasilar crackles and bilateral lower extremity edema. A chest radiograph revealed cardiomegaly with bilateral basilar infiltrates. Laboratory studies included an initial BNP of 570, a troponin of 0.04, a hemoglobin of 15 g/dl, and normal electrolytes. Salt-restriction and furosemide led to the resolution of his symptoms. Upon discharge he was instructed to adhere to a low-salt diet. The importance of avoiding regular consumption of MRE's was specifically discussed.
DISCUSSION: Acute exacerbations of congestive heart failure should be expected following major disasters. In most cases, this is due to inadequate access to pharmaceutical prescriptions, but as our patient illustrated, evacuees are often relegated to either canned foods or MRE meals, both of which are sodium rich. One MRE contains 2.3 g of sodium, and the consumer may opt to add flavor with the included salt package to increase the sodium content by an additional 4 g per MRE. Our patient noted opting for additional flavor. MRE's are designed for active soldiers who have healthy cardiovascular systems and subject to sodium loss due to sweating during vigorous activity. Distribution of bulk MRE's in post-disaster and emergency situations is an important component of immediate relief operations. However, the lack of effective labeling and consumer information can occasionally lead to negative consequences. Distribution of easy-to-understand content information and recommendations regarding certain health conditions along with the public disaster relief MRE packaging would be an excellent modification.

MAGIC SYNDROME: MOUTH AND GENITAL ULCERS WITH INFLAMED CARTILAGE SYNDROME. R.V. Kedia[1]; J. Fish[1]; B. Singh[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 153547)*

LEARNING OBJECTIVES: Review the clinical features and treatment of MAGIC Syndrome (Behcet and Polychondritis' overlap syndrome).
CASE: 64-year-old female with a long-standing diagnosis of undifferentiated connective tissue disease was admitted with worsening arthralgia, generalized weakness, and chronic non-healing ulcers of her left ear, sacrum and lower extremities. The patient was first diagnosed with undifferentiated connective tissue disease several years prior to this presentation because of recurrent episodes of oronasal ulcers, arthritis, pericardial effusions, and malar rash. She had a positive ANA, but all other rheumatologic serologies were negative. A few weeks before her admission, she was diagnosed with a pulmonary embolism and bilateral deep vein thromboses. The chronic ulceration of her left ear was noted to have advanced to the partial destruction of cartilage. Physical examination revealed decreased strength in all extremities and non-healing ulcers over the right trochanter, coccyx, and partial destruction of pinna of the left ear. MRIs of the spine and pelvis showed no compression or signs of osteomyelitis, and an MRA of the lower extremities did not show any sign of vasculitis. A bone marrow biopsy revealed no evidence of lymphoproliferative disorder. Biopsies of the ear revealed chronic chondritis, but the skin biopsies were nondiagnostic. The patient was initiated on prednisone and cyclophosphamide, with improvement of the ulcers and her weakness.
DISCUSSION: In 1985 Firestein et al. described five patients with relapsing polychondritis and Behcet's disease and proposed the term of "MAGIC Syndrome" (mouth and genital ulcers with inflamed cartilage), and additional cases have been since reported. 2–5 Patients with MAGIC Syndrome have a combination of Behcet's disease and polychondritis. Behcet's disease typically presents with recurrent oral ulcers and any of several systemic manifestations including genital ulcers, ocular disease (i.e. uveitis), cutaneous lesions (i.e. acneiform lesions), erythema nodosum, palpable purpura, neuropathy, vascular disease, or arthritis. Polychondritis usually presents with auricular involvement, though other anatomic areas such as the nose, lungs, heart, and the vascular system may be involved. Associated symptoms include fatigue, malaise and fever. This patient has features of both diseases, with biopsy-proven chondritis. She has evidence of oral ulcers, vascular disease (pulmonary embolism and deep vein thromboses), and non-healing skin ulcers that are similar to those described in Behcet's disease. The cartilaginous destruction of her ears is classic for polychondritis. The hallmark of treatment is immunosuppression, with azathioprine, methotrexate, or cyclophosphamide. REFERENCES 1. Firestein GS et al. Mouth and genital ulcers with inflamed cartilage: MAGIC syndrome: Five patients with features of relapsing polychondritis and Behcet's disease. Am J Med 1985;79:65–72. 2. Orme RL et al. The MAGIC syndrome (mouth and genital ulcers with inflamed cartilage). Arch Dermatol 1990;126:940–4. 3. Le Thi Huong D et al. Aortic insufficiency and recurrent valve prosthesis dehiscence in MAGIC syndrome. J Rheumatol 1993;20:397–8. 4. Imai H et al. Mouth and genital ulcers with inflamed cartilage (MAGIC syndrome): a case report and literature review. Am J Med Sci 1997;314:330–2. 5. Gertner E. Severe recurrent neurological disease in the MAGIC syndrome. J Rheumatol 2004;31:1018–9.

MASS IN THE COLON: TB OR NOT TO BE?. H.K. Gavini[1]; A. Archana[1]; H. Friedman[1]. [1]St. Francis Hospital, Evanston, IL. *(Tracking ID # 156136)*

LEARNING OBJECTIVES: 1. Recognize the emerging trends of atypical mycobacteria. 2. Recognize the unusual gastrointestinal manifestations of atypical mycobacteria in immunocompetent individuals. 3. Distinguish Mycobacterium Avium Complex (MAC) from Mycobacterium Tuberculosis (MTB) to avoid unnecessary antituberculous therapy (ATT).
CASE: A 31-year-old Indian woman presented with complaints of crampy abdominal pain associated with multiple bouts of vomiting. The patient emigrated to the United States of America 5 years ago but had traveled back to India recently. She worked as a veterinarian caring for sick live stock, small animals and birds. An obstructive series X-ray was done which showed evidence of large bowel obstruction. She then underwent a colonoscopy, which showed a near totally obstructing mass in the mid transverse colon and subsequently underwent a right hemicolectomy with biopsy of the mesenteric lymph nodes. Biopsy revealed granulomatous inflammation with caseating necrosis but smear was negative for acid-fast bacilli. The patient was empirically started on antituberculous therapy (ATT). Subsequent culture from the lymph nodes grew MAC, confirmed by the state health department using high performance liquid chromatography (HPLC). The ATT was stopped and patient was started on rifampin, ethambutol and clarithromycin with subsequent improvement.
DISCUSSION: We report the first known case of colon mass secondary to MAC in an immunocompetent patient causing large bowel obstruction. MAC is a ubiquitous organism found in soil, water, house dust, birds and farm animals. With the advent of ATT the incidence of gastrointestinal tuberculosis (MTB) has declined sharply in immunocompetent subjects. MAC has now emerged as a cause of disseminated disease in the immunosupressed. Rare pulmonary involvement in individuals without immunosupression has been reported. MAC has been assuming an increasing role in patients with and without immunosupression, involving lungs, soft tissues, skin, central nervous system, bones and lymph nodes. Our literature review shows this to be the first case report of MAC presenting as a mass in the colon with obstruction. Gastrointestinal involvement has been previously described as enteritis or colitis but never masquerading as a colon tumor. This case illustrates the most unusual manifestation of MAC in an individual with no underlying immunosupression and signifies the importance of maintaining a high index of suspicion to avoid a delay in diagnosis and initiation of appropriate therapy.

MEDICAL CHAUVINISM AND THE PHYSICAL EXAM IN AN UNEXPECTED CAUSE OF HYPERCALCEMIA. Z.A. Habib[1]; M. Gomez[1]; E. Keimig[1]; M. Ochani[1]; M. Hall[2]; R.D. Hobbs[1]. [1]Henry Ford Hospital Detroit, Detroit, MI; [2]Wayne State University, Detroit, MI. *(Tracking ID # 154415)*

LEARNING OBJECTIVES: 1) To identify the risk factors for male breast cancer. 2) To recognize hypercalcemia as an uncommon presentation of male breast cancer. 3) To underscore the importance of a breast exam in the evaluation of a male with an occult malignancy.
CASE: A 70 year-old male with a history of diabetes mellitus and atrial fibrillation presented with confusion. He was dehydrated. The serum calcium level was 19.1 mg/dL. Intravenous fluids, a loop diuretic, pamidronate and calcitonin were given. The PTH level was adequately suppressed at <2.0 pg/mL. Serum protein electrophoresis revealed an inflammatory pattern with no monoclonal protein. The PSA was normal. As part of the workup a chest CT scan was done. Lytic lesions were present in all of the visualized bones but there was no lung pathology. Unexpectedly, there was a 3.4 cm lobular mass in the left breast. A breast examination revealed subtle bilateral gynecomastia with retraction of the skin and nipple and a 2×3 cm mass in the lower outer quadrant of the left breast. Infiltrating ductal carcinoma was found at breast biopsy.
DISCUSSION: In the United States breast cancer is the most common cancer in women but only accounts for 0.2% of all cancers in men. Risk factors for male breast cancer include testicular disorders, infertility, single marital status, Klinefelter syndrome, a family history of breast cancer, breast trauma, breast cysts, nipple discharge, gynecomastia, radiation exposure, older age and Jewish ancestry. Male breast cancer frequently presents as a subareolar, firm, painless mass with nipple involvement. Ductal carcinoma is the most common pathologic type in males. Some authors have reported a better prognosis with breast cancer in males since it may be more obvious and therefore treated earlier. Hypercalcemia with breast cancer is usually a much later finding and accordingly an uncommon presentation in males. Nevertheless, in males with hypercalcemia and an occult malignancy a breast exam should be part of the workup. This simple procedure which would not be overlooked in a female patient may be missed because of the perceived extreme rarity of breast cancer in males and at some level the mistaken belief that it could not be present in this male. Such unconscious chauvinism should be avoided as a pitfall in examining these patients.

METAPLASTIC BREAST CARCINOMA AND HYPERCALCEMIA. P. Isaac[1]; A. Sequeira[1]; Q. Butt[1]; J. Sanders[1]; J. Nunez[1]; E. Thomassee[1]; G. Burton[1]. [1]Louisiana State University Medical Center at Shreveport, shreveport, LA. *(Tracking ID # 151518)*

LEARNING OBJECTIVES: 1. Recognize unique characteristics of metaplastic breast carcinomas (MBC). 2. Recognize the frequency of paraneoplastic syndromes associated with breast cancer.
CASE: A 56 year old female was brought to the emergency room for polyuria, generalized weakness and a 2 day history of mental status changes. The examination was remarkable for a febrile patient with a large 10×20 cm ulcerated breast mass occupying the entire left breast. Laboratory data was significant for calcium18.4 mg/dl, albumin 3.3 mg/dl, BUN 107 mg/dl, creatinine 2.1 mg/dl, WBC 58.0 k/μl with 95 % neutrophils and hemoglobin 16 gm/dl. She was admitted to the MICU and was treated aggressively with IV fluids, furosemide, bisphosphonates and antibiotics. Her symptoms improved with resolution of hypercalcemia and renal failure; however, the fever persisted despite antibiotics and negative cultures. The fever subsequently resolved with a trial of naproxen. Her hospital course was also complicated by SIADH which responded to free-water restriction. Biopsy of the breast mass was interpreted as estrogen and progesterone receptor negative metaplastic breast carcinoma (MBC) with squamous features (adenosquamous). Contrast tomography re-

vealed areas of calcification and necrosis within the breast mass with invasion of the pectoralis major and the musculature of the chest wall. Imaging studies of the brain, abdomen, pelvis and bone were negative for metastasis. Her first cycle of chemotherapy (doxorubicin and docetaxel) was complicated by acute tumor lysis, resulting in acute renal failure. The patient declined additional therapy and later succumbed to her illness.
DISCUSSION: MBC is an uncommon (<5%) histologic variant of breast cancer characterized by the presence of an underlying adenocarcinoma with additional epithelial or mesenchymal elements. A higher incidence of distant metastasis without lymph node involvement, lower incidence of axillary nodal metastasis (4–26%), a tendency toward hormone receptor negativity and larger tumor size is seen in MBC compared to adenocarcinomas. Prognosis is still related to tumor size and lymph node positivity. MBC with adenosquamous features has a better prognosis compared to other MBC variants. Paraneoplastic syndromes are uncommon in breast cancer (4%). This case was unique as this is the first reported case of MBC complicated by hypercalcemia as well as other paraneoplastic syndromes (SIADH).

MID WEST REGIONAL RESIDENT AWARD WINNER: HYPEROSMOLAR LACTIC ACIDOSIS FROM AN UNEXPECTED SOURCE. C. Marshall[1]; E. Warm[1]. [1]University of Cincinnati, Cincinnati, OH. *(Tracking ID # 154308)*

LEARNING OBJECTIVES: 1) Generate a differential diagnosis for lactic acidosis. 2) List the components of lorazepam drips, including propylene glycol. 3) Explain the metabolism of alcohols by liver alcohol dehydrogenase and its bearing on treament overdose states.
CASE: A 47 year old male with history of alcohol and alprazolam dependence was found confused, tremulous, and combative. Supportive history later obtained revealed that he had stopped alcohol for 3–7 days, and alprazolam for one day. On exam he was tachycardic and diaphoretic. His initial labs revealed a pH of 7.5, pCO2 of 30 and HCO3 of 15, calculated serum osmolality of 289 mosm/L, and measured serum osmolality of 287 mosm/L. A screen for alcohol was negative and a lactic acid was 1.6 mg/dl. The patient was sedated with a lorazepam drip. On day 3 of admission the patient developed respiratory failure and hypotension. He was found to have a severe acidosis with pH of 7.06 and HCO3 of 6. Pressors, antibiotics, and IV bicarbonate was given; the patient was intubated, and positive pressure ventilation begun. The patient was found to have a lactic acid of 9.8 mg/dl. A CT scan of his abdomen failed to show mesenteric ischemia, and no source of infection was found. Despite improvement in oxygenation and blood pressure the severe metabolic acidosis continued. Further studies revealed a calculated serum osmolality of 296 mosm/L and measured serum osmolality of 322 mosm/L. Propylene glycol toxicity was suspected as it was a component of the lorazepam infusion. The lorazepam infusion was discontinued, with prompt resolution of the acidosis.
DISCUSSION: Propylene glycol, 1,2, propanediol (PG), is a colorless, odorless alcohol that is commonly used as a solvent in intravenous infusions and is generally considered harmless. However case reports have documented hyperosmolar anion gap acidosis developing in patients on high infusion rates of certain drugs including lorazepam and etomidate. The mechanism is thought to be excess d-lactate building up from metabolism of the alcohol by liver alcohol dehydrogenase based on evidence that d-lactate causes an elevated anion gap and levels correlate directly with anion gap in animal studies. The acidosis is usually reversible with discontinuation of the PG containing infusions. Clinicians should have knowledge of this potential side effect when using high doses of certain IV medications to prevent the serious sequelae of metabolic acidosis.

MISDIAGNOSIS IS COMMON IN PSEUDOTHROMBOPHLEBITIS. A.P. Amin[1]; H.P. Castro-Rueda[1]; S. Velinova[1]; I. Aluen-Metzner[1]. [1]Stroger Hospital of Cook County, Chicago, IL. *(Tracking ID # 155668)*

LEARNING OBJECTIVES: 1. Identify ruptured Baker's cyst as an uncommon, but important cause of severe, unilateral leg swelling and pain. 2. Distinguish ruptured Baker's cyst from necrotizing fasciitis or deep vein thrombosis. 3. Prevent misdiagnosis and mistreatment of a ruptured Baker's cyst.
CASE: A 48 year-old female with no past medical history presented with severe right lower extremity pain, swelling and erythema for two days that had rapidly progressed to involve the whole leg from mid-thigh to the foot. On physical examination, she was afebrile, with severe tenderness, marked edema and erythema involving her right foot, calf and thigh. The leg was warm to touch and there were three subcutaneous, fluctuant blebs. Laboratory investigations revealed no leucocytosis. Given the dramatic and rapid progression, she was anticoagulated, and intravenous antibiotics were given. A compression venous ultrasound of her right lower extremity was negative and ruled out deep vein thrombosis (DVT) so anticoagulation was stopped. A CT scan of the leg revealed a fluid collection in her calf muscles. A general surgery consult was called because of a concern for an abscess or necrotizing fasciitis. She underwent immediate fasciotomy and 30 ml of yellow, clear fluid was drained. The muscle planes and fasciae looked healthy and shiny and as no necrosis was identified, necrotizing fasciitis was ruled out. At this point the CT scan was reviewed again, and showed that the fluid collection originated in the popliteal fossa posteriorly and extended down, dissecting into the muscle planes of the calf and around the knee. This was consistent with a ruptured Baker's cyst. Cultures and gram stains from the blood and calf fluid were negative. She never developed a fever or leucocytosis during her hospital stay and was discharged 4 days after admission with resolution of her leg swelling and pain.
DISCUSSION: Ruptured or dissecting Baker's (popliteal) cyst may mimic severe conditions like DVT, cellulitis, abscesses or necrotizing fasciitis and needs to be distinguished from these conditions. Frequent misdiagnosis and consequently incorrect treatments are common. Our patient was erroneously treated twice–initial anticoagulation for DVT and then fasciotomy for necrotizing fasciitis. An attestation to frequent misdiagnosis is a recent case series of 7 patients with leg swelling and a negative venography for DVT who were found to have Baker's cysts. We emphasize that a failure to demonstrate DVT in a patient with leg symptoms should prompt a search for a Baker's cyst. First described in 1840 by Adams, it is from Baker's writing in 1877 that we derive the commonly used eponym "Baker's cyst." The incidence varies between 5–32% of patients presenting with leg symptoms, with 2 peaks at 4–7 years and 35–70 years. Physical examination will miss 50% of these cysts. Associated intra-articular lesions are very common in non-pediatric popliteal cysts. This case was unique due to the absence of associated knee lesions. Sonography, arthrography, and MRI are all useful imaging tests in distinguishing popliteal cysts from other conditions. In the adult population, treatment is primarily nonsurgical. Asymptomatic cysts found incidentally need no treatment; most symptomatic cysts respond to intra-articular corticosteroid injections. Surgical excision is rarely necessary. This case underscores the importance of considering a Baker's cyst in the differential diagnosis of severe and acute presentations of leg swelling.

MITRAL STENOSIS AND DEEP VEIN THROMBOSIS: RECOGNIZING THE COMMON LINK. S. Ayyoub[1]; C. Pettis[2]. [1]University of Tennessee at Chattanooga, Chattanooga, TN; [2]University of Tennessee, College of Medicine - Chattanooga Unit, Chattanooga, TN. *(Tracking ID # 151148)*

LEARNING OBJECTIVES: Recognize the association between mitral stenosis associated left atrial thrombi and spontaneous echo contrast and hypercoagulable states.
CASE: A 46 year-old female with no past history was diagnosed at an outlying facility 1 week prior, with extensive deep vein thrombosis (DVT) of the left lower extremity. This was her first episode, she was anticoagulated and discharged on coumadin. Two days later she presented to our facility with acute onset of dyspnea and palpitations. She was a non-smoker, and not on hormone therapy. She denied trauma or long distance travel. Family history was unremarkable. Exam was unrevealing except for tachycardia and left thigh tenderness. ECG: supraventricular tachycardia (178/min); INR: 3.24. ABG: normal; Cardiac enzymes: negative. CT thorax angiogram: left atrial filling defect (LA), no evidence of pulmonary embolism. Transesophagial echo (TEE): severe MS, left atrial spherical mass and spontaneous echo contrast. Patient underwent mitral valve replacement and the left atrial mass was found to be a thrombus. Thrombophilia studies were only significant for mild elevation of fasting plasma homocystine.
DISCUSSION: Left atrial spontaneous echo contrast, or "smoke," is a frequent finding on TEE, but rarely detected with transthoractic echo. It is present in almost all patients with left atrial thrombus. Left atrial spontaneous echo contrast predicts future embolism and therefore assists in selecting patients with MS who benefit most from anticoagulation. Hematological studies have shown that Left atrial spontaneous echo contrast is a marker of a hypercoagulable state, elevated venous levels of fibrinogen and soluble P-selectin. LA thrombi have been associated with significantly higher levels of plasma homocystine. In our patient this was mildly elevated. The diagnosis of DVT requires detailed attention to identify potential risk factors. In the absence of obvious causes a workup for hypercoaguble states is helpful. Although the incidence of mitral stenosis in the USA is declining, clinicians must be able to recognize its clinical manifestations and potential complications including a hypercoagulable state.

MORE THAN SKIN DEEP. J.C. Lin[1]; S. Lundberg[1]. [1]Olive View/University of California, Los Angeles Medical Center, Sylmar, CA. *(Tracking ID # 155720)*

LEARNING OBJECTIVES: 1) Identify risk factors, clinical findings, and laboratory changes suggestive of necrotizing fasciitis that are different from other soft tissue processes. 2) Recognize that early diagnosis and urgent surgical intervention are critical to survival with necrotizing fasciitis.
CASE: A 58yo man with no past medical history presented to the ER with left leg swelling and pain for one day. He had fallen 10 days earlier, resulting in minor blunt trauma to his left leg. He saw his PCP and received pain medications without any relief. He denied any fever, chills, shortness of breath, chest pain, paresthesia, weakness, prolonged immobility, or recent travel. Vitals signs: T37.4, BP116/87, HR140, RR20, O2 sat 100%RA. Exam revealed a well-appearing man with tachycardia and clear lung fields. The left lower leg was edematous, warm, and diffusely tender. Pulses, sensation, and strength were intact; 2 cm healing superficial laceration was seen on the shin. Lab studies revealed: Na 130, K 4.2, Cl 90, bicarb 14, BUN 16, creatinine 1.5, and glucose 598. CBC: WBC of 11.2 with 92% neutrophils, Hgb 16.8, and platelet 134. CXR and RUA were negative. Heparin was started for clinical findings highly suggestive of deep venous thrombosis, although LE Doppler later returned negative. An insulin drip was started and the patient went to the ICU. Within 1 hour of admission, the patient became unresponsive and pulseless. His left leg abruptly turned purple and dusky up to the left hip with new skin erosions. Despite immediate ACLS, the patient could not be resuscitated. His ABG at the time showed 6.78/32/159/5/97%. Blood cultures grew group A beta-hemolytic streptococci; septicemia and gangrene were confirmed by autopsy.
DISCUSSION: Necrotizing fasciitis (NF) is a grave condition with mortality as high as 76%, mainly due to failure to diagnose early. Risk factors include immunocompromised states, age > 50, atherosclerosis, obesity, surgery, intravenous drug use, and trauma. Traditionally, NF presents with extensive tissue

destruction, septicemia, and multiorgan failure within 24 hours. Subacute NF runs a more indolent course, with pain for weeks to months, followed by sudden deterioration. With either, patients can appear systemically well initially, especially if immunocompromised. Clinical clues include pain disproportionate to exam, pain extending past margin of infection, anesthesia, tense edema, bulla formation, or grayish wound drainage. Serum WBC >14, Na <135, Cl <95, BUN >15, and gas on X-ray have been shown to be highly correlated with presence of NF. CT scan and ultrasonography may show fascial thickening or distortion, fluid, or gas collections. MRI may be less specific and overestimate tissue involvement. Treatment consists of early and aggressive surgical debridement, antibiotic therapy, and hemodynamic support. High clinical suspicion is sufficient for urgent surgical evaluation without delay for imaging. Hyperbaric oxygen and IVIG remain controversial and have not been shown to reduce mortality. Clindamycin is preferred because it suppresses toxin production and facilitates phagocytosis. Antibiotics and pain medications should never be the sole treatment with suspicion of NF, as transient improvement may occur, ultimately delaying surgical intervention. Primary care physicians must always carry a high index of suspicion for NF and recognize the need for early diagnosis and immediate aggressive surgical intervention in necrotizing fasciitis.

MORE THAN SKIN DEEP: A CASE OF STEVENS-JOHNSON SYNDROME. M.T. Rahim[1]; H. Jasti[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 151910)*

LEARNING OBJECTIVES: 1. Identify the presentation of Stevens-Johnson syndrome (SJS). 2. Recognize the association of co-trimoxazole and SJS. 3. Initiate early management of SJS.
CASE: An 85-year-old, African-American female with non-insulin dependant diabetes mellitus and hypertension presented with a one-day history of a maculopapular rash involving her hands and trunk. She described the rash as burning and felt that her skin was "deep frying". She endorsed associated blistering on her arms, and severe pain in her oral mucosa, which restricted her oral intake. She denied any fever or chills but did have some dry cough and malaise. Medications included co-trimoxazole (recently prescribed for treatment of a urinary tract infection). On exam, she was afebrile but tachycardiac with a pulse of 108 and BP of 118/67. Skin exam revealed purpuric, target-type macules on her arms and trunk. Some of the lesions had developed into vesicles and bullae. Nikolsky's sign was positive. Conjunctival erythema and oral ulcerations were present as well. Based on the history and physical exam, a diagnosis of SJS was established. The co-trimoxazole was discountinued. She was aggressively hydrated; the necrotic epidermis was surgically debrided; and silver sulfadiazine was applied to the surfaces. The oral lesions were managed by mouthwashes and topical anesthetics. Both eyes were lubricated with artificial tears. The rash improved in two days, her renal function recovered, and she was able to tolerate oral intake.
DISCUSSION: SJS is a hypersensitivity reaction commonly caused by drugs, especially anticonvulsants, sulfonamides, penicillins, and tetracyclines. SJS is characterized by mucosal erosions and epidermal detachment affecting less than 10% of the body surface area. Epidermal detachment affecting more than 30% of the body surface area is classified as toxic epidermal necrolysis (TEN). Those between 10–30% involvement are labeled as overlap SJS-TEN. Incidence of SJS is 0.1–0.7 cases per 100,000 population per year. The typical presentation is a rapidly progressive rash and mucosal lesions, usually associated with recent drug use. Erosive changes are seen on the lips, mouth, conjunctivae, and anogenital area. Flat atypical target lesions or purpuric macules may be apparent on the trunk, palms, and soles. Patients with SJS require hospitalization for treatment. Those with widespread mucocutaneous involvement should be treated in an intensive care or a special burn unit. All suspected and nonessential drugs should be discontinued. Aggressive hydration, strict mucous membrane hygiene, wound care, and sterile techniques are the cornerstones of treatment. Although topical corticosteroids may be used to treat the non-eroded skin, antibiotic prophylaxis is not recommended. The role of IVIG and systemic corticosteroids is controversial, but they have been used in severe cases of SJS. Patients with limited disease usually recover with few sequelae; however mortality approaches 10% in those with severe disease. SJS has a significant rate of morbidity and mortality that can be minimized if it is recognized early and appropriate management is instituted.

MOVING BEYOND PARKINSONS DISEASE. N.A. Yamusah[1]; D. Tesfaye[2]; J.A. Pino[1]. [1]New Hanover Regional Medical Center, wilmington, NC; [2]New Hanover Regional Medical Center/Wilmington Health Associates, Wilmington, NC. *(Tracking ID # 156388)*

LEARNING OBJECTIVES: 1. Recognize that Progressive Supranuclear Palsy (PSP) in its early stage can present similar to Parkinsons Disease. 2. Recognize the distinguishing features of Parkinsons Disease and PSP.
CASE: The patient is a 50 y.o. caucasian male who presented with short term memory deficit, frequent falls and weakness. He reported a gradual decline in strength over the past three months that suddenly worsened three days prior to presentation. He has a history of COPD, bipolar disorder and was recently diagnosed with Parkinsons Disease. With the recent diagnosis of Parkinsons Disease, he was begun on carbidopa-levodopa. On presentation to New Hanover Regional Medical Center, he was noted to have bilaterally symmetric upper and lower extremity weakness and an unsteady gait. The remainder of the exam was unremarkable. A chest X-ray revealed a left lower lobe infiltrate concerning for pneumonia. A CT of the brain was unremarkable. He was started on Ceftriaxone. A series of tests were performed including a lumbar puncture which was unremarkable. Upon the recommendation of the consulting psychiatrist, carbidopa-levodopa was discontinued. The patient demonstrated no improvement nor decompensation. He was eventually discharged home with daily physical therapy and scheduled to follow-up in the outpatient neurology clinic. Two weeks later in the Neurology Clinic, findings on exam were remarkable for gaze palsy in the vertical and horizontal axis, gait disturbance and cogwheel rigidity in upper and lower extremities. With this constellation of findings, he was diagnosed with PSP.
DISCUSSION: Discussion: In its earliest phase, Parkinsons Disease may resemble PSP, also known as Steele-Richardson-Olszewski syndrome. However, one major distinction between the two disorders is that patients with PSP have a vertical gaze palsy. The mean age of presentation is 65 but may range between 50–77 years old. Features of this syndrome include: supranuclear ophthalmoplegia, akinesia (presenting as frequent falls), rigidity, nuchal dystonia, pseudobulbar palsy (dysarthria, dysphagia), and cognitive abnormalities leading to dementia.[1] The etiology of this disorder is uncertain; however, there are several theories being investigated. Some scientists speculate that certain chemicals in food sources, air or water may lead to the symptoms of this disease. This theory has been supported by epidemiologic research on patients living in Guam. Other scientists have postulated that this disease is a result of a previous viral infection that becomes activated later in life. The third theory under investigation is one of a random series of genetic mutations which reproduce the signs and symptoms of this disease. Most recently, a theory of free radical formation resulting in neuronal injury has been advanced to explain the deficits observed in PSP. Most patients do not die from PSP, but instead succumb to complications related to this disease such as dysphagia leading to aspiration pneumonia.[2] Treatment is disappointing. There is no cure for PSP; however, certain medications such as levodopa in combination with anticholinergic drugs have been shown to improve movement deficits. Tricyclic antidepressants have also been used to stabilize patients with emotional instability.

MRSA ON MY MIND: RECOGNIZING COMMUNITY-ACQUIRED METHICILLIN RESISTANT STAPHYLOCOCCAL AUREUS. L.K. Snydman[1]. [1]Tufts-New England Medical Center, Boston, MA. *(Tracking ID # 156899)*

LEARNING OBJECTIVES: 1. Understand the differences between community-acquired and nosocomial MRSA 2. Recognize the importance of diagnosing and treating CA-MRSA infections early.
CASE: A 44-year-old healthy female dancer presented with pain and swelling in her lower abdomen. She noticed a 1 cm nodule in her right groin four days prior to admission, which grew to the size of a grapefruit, was extremely painful and radiated to her back. She had a one-day history of fever, chills and nausea. Vital signs revealed fever 38.9 C, pulse 90, BP 105/57 and labs showed WBC 14.7 with 11% bands. The patient was started on ampicillin/sulbactam; clindamycin was added the following day. On hospital day 3, physical exam revealed a 4 cm area of fluctuance with surrounding induration and lateral extension of erythema and warmth. Vancomycin was added. An incision and drainage (I&D) was performed and 20 cc of copious pus was expressed, along with some necrotic tissue. Methicillin resistant Staphylococcal aureus (MRSA) grew which was sensitive to gentamicin, quinolones, rifampin, trimethoprim/sulfamethoxazole and vancomycin. After the I&D, the patient remained afebrile, WBC normalized and she was discharged home on day 6 to complete a two week course of IV vancomycin.
DISCUSSION: Community-acquired MRSA (CA-MRSA) was first reported in 1982 and its incidence is increasing in the United States and worldwide. CA-MRSA is distinctly different from nosocomial MRSA, with different epidemiology, clinical settings, molecular genetics and treatment options. There is no universally accepted definition of CA-MRSA. At risk groups for developing CA-MRSA include children, athletes, prisoners, soldiers, intravenous drug users, men who have sex with men and certain ethnic populations. The populations who develop nosocomial MRSA include residents in long-term care facilities, patients with diabetes mellitus, patients undergoing hemodialysis/peritoneal dialysis, intensive care unit admission, prolonged hospitalization and patients with indwelling intravascular catheters. CA-MRSA strains express resistance to ß-lactams alone whereas nosocomial MRSA strains express multidrug-resistance. Most CA-MRSA strains have a smaller staphylococcal cassette cartridge (SCC) than nosocomial MRSA strains. The SCC holds the Methacillin resistance gene (mecA), which alters the binding of ß-lactams to penicillin binding protein 2a. The larger SCC types are able to hold more multiple resistance elements, which may explain why nosocomial MRSA infections are multi-drug resistant. CA-MRSA strains frequently have associated exotoxins, the most common being the Panton-Valentine leukocidin (PVL) toxin. PVL toxin is lethal to neutrophils and is associated with skin and soft tissue infections and severe necrotizing pneumonia. The PVL toxin supports what we see clinically–patients presenting with CA-MRSA have severe skin and soft tissue infections (cellulitis, skin abscesses, furuncles) and post influenza necrotizing pneumonia. In the outpatient setting, it is appropriate to empirically treat patients with trimethoprim/sulfamethoxazole, minocycline, doxycycline or clindamycin, as long as they do not have serious comorbidities. Before prescribing clindamycin, it is important for the lab to evaluate for inducible clinamycin resistance. Our understanding of CA-MRSA is evolving and it is important for Primary-Care physicians to put CA-MRSA on the differential when a patient presents with a skin or soft tissue infection.

MRSA: A PAIN IN THE BUTT. M. Kim[1]; G.C. Lamb[1]; K. Pfeifer[1]. [1]Medical College of Wisconsin, Milwaukee, WI. *(Tracking ID # 154060)*

LEARNING OBJECTIVES: 1. Recognize the clinical presentation of acute prostatitis. 2. Describe the appropriate evaluation and treatment of MRSA prostatitis.

CASE: A 34 year-old gentleman with a history of poorly controlled type 1 diabetes mellitus presented to the emergency department with 7 days of painful urination, urinary hesitancy and incomplete bladder emptying. He had no urethral discharge or changes in his urine color but did note recent chills and night sweats. He had no history of urologic procedures or similar symptoms and denied recent sexual activity, homosexual contacts, sexually transmitted diseases, or IV drug use. Afebrile on presentation, his exam was significant for suprapubic tenderness without rebound and a tender, non-boggy, enlarged prostate without nodules. He was circumcised and the external genitalia appeared normal. His WBC count was elevated at 12,280 cells/cu mm, and a urinalysis showed 10–25 WBC/hpf but no bacteria, nitrite, or leukocyte esterase. Urine culture demonstrated 12,000 colonies of MRSA with a multi-drug resistance pattern typical of nosocomial strains. Based on the drug susceptibilities he was given oral sulfamethoxazole/trimethoprim (SMTX/TMP) and intravenous vancomycin until discharge with slow symptomatic improvement. Blood cultures were consistently negative and PSA was 1 ng/mL. The patient was subsequently discharged with 4 weeks of oral SMTX/TMP. Three weeks later, he returned with peri-rectal and scrotal pain, nighttime urinary frequency and a weak urinary stream. He was afebrile with a mildly elevated WBC count of 11,970 cells/cu mm and had negative urine and blood cultures. However, abdominal CT scan revealed a 3.4 cm × 2.5 cm abscess between his prostate and rectum that required transrectal drainage. Culture of the prostatic abscess revealed MRSA of the same antibiotic sensitivities detected in the previous urine culture. The patient was discharged on 4 weeks of intravenous vancomycin and oral SMTX/TMP, with a repeat CT scheduled at the end of his antibiotic course.
DISCUSSION: Acute prostatitis is a diagnosis that must be considered whenever an otherwise healthy male presents with a urinary tract infection (UTI). It occurs more often in the young and middle-aged, accounting for two million visits annually in the U.S. Symptoms include dysuria, urinary obstructive symptoms, pain, fever and chills. Patients should be asked about recent bladder instrumentation, trauma, and homosexual contacts. The usual organisms are Gram negative bacteria, such as E. coli and Klebsiella. Prostatic abscess formation is most commonly seen in patients who are diabetic, immunocompromised, on dialysis, or have indwelling catheters. MRSA is a rare cause of acute bacterial prostatitis and prostatic abscesses. A review published in 1988 showed that S. aureus appeared in only 6 out of 99 cases of prostatic abscesses. There are no specific guidelines for the treatment of MRSA prostatic abscesses, but case reports show that single therapy fails despite lab reported sensitivities. Patients respond to double coverage with vancomycin and an additional antibiotic. This case demonstrates the importance of considering the diagnoses of prostatitis and prostatic abscesses in men with UTI. Identification of MRSA in suspected prostatitis should lead to early imaging and efforts to aggressively eradicate the organism.

MY ITCHY LUNGS. E. Howe[1]; J. Wiese[1]. [1]Tulane University, New Orleans, LA. *(Tracking ID # 156965)*

LEARNING OBJECTIVES: 1. Recognize the clinical presentation and radiological findings in a patient with varicella-zoster interstitial pneumonia. 2. Identify the most common complication of varicella-zoster pneumonia.
CASE: A 38 year-old woman presented with a four days of fever, generalized malaise and a number of pruritic papules on her face, chest, and back. She noted associated dyspnea and a cough productive of green sputum. Her vital signs were normal, and her oxygen saturation was 99%. Multiple small ulcers, pustules, and scabs were present on her face, back and chest. The remaining examination was normal. A chest X-ray revealed multiple 1–2 cm, homogenous nodules in all lung fields. A chest CT revealed multiple opacities in the lungs in addition to hilar and mediastinal lymphadenopathy. Bacterial and fungal blood and sputum cultures were negative. A PPD, serial AFB's samples, and a HIV test were all negative. Based upon the skin and radiographic findings, a presumptive diagnosis of varicella was established. She was treated with acyclovir for 5 days. The final chest X-ray prior to discharge showed partial resolution of the nodules.
DISCUSSION: The varicella-zoster virus is a common infection in children. When it affects adults, the complications can be severe, including secondary bacterial infections, Bell's Palsy, Ramsay Hunt Syndrome, ischemic strokes, hepatitis, meningitis, and encephalitis. Our patient illustrates a common complication of adult-acquired varicella: interstitial pneumonia. Radiographic abnormalities include poorly-defined nodules throughout all lung fields which, after healing, coalesce to produce irregular calcified nodules. Other acute CXR findings may include pleural effusions and hilar lymphadenopathy. The most common complication of varicella pneumonia is ARDS. Thus, any adult patient presenting with the typical skin findings of varicella in addition to dyspnea, cough, or chest pain should be evaluated for varicella pneumonia and possible ARDS. Importantly, the nodules seen on imaging are unlikely to resolve completely despite appropriate treatment.

MYOSITIS OSSIFICANS. R.D. Callahan[1]; A. Lashkari[1]; B. Singh[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 153465)*

LEARNING OBJECTIVES: Diagnose and treat myositis ossificans
CASE: A 29-year-old male with a history of alcohol abuse presented to the emergency department with a three-week history of progressive inability to walk due to left anterior thigh pain and swelling. The patient has a long history of alcohol use with episodes of impaired memory. He denied trauma, recent strenuous activity, fevers, weight loss, night sweats, and use of any medications or illicit drugs. His physical exam was remarkable for a 10 cm area of swelling, induration, and erythema of the anterior thigh and he was unable to to bear weight on this leg secondary to pain. Left thigh X-rays performed two weeks prior to admission were negative. However, his admission left lower extremity plain film revealed a 5 cm, calcified, well-circumscribed mass. CT scan demonstrated a 5 cm, round mass with a calcified periphery consistent with heterotopic bone. He was admitted for pain control with narcotics. Physical therapy was initiated and he was discharged to an acute rehabilitation facility.
DISCUSSION: Myositis ossificans refers to benign, extraskeletal bone formation within soft tissue, usually muscle. It most often occurs in males in the second and third decades of life. In 70% of cases, a history of trauma can be elicited, often related to sports injuries. This history may be difficult to obtain, as with our patient, who did not recall trauma perhaps secondary to frequent alcohol intoxication. Eighty percent of cases involve the quadriceps or brachialis muscles. Myositis ossificans occurs in 10% of all quadriceps contusions. Trauma to the muscle triggers proliferative repair with activation of the perimysial tissue-inducible osteoprogenitor cells. Risk factors for developing myositis ossificans include a severe or repeated area of contusion with delays in treatment, use of non-steroid anti-inflammatory agents, application of heat, and presence of a joint effusion. The presentation is frequently similar to that in our patient, with pain, swelling, and decreased range of motion of the involved muscle group. Induration and enlargement of the mass occurs with time. The diagnosis is confirmed by the characteristic radiologic finding of "zoning," which describes a distinct peripheral margin of mature ossification and a radiolucent center of immature osteoid and primitive mesenchymal tissue. These findings help to distinguish this benign disorder from osteosarcoma in which the central bone is mature. Radiologic abnormalities may not be apparent for two to four weeks after the onset of symptoms. Treatment includes pain control and physical therapy with weight bearing as tolerated and passive range of motion exercises once the patient is pain free at rest. Complete resolution of symptoms may require up to two years. Surgical excision may be warranted in rare cases, where there is persistent pain, limitation of joint movement, or neurological involvement. However, surgery must be delayed until the bone mass matures, which occurs after a minimum of six months.

MYSTIFYING MOLD: AN ATYPICAL ACCOUNT OF DISSEMINATED ASPERGILLOSIS. M. Kuo[1]; J. Yeh[1]. [1]St. Mary Medical Center, Long Beach, CA. *(Tracking ID # 152092)*

LEARNING OBJECTIVES: 1. Recognize the clinical manifestations of and risk factors for disseminated aspergillosis in immunocompetent patients. 2. Review treatment of disseminated aspergillosis.
CASE: 50 year old Hispanic female with no medical history presented to the ED with fever, headache, abdominal pain, and nausea and vomiting for 4 days. She denied tobacco or alcohol use and any recent travel or pets. Vitals included temperature 103.4°F, pulse 115 bpm, BP of 80/40, RR 16, and oxygen saturation 100%. She was jaundiced with scleral icterus and RUQ pain. Laboratory studies showed her to be coagulopathic with liver and renal failure. Blood and urine cultures, initial CXR, CT brain, LP, and CT abdomen and pelvis were all negative. Imipenem, vancomycin, and stress-dose steroids were also started to treat presumed sepsis. An extensive workup ruled out HIV, lupus, hepatitis, pregnancy, antiphospholipid syndrome, leptospirosis, and brucellosis. Bone marrow biopsy was unremarkable. A repeat CT abdomen and pelvis on HD #8 showed hepatosplenomegaly and pancreatitis. Caspofungin was added as she continued to do poorly and required pressors for hypotension. On HD #13, sedation was held, and patient did not have brainstem reflexes. CT brain showed infarcts scattered throughout bilaterally. EEG confirmed brain death, and on HD#14, she expired. Autopsy revealed disseminated aspergillosis in the bilateral lungs, kidneys, heart, and brain.
DISCUSSION: Aspergillus species are among the most common environmental molds, found in decaying vegetation (compost heaps), on insulating materials, in air conditioning or heating vents, in operating pavilions and patient rooms, or in airborne dust. Invasive pulmonary aspergillosis usually extends rapidly, ultimately causing fatal respiratory failure unless treated promptly and aggressively. Extrapulmonary disseminated aspergillosis may involve the liver, kidneys, brain, or other tissues and is usually fatal. Invasive infections are usually acquired in susceptible patients by inhalation of conidia into the respiratory tract, or less commonly, by direct invasion at sites of damaged skin. Major risk factors include neutropenia, long-term high-dose corticosteroid therapy, organ transplantation, hereditary disorders of neutrophil function, or AIDS. The major manifestation of disseminated aspergillosis is fever unresponsive to broad spectrum antibiotics and often to amphotericin B. Other common manifestations include signs of sepsis and infection of abdominal organs. Diagnosis is often difficult. Because it is so ubiquitous, isolation of Aspergillus from respiratory secretions may be misleading as it can represent colonization. The primary means of detecting invasive infection is microscopic examination of the tissue. When possible, presence of Aspergillus should be confirmed by culture. Serum galactomannan, a major constituent of Aspergillus cell walls, is an ELISA assay with 81% sensitivity and 89% specificity, and may be helpful in diagnosis. In our patient, the diagnosis was elusive because she had no known immunosuppression, a relative lack of pulmonary symptoms, and an unrevealing bone marrow biopsy. Treatment of disseminated aspergillus infection involves reversal of the underlying predisposing condition, such as immune suppression; medical therapy with amphotericin B, voriconazole, and/or caspofungin; and surgery to debride necrotic tissue and remove infected tissue.

NECROTIZING FASCIITIS. S. Adatya[1]; P. Warrier[1]. [1]University of Connecticut, Hartford, CT. *(Tracking ID # 154108)*

LEARNING OBJECTIVES: 1) Diagnosis of necrotizing fasciitis 2) Differentiating necrotizing fasciitis from cellultitis 3) Treatment of necrotizing fasciitis.

CASE: A 33 y/o Asian male with no significant past medical history presented his PCP with a five day history of right thigh pain. The pain started one day after moving heavy furniture and progressed over the next couple of days to where he began to experience right leg weakness. He denied any direct trauma, punture wounds or bite marks. On examination he had right anterior thigh swelling, mild tenderness to palpation, no erythema, no ulceration, no bullae, no crepitations and no skin breakage. He was diagnosed with a muscle strain and sent him home on a Non Steroidal Anti-Inflammatory Drug. Due to increasing pain, fevers, rigors, and weakness, the patient presented to the ER two days later. Detailed history revealed that his daughter had been diagnosed with streptococcal pharyngitis one week prior to the onset of his pain. Physical examination revealed right thigh-erythema, bullae filled with clear fluid, extreme tenderness on palpation, no crepitations, no gangrene. A CT scan revealed extensive right thigh fasciitis and myositis. Blood cultures grew Group A Streptococcus and he was treated with intravenous penicillin, clindamycin and extensive surgical debridement.
DISCUSSION: Necrotizing fasciitis is a deep seated infection of the subcutaneous tissue characterized clinically by destruction of tissue, systemic signs of organ failure and a high mortality rate. It is classified into two types: Type 1 is a mixed infection caused by anaerobic and aerobic bacteria most commonly after surgical procedures; Type 2 is associated with group A streptococcus (GAS). Predisposing factors in GAS infections include penetrating injuries, blunt trauma, muscle strain, varicella, child birth, and surgical procedures. A port of entry is observed in nearly 60% of patients. Necrotizing fasciitis, in its initial stages is very difficult to differentiate from cellulites. Excruciating pain without any cutaneous findings may be the only clue of infection. If necrotizing fasciitis is not considered and NSAIDS are prescribed, the signs of inflammation may be masked leading to a delay in diagnosis. A detailed history is very important as demonstrated in this case. The patient was exposed to streptococcus pyogenes and during his strenuous activity, he probably suffered muscle injury predisposing him to infection via hematogenous spread. Left untreated, in 24–48 hours bullae filled with clear fluid appear which rapidly take on a violaceous color, and by this time extensive tissue destruction is present. Cellulitis is amenable to antimicrobial therapy whereas necrotizing fasciitis requires both intravenous antimicrobials and surgical debridement. Treatment of infection with beta lactamase antibiotics is effective in most group A streptococcal infections, however in necrotizing fasciitis penicillin treatment alone is associated with high morbidity and mortality. A plausible mechanism for this is loss of penicillin binding proteins during the stationary growth phase. Clindamycin is not affected by inoculum size or stage of growth. It suppresses toxin formation by preventing ribosomal protein synthesis. By decreasing production of the M protein it also promotes phagocytosis, therefore this should be used in conjunction with Penicillin as the mainstay of treatment.

NEPHROGENIC SYSTEMIC FIBROSIS: AN EMERGING DISEASE IN PATIENTS WITH RENAL FAILURE. S. Domsky[1]; B. Telivala[1]; J. Miller[1]. [1]Temple University, Philadelphia, PA. *(Tracking ID # 154339)*

LEARNING OBJECTIVES: 1. Recognize nephrogenic systemic fibrosis (NSF) as an emerging disease affecting those with renal failure 2. Distinguish NSF from diseases with similar presentations.
CASE: 68 year old caucasian male with a history of dialysis, heart transplantation, diabetes, and peripheral vascular disease (PVD) presented with 3 weeks of progressive leg and hand skin tightness, leg pain and weakness which severely limited ambulation. He denied recent fever, change in appetite, dysphagia, Raynaud's phenomenon, or increased edema. He has no family history of rheumatologic disease. Physical exam was remarkable for bronzed, thickened, indurated skin bilaterally over the lower extremities to mid-thigh, elbows, hands, and wrists. He had mild contractures and limited range of motion of feet, knees, elbows, and wrists. Two toes appeared cyanotic, otherwise normal capillary refill. Posterior tibial pulses were present by doppler, and there was mild-moderate pitting edema of the lower extremities to the knee. Yellow scleral plaques were present. Laboratory studies were significant for normal serum rheumatologic markers, a sedimentation rate of 66, and slightly elevated anticardiolipin IgA with normal anticardiolipin IgM and IgG. Vascular studies revealed unchanged moderate PVD. A biopsy on hospital day five showed vasculitis, and was negative for calcium, amyloid, and eosinophils. He was started on steroids, and along with aggressive physical therapy, initially had slight softening of the skin. A repeat punch biopsy of involved skin showed fibroblastic proliferation within the dermis without an inflammatory component, and the diagnosis of nephrogenic systemic fibrosis was made. He was started on thalidomide, but his debilitation progressed. With continued incapacitation and multiple bouts of infection, he passed away 3 months after presentation.
DISCUSSION: NSF, also known as nephrogenic fibrosing dermopathy (NFD), was first seen in 1997, and reported in 2000. There are now approximately 175 cases in the national registry, though numerous more cases are thought to exist. NSF presents over weeks to months with severe skin tightening and plaques resembling scleroderma, often resulting in debilitating contractures. Yellow scleral plaques can occur, and the autopsies of two patients with this disease suggests systemic involvement. Although NSF occurs only in patients with severe renal disease, and often occurs in transplant recipients and hypercoagulable states, the exact etiology of this disease is unknown. Differential diagnosis includes scleromyxedema, systemic sclerosis, morphea, calcific uremic uropathy, scleroderma diabeticorum, and eosinophilic fasciitis. NSF is distinguished by the distribution of skin changes, along with unique histologic findings of diffuse fibroblastic proliferation in the dermis with variable mucin. There is also the absence of paraproteinemia and serum rheumatologic markers. The most effective treatment is reversal of acute renal failure or kidney transplantation. There have been some anecdotal reports of success with either extracorporeal photopharesis, plasmaphoresis, steroids, or thalidomide. NSF is a newly characterized disease with a broad differential, making awareness of this disease essential to a prompt diagnosis, further understanding, and possible treatment.

NEUROLEPTIC MALIGNANT SYNDROME: NOT JUST AN INPATIENT DIFFERENTIAL DIAGNOSIS. H. Benjamin[1]; P. Kurt[1]. [1]Medical College of Wisconsin, Milwaukee, WI. *(Tracking ID # 153765)*

LEARNING OBJECTIVES: 1. Consider neuroleptic malignant syndrome (NMS) as a cause of fever in ambulatory patients without other signs of infection and with a history of antipsychotic medication use. 2. Describe diagnosis and treatment options for neuroleptic malignant syndrome.
CASE: A 31 year-old gentleman with schizophrenia, impulse control disorder, and chronic right arm tremor secondary to lithium toxicity presented with ten days of fever, slurred speech, increased somnolence, incontinence, and worsening right upper extremity tremor. A week earlier, the patient was seen in urgent care, and due to a lack of leukocytosis or an identifiable source of infection, the patient was discharged on acetaminophen. Despite this therapy, the patient's symptoms persisted. His fevers began to increase, reaching a maximum of 101.9 degrees F. A careful review of the patient's medical records revealed that over the past two months his lithium and quetiapine were increased to treat rising agitation. Upon presentation to the hospital, the patient was diaphoretic with markedly slurred speech, dry mucosal membranes, prominent right upper extremity tremor, and clonus in the bilateral lower extremities. Initial laboratory studies were normal except for a white blood cell count of 4580/cu mm with 14 % bands. CSF analysis was unremarkable, and head CT revealed no acute intracranial pathology but volume loss greater than expected for the patient's age. Repeat infectious work up and hepatic function panel were normal, and a CK level was found to be 3073 U/L. NMS was diagnosed based on these data, and his quetiapine and lithium were held while amantadine therapy was initiated. With these interventions, the patient's CK, temperature, and mental status normalized, and his right arm tremor returned to baseline. The patient was observed for a few days thereafter and when at baseline, was discharged back to his group home.
DISCUSSION: NMS is a life-threatening syndrome characterized by mental status changes, muscular rigidity, fever, and dysautonomia. It requires immediate treatment as mortality without appropriate therapy is high. Although the diagnosis is mainly based upon the clinical presentation, laboratory support is provided by CK levels greater than 1000 U/L, leukocytosis, altered renal function and mild elevations in liver transaminases. NMS is associated with the use of antipsychotic agents (typical more frequently than atypical) and antiemetics that act on the central nervous system (i.e. metoclopramide, promethazine). Treatment begins with discontinuation of antipsychotics, supportive care and critical care monitoring. Specific therapeutic options include dantrolene, bromocriptine, amantadine, and benzodiazepines. Our patient had several of the characteristics for NMS, but secondary to a focus on the infectious sources of fever typical for ambulatory patients, this was overlooked on initial assessment. He also exhibited a non-classic neurological presentation on atypical antipsychotics. However, research has demonstrated that the degree of dopamine-2 receptor antagonism does not predictably correlate with the incidence of NMS; rather, features of NMS highly correlate with increasing extrapyrimidal symptoms as in our patient. This case illustrates the necessity of maintaining a high degree of suspicion for NMS, even in patients on atypical antipsychotics presenting in the ambulatory setting.

NEUROPATHY AFTER BARIATRIC SURGERY. P. Kandiah[1]; K. Pfeifer[1]; W. Peltier[1]. [1]Medical College of Wisconsin, Milwaukee, WI. *(Tracking ID # 153456)*

LEARNING OBJECTIVES: 1. Describe the common neurological complications of bariatric surgery. 2. Describe the potential role of vitamin B6 and copper deficiency as a contributor to neuropathy in bariatric surgery.
CASE: A 38 year-old woman six months post uncomplicated Roux-en-Y gastric bypass presented with bilateral lower extremity pain and weakness for 1 month. She described constant, bilateral shooting pains radiating from the knee to the dorsal and plantar aspects of feet, worse at night and with ambulation. She described tingling in her fingertips and progressive arm and leg weakness. She was compliant with her post-surgical regimen of a multivitamin, monthly intramuscular vitamin B12 and potassium, and had lost 125 pounds in six months. On physical examination, she appeared dehydrated with normal vital signs. Her neurological exam revealed bilateral, diffuse muscle tenderness, proximal muscle weakness, and hyporeflexia. She also had diminished perception to light touch, pinprick and temperature in her fingers and below both knees. She had normal coordination with absent vibration and proprioception in the lower extremities. Laboratory investigations revealed a microcytic, hypochromic anemia. WBC, creatine kinase, liver, thyroid and kidney function were normal. Iron, vitamin B12, folate, albumin, carnitine, selenium, zinc and ferritin levels were within normal limits. The vitamin B6 level and thiamine level were low at 1.3 ug/L and 14.5 ug/L respectively. The copper level was low at 62 mcg/dl. Nerve conduction studies and electromyelography revealed low amplitude sensory responses, distal neuropathic and proximal myopathic changes. Muscle biopsy confirmed mild neuropathic and myopathic changes without inflammation. The patient was discharged on her previous medications with additional vitamin supplements and nutritional counseling. Six months later, her symptoms improved, but she continued to have residual sensory deficits.

DISCUSSION: Acute Post-Gastric Reduction Surgery (APGARS) neuropathy is a term recently introduced to describe polyneuropathy after gastric bypass surgery. It is a multisystem disorder characterized by protracted postoperative hyporeflexia and muscular weakness that is often associated with severe vomiting. A retrospective study demonstrated that 71 of 435 bariatric surgery patients developed neuropathies, most commonly sensory-predominant polyneuropathy, mononeuropathy and radiculoplexus neuropathy. In this study, vitamin B12, folate, and thiamine deficiencies played the biggest role in the development of neuropathy. In another study of 168,010 cases of bariatric surgery (mostly gastric bypass), 99 patients had APGARS neuropathy, suggesting an APGARS neuropathy incidence of 5.9 cases per 10,000 operations. 40% had vitamin B12 and/or thiamine deficiency, and about half of these cases resolved with supplementation. 60% did not have vitamin deficiencies. Two case reports have described myelopathy years after gastrointestinal surgery due to acquired copper deficiency. This patient's nutritional studies demonstrated vitamin B6, thiamine, and copper deficiency. Copper and vitamin B6 deficiency after bariatric surgery has not been evaluated or previously been associated with sensorimotor neuropathy. Measurement and/or supplementation of copper and vitamin B6 may be necessary in bariatric surgery patients and should be studied as other possible causes of APGARS neuropathy.

NEW PILL, NEW PROBLEM: TEGASEROD INDUCED ISCHEMIC COLITIS. K. Nashar[1]; J. Rana[1]; S. Tsai[1]; G. Gleeson[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 156621)*

LEARNING OBJECTIVES: 1. To list Ischemic Colitis as a possible adverse effect of using tegaserod. 2. To recall the mechanism of action and indications of tegaserod. 3. To identify the medications known to be implicated in Ischemic Colitis.
CASE: A 52 year old female with irritable bowel syndrome (IBS) and migraine headaches, presented with a one day history of generalized abdominal pain and blood per rectum. The pain was crampy, constant, not radiating, and associated with bright blood per rectum. Patient denied nausea or vomiting. There were no recent changes in bowel habits. Review of systems was negative for fever, chills, or weight changes, or urogynecological symptoms. The patient's medications included propranolol and on as needed basis, sumatriptan last taken 4 weeks prior. In addition, tegaserod was started 4 weeks prior to presentation for IBS related constipation. The patient denied smoking, alcohol or illicit drugs use. Vital signs were temperatue: 36.8, HR: 68 and BP 132/74. Physical exam was remarkable for abdominal tenderness at the lower quadrants with no rebound. Rectal exam revealed brown stool mixed with streaks of blood. Lab data included normal complete blood count, chemistries and coagulation profile. CT scan of abdomen showed colon wall thickening consistent with colitis. Subsequently, a colonoscopy revealed erythmatous and edematous mucosa along with scattered ulceration involving the entire colon. Biopsies of the affected areas revealed colonic ischemia. This case coincided with a warning letter issued by the manifacturer of tegaserod regarding reports of a possible association between the use of tegaserod and ischemic colitis. The history provided no clues to suggest colonic hypoperfusion. Tegaserod was discontinued. The patient was treated conservatively with intravenous fluids, bowel rest and antibiotics. The symptoms completely resolved in 3 days. A follow up colonoscopy a few weeks later showed resolution of the colitis.
DISCUSSION: Tegasarod is a partial agonist of the serotonin 5-HT4 receptor. It is indicated for short term treatment of women with constipation-predominant (IBS) and chronic constipation in both men and women. Its long-term safety has not been established. Side effects include mild diarrhea which can be occasionally severe. However, in a post marketing evaluation, ischemic colitis was another potentially severe side effect of tegaserod. Other drugs implicated in ischemic colitis include alosetron, digitalis, cocaine, estrogen, NSAIDs, sumatriptan and danazol. Although our patient was prescribed sumatriptan, her last dose dated at least 4 week prior to presentation. The mechanism of tegaserod-induced ischemic colitis remains uncertain. This case emphasizes the importance of considering the diagnosis of ischemic colitis in patients with IBS on tegaserod when they present with new or worsening abdominal pain and bloody diarrhea.

NEWLY DIAGNOSED TETRALOGY OF FALLOT (TOF) IN A YOUNG ADULT SOMALI REFUGEE. L.W. Surbeck[1]. [1]Hennepin County Medical Center, Minneapolis, MN. *(Tracking ID # 154138)*

LEARNING OBJECTIVES: 1. Review clinical features of Tetralogy of Fallot. 2. Recognize that immigrant refugees may not have had access to primary health care and thus would not have had the usual screening for pediatric conditions commonly performed for US born individuals. These individuals may have experienced symptoms since birth, but were either never diagnosed or unable to be adequately treated. 3. Expand one's differential diagnosis to include some congenital and pediatric conditions when seeing refugees from developing countries with limited access to health care.
CASE: A.S. is an eighteen year old refugee from Somali. During her refugee assessment, she complained of life-long fatigue. She was referred to a physician who noted cyanosis, clubbing, right ventricular lift on precordial exam, single second heart sound, and a 2/6 systolic murmur along the left sternal border. Her ECG demonstrated right axis deviation and incomplete right bundle branch block. Given her exam and abnormal ECG, she was sent for echocardiogram which revealed overriding aorta, large VSD with bidirectional shunting, and pulmonary stenosis. She was diagnosed with TOF and ultimately underwent surgical correction. The procedure was complicated by third degree heart block requiring placement of a pacemaker in the post-operative period. After completing physical rehabilitation, she is now doing well and attending school in Minnesota. Her symptoms have largely resolved.
DISCUSSION: In presenting this vignette, the authors have two goals: 1. Introduce a review of the clinical presentation of tetralogy of Fallot to physicians who generally provide care to adults. 2. Generate a list of certain non-infectious conditions, usually managed by US pediatricians, which general internists seeing new immigrants from less-developed countries may encounter. Briefly, TOF is defined by four anatomical features: pulmonary artery stenosis, overriding aorta, ventricular septal defect, and concentric right ventricular hypertrophy. This constellation of cardiac structural abnormalities leads to varying degrees of right ventricular outflow tract (RVOT) obstruction and shunting. The degree of right to left shunting, and thus also the clinical presentation, depends on the severity of RVOT obstruction. TOF is rarely seen in adults, and symptoms may include dyspnea, lightheadedness, and "turning blue" with exertion. Often, relief of symptoms is found with squatting, which is thought to increase SVR, thus decreasing the right to left shunt and directing more blood across the RVOT. Surgical correction is the definitive treatment in both infants and adults. Review of the medical literature yields information regarding health screening for refugees with a primary focus on infectious disease. Indeed, all refugees are required to have a health department sponsored screening exam to look for communicable diseases and to vaccinate. However, many refugees have had much less access to primary care than US born individuals, and many childhood, non-infectious, illnesses may have been missed. HCMC is a county hospital with a large immigrant patient population. We provide primary health care to especially large numbers of Somali and Hmong patients, many of whom are refugees. We will be including in our discussion a list of other pediatric conditions which have been diagnosed in our adult refugee population, including developmental delay, large VSD, and advanced renal insufficiency due to longstanding reflux nephropathy, among many others.

NO SUNLIGHT- WHAT A PAIN!. S. Abraham[1]; A.C. Jacob[2]. [1]Mercy Catholic Medical Center, Darby, PA, Darby, PA; [2]University of Virginia, Charlottesville, VA. *(Tracking ID # 151252)*

LEARNING OBJECTIVES: 1. Recognize that Vit D deficiency is frequently under diagnosed 2. Recognize that dull aching bone pain is common in vitamin D deficiency.
CASE: A 47-year-old Black man with no significant past medical history presented to the medical clinic with complaints of joint pains. His symptoms started in 2002 with pain in his wrists, elbows and shoulders bilaterally (L > R) that had worsened over the past 6 months. He described his pain in his hands and feet as if "they were on fire". He admitted to a 15 minute morning stiffness and associated joint swelling. He denied any fatigue but admitted to a recent 20-pound weight. He denied any fevers. His only medication was naprosyn bid. He had no past rheumatologic history. Musculoskeletal examination demonstrated full range of movement. Muscle strength was 5/5 in all groups tested. There were no bony deformities. Joint assessment was significant for pain and tenderness in his bilateral wrists and first, second and third MCP joints. Laboratory assessment included normal CBC and comprehensive metabolic panels, negative hepatitis panels, normal ESR and anti CCP antibody levels and negative rheumatoid factor assays. X-rays of feet demonstrated osteoarthritic changes at the 1st MTP joints bilaterally. X-rays of the hands were unremarkable. On his follow up visit, 25-Hydroxy Vitamin D levels were seen to be very low at 8 ng/ml, while PTH levels were elevated at 85. He was started on oral vitamin D supplementation at 50,000 IU weekly and 6 weeks later reported significant resolution of his pain symptoms.
DISCUSSION: While most physicians recognize that elderly people have a high risk of vitamin D deficiency, it is less appreciated that younger adults are also at high risk. 90% of required vitamin D comes from sun exposure. Extremely few foods naturally contain or are fortified with vitamin D. Vitamin D is essential for the efficient utilization of dietary calcium. In a vitamin D deficient state, inadequate amounts of 1, 25 (OH) Vitamin D are produced to maintain intestinal calcium absorption, and as a result, the skeleton through a PTH mediated process serves as the surrogate source of calcium, resulting in osteopenia and later on, osteoporosis. The increased PTH also induces phosphaturia, which leads to hypophosphatemia, and thus the calcium phosphate product in the circulation decreases and becomes inadequate to mineralize the bone properly. However, since osteoblasts continue to deposit collagen matrix on both the endosteal and periosteal surfaces of the skeleton, on hydration this collagen matrix expands causing an outward pressure on the periosteal covering that is innervated with sensory pain fibers. This probably explains the dull aching bone pain characteristic of vitamin D deficiency. With seasonal variations in exposure to sun and the increasing use of sunscreens, depending on solar ultraviolet radiation for vitamin D stores will be insufficient and vitamin D supplementation will be needed. Adequate supplementation can be given in the form of 400 IU/d for people 51 to 70 years old and 600 IU/day for people > 71 to prevent vitamin deficiency. 50,000 IU of vitamin D orally, once a week for 8 weeks, is sufficient treatment for Vitamin D deficiency.

NONE SO BLIND AS THOSE THAT WILL NOT SEE (THE DIAGNOSIS): INFECTIVE ENDOCARDITIS PRESENTING AS MONOCULAR BLINDNESS. S.H. Orakzai[1]; R.H. Orakzai[1]; K.L. Kraemer[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 152302)*

LEARNING OBJECTIVES: 1. To recognize visual loss as a complication and presenting feature of infective endocarditis. 2. To describe the surgical indications for infective endocarditis in the setting of complications.
CASE: A 64-year-old male with bicuspid aortic valve presented with sudden onset of right monocular visual loss. Four days prior to admission, the patient

presented to a local hospital with intermittent fever and chills one week after a root canal for which he received prophylactic amoxicillin. He was started on ciprofloxacin and discharged to home where his fever subsided. On the day of admission, he developed the sudden sensation of a shade coming down over his right eye which progressed to total right monocular blindness within minutes. Examination revealed a temperature of 38.7 °C, regular heart rate and rhythm, a 3/6 systolic ejection murmur at right upper sternal border and radiating to the carotids, right monocular blindness, and a cherry red spot on fundoscopic exam of right eye. Laboratory data revealed a WBC of 14,200 (85% neutrophils) and erythrocyte sedimentation rate of 52. The patient was started empirically on IV nafcillin and gentamicin and later switched to IV penicillin G after blood cultures grew Streptococcus intermedius, a viridans streptococcus. Transesophageal echocardiogram showed a vegetation of the aortic valve and thickening of the posterior portion of the aortic annulus suspicious for abscess. The patient underwent aortic valve replacement and bovine pericardial patch closure of aortic root abscess. He was started on anticoagulation and continued on penicillin G for 4 weeks postoperatively. He had no recovery of vision in his right eye.
DISCUSSION: Embolism occurs in 15–35% of patients with infective endocarditis (IE). Emboli of vegetation fragments can occlude any blood vessel and lead to stroke, blindness, gangrenous extremities, splenic or renal infarction, pulmonary emboli, and paralysis. However, monocular blindness as a presenting feature of IE is extremely rare and therefore requires a high index of suspicion. IE should be considered as a possible etiology in all patients with signs or symptoms of systemic arterial embolization. Other causes of visual loss should be carefully ruled out. The risk of embolization is greater for left sided IE, mitral vegetations, IE due to strep bovis and staph aureus, vegetations > 10 mm, and mobile vegetations. The risk of embolism rapidly declines after institution of effective antimicrobial therapy. Thus, systemic or cerebral embolization that occurs during treatment should prompt evaulation for complications such as perivalular extension or increase in vegetation size. Surgery is indicated for patients with active IE who develop heart failure, recurrent emboli, uncontrolled infection while receiving appropriate antimicrobial therapy, perivalvular infection (e.g. intracardiac abscess or fistula), or fungal endocarditis. The two indications for surgery in this patient were risk for recurrent emboli and presence of perivalvular extension. Although there is no consensus about the number of embolic episodes that mandate surgery, valve replacement is generally advocated when a second episode of embolization occurs after institution of appropriate antimicrobial therapy. In addition, perivalvular extension beyond valve leaflets is a strong indication for surgical intervention because the prospect of cure with medical therapy diminishes substantially.

NOT A SWEET THING TO HAVE: A RARE CASE OF TRIMETHOPRIM-SULFAMETHOXAZOLE (TMP-SMX) INDUCED SWEET'S SYNDROME. S. Naidu[1]; K. Pachipala[1]. [1]Geisinger Medical Center, Danville, PA. *(Tracking ID # 151635)*

LEARNING OBJECTIVES: Recognize that trimethprim-sulfamethoxazole (TMP-SMX) is associated with Sweet's syndrome.
CASE: A 75-year-old woman with a history of coronary artery disease and a chronic leg ulcer presented to the ER with a 3-day history of fever and malaise. She had been in dermatology for her leg ulcer and had been started on TMP-SMX 1-week prior to her ER visit. In the ER she was found to be in atrial fibrillation. Two days after admission she developed an asymptomatic erythematous pustular vesicular eruption involving her back, chest and palms. Her blood work showed a mild leucocytosis, a high ESR 75 and negative blood cultures. She was empirically started on prednisone, and TMP-SMX was discontinued. A skin biopsy showed neutrophilic dermatosis, which was compatible with a clinical diagnosis of Sweet's syndrome. There was no evidence of erythema multiforme or vasculitis. Her biopsy cultures for herpes simplex, varicella zoster, bacteria, AFB, fungus were negative. Her skin lesions improved with prednisone.
DISCUSSION: Neutrophilic dermatosis is a condition characterized by skin lesions, which on histological examination show intense neutrophilic infiltration of the epidermis and dermis without evidence of vasculitis or infection. Sweet's syndrome is a prototype of the neutrophilic dermatoses and is characterized by fever, leucocytosis and erythematous plaques. It is an uncommon disease with a female predominance. It is associated with malignancies, bacterial and viral infections, drugs and autoimmune conditions. Differential diagnosis includes erythema multiforme, vasculitis, panniculitis, pyoderma, fungal infections and mycobacterial infections. Drug induced Sweet's syndrome is extremely uncommon and has been reported with G-CSF, oral contraceptives, hydralazine, minocycline and TMP-SMX. There is always a temporal correlation between drug ingestion and clinical presentation and the average time from initiation of drug therapy to the onset of clinical symptoms is 7.5 days. Lesions typically resolve with drug withdrawal or after treatment with systemic corticosteroids.

NOT ALL GIANT T-WAVE INVERSIONS REPRESENT ISCHEMIA. O. Aksoy[1]; S. Cheng[1]; S.D. Sisson[1]. [1]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 153081)*

LEARNING OBJECTIVES: 1) To become familiar with the differential of T wave inversions on the electrocardiogram (ECG). 2) To learn the differential diagnosis of deep (> 5 mm) T wave inversions on the ECG. 3) To learn the diagnosis, management, and prognosis of apical hypertrophic cardiomyopathy (AHCM).
CASE: A 46-year-old African American male with a history of hypertension and cocaine use presented to the emergency department after developing non-radiating, left-sided chest discomfort associated with shortness of breath, dizziness, and diaphoresis. He reported that his chest pain lasted up to 30 minutes, worsened with exertion, and was relieved with rest. He last used cocaine within the prior 48 hours. His initial blood pressure was 149/94 and heart rate 62. Physical examination was significant for a hyperdynamic precordium and a soft ejection murmur heard at the left sternal border. His initial ECG revealed large QRS voltages and up to 10 mm deep, broad-based T-wave inversions in leads I, II, and III as well as across leads V2 through V6. The patient subsequently was transferred to the cardiac intensive care unit for monitoring. Three sets of cardiac markers were drawn and the results were normal. However, a transthoracic echocardiogram was obtained that demonstrated significant apical hypertrophy associated with an "ace of spades" configuration of the left ventricular chamber at end-diastole, characteristic of AHCM. The patient remained asymptomatic upon arrival and his presenting chest pain was deemed likely the result of cocaine-induced ischemia. The diffuse deep T wave inversions on his ECG remained unchanged on serial exams and were deemed reflective of his underlying cardiomyopathy. The patient deferred any further investigations. He was counseled to abstain from substance abuse and discharged on aspirin and hydrochlorothiazide with close follow up.
DISCUSSION: The differential diagnosis of T-wave inversions on the ECG is broad and includes myocardial ischemia or evolving infarct, myocarditis, myocardial contusion, subacute or old pericarditis, mitral valve prolapse, digoxin effect, ventricular hypertrophy with strain, normal variant, and resumption of normal ventricular activation after a period of abnormal ventricular activation. The differential diagnosis of deep (> 5 mm) T-wave inversions is much shorter. While most commonly due to myocardial ischemia, particularly in the setting of high-grade left anterior descending coronary artery disease, deep T-wave inversions can also be caused by stress cardiomyopathy (myocardial stunning), acute intracranial pathology, and AHCM. Originally described by Japanese investigators and also known as Yamagushi cardiomyopathy, AHCM is a non-obstructive variant of hypertrophic cardiomyopathy that is rare, of unclear etiology, and characterized by impressive electrocardiographic and echocardiographic findings. Definitive diagnosis is typically made by echocardiography, although cardiac imaging modalities including magnetic resonance imaging can also be used to characterize the disease. The prevalence of AHCM is likely underestimated since the course of the disease is typically benign. While no specific management is indicated upon diagnosis, patients should be monitored for the possible development of atrial fibrillation, ventricular aneurysm formation, and myocardial dysfunction.

NOT ALL OVERDOSES ARE NARCOTIC OR INTENTIONAL. D.M. Harris[1]; A.J. Gordon[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 152328)*

LEARNING OBJECTIVES: 1.Recognize the clinical presentation of serotonin syndrome (SS) 2.State the pathophysiology of SS 3.Outline the diagnostic and therapeutic approach to SS.
CASE: A 53-year-old wheel-chair-bound female veteran with history of chronic back pain, previous suicide attempts with narcotics and chronic tremors was found suddenly unresponsive in the hospital where she was employed. A Condition C was called. Her co-workers indicated that she lost consciousness and slumped to the floor. On examination, she was unconscious, hypertensive, tachycardic, diaphoretic and tremulous with Cheyne Stokes respirations and dilated fixed pupils. She was wearing a 75mcg Fentanyl duragesic patch. Suspecting opioid toxicity, the Fentanyl patch was removed and she was administered three doses of 1 mg Narcan every 5 minutes. A few minutes after the last dose, she slowly regained consciousness. Upon awakening, she stated that she experienced multiple "black outs" per day, which had increased in severity and frequency over the previous year. Her chronic back pain was secondary to ankylosising spondylitis and a MVA. Her weakness, decreased appetite and resting lower extremity tremor began around the time of her blackouts. Her current medications included cyclobenzaprine, citalopram, carbamazepram, prochloroperazine, Vicodin and Fentanyl. Her citalopram was discontinued. After forty-eight hours, her symptoms improved and she was discharged in good condition. In our case, given the patient's presentation, lack of response to Narcan and improvement with the discontinuation of her SSRI, the most likely underlying etiology of her symptoms was SS not opioid overdose.
DISCUSSION: Serotonin syndrome is a preventable adverse drug event, which is potentially life threatening, and has an incidence of 0.4 cases per 1000 patient months. This often unrecognized condition is characterized by mental status changes, autonomic hyperactivity, and neuromuscular disorders. The combined increase in SSRI usage and the reality that over 85% of physicians are unaware of SS as a diagnosis is distressing. Serotonin is synthesized by the decarboxylation and hydroxylation of L-tryptan in presynaptic neurons. Upon stimulation of the neuron, serotonin is released into the intrasynaptic space and binds to postsynaptic 5-hydroxytryptamine (5-HT) receptors. The stimulation of the 5HT receptors affect multiple autonomic mechanisms including motor tone, gastric motility, vascular tone, thermoregulation, consciousness and nociception. Presynaptic reuptake proteins facilitate the return of serotonin into the cytoplasm. Serotonin is then stored in a vesicle or metabolized by monoamine oxidase subtype A. Any state, which increases the levels of intrasynaptic serotonin, has the potential for hyperstimulation of the 5-HT receptors. Hyperstimulation is characterized clinically by mydriasis, tachycardia, hypertension, diarrhea, increased bowel sounds, tremor, clonus, agitation, hyperreflexia and hyperthermia. In contrasted, symptoms of a narcotic overdose include miosis, bradycardia, hypotension, decreased bowel sounds, depressed mental state and hypothermia. Patients with symptoms consistent with SS should be removed from medications, which have the potential to increase serotonin levels. Given the predicable side effects of these medications, physicians must recognize the clinical presentation and management for patients with SS in order to improve patient care by decreasing morbidity and mortality.

NOT YOUR TYPICAL PNEUMONIA: A CASE OF EXOGENOUS LIPOID PNEUMONIA. A. Simmons[1]; E. Rouf[1]; C.B. Aamodt[1]. [1]University of Kansas, Kansas City, KS. *(Tracking ID # 151868)*

LEARNING OBJECTIVES: Recognize exogenous lipoid pneumonia as a cause of shortness of breath and chronic cough.
CASE: A 72-year-old white female was admitted to the hospital with a five-day history of worsening hemoptysis, cough, and dyspnea. Her past medical history was significant for dyspnea thought to be asthma for eight years. Previous pulmonary function tests (PFTs) showed obstruction and a decreased diffusion capacity thought to be caused by chronic mucous plugging. Throughout the last eight years the patient visited the emergency room multiple times for cough and dyspnea. She was treated with steroids and antibiotics without resolution. Eighteen months prior to this admission she was hospitalized for presumed viral interstitial pneumonia with diffuse interstitial infiltrates on chest CT and no clinical response to antibiotics. She started chronic oxygen therapy at that time. On the morning of admission, she had hemoptysis, intermittent fevers, leukocytosis, and hypoxia. Her exam was notable for fine crackles throughout the lungs. She was admitted to the MICU, intubated for airway protection, and placed on broad spectrum antibiotics. Chest CT showed progressive interstitial infiltrates and right paratracheal adenopathy. Bronchoscopy revealed diffuse erythema without local areas of bleeding. A broncho-alveolar lavage (BAL) was negative for bacterial, fungal, mycobacterial, and viral pathogens. Cytology was negative for malignant cells. Extensive rheumatologic work-up was negative. An open-lung biopsy showed numerous lipid-laden macrophages, scattered multinucleated foreign-body giant cells and mild interstitial chronic inflammation and fibrosis. On further questioning, the patient admitted to taking mineral oil daily for years for relief of constipation and reported a history of frequent heartburn. The diagnosis of exogenous lipoid pneumonia caused by chronic reflux of mineral oil was made from her history and the results of open lung biopsy. The patient was discharged home with instructions to stop using mineral oil. She clinically improved on outpatient follow-up at 2 weeks and 2 months.
DISCUSSION: Exogenous lipoid pneumonia is found in the elderly following recurrent mineral oil use. This is in contrast to endogenous lipoid pneumonia which is caused by the release of cholesterol and other lipids from tissue breakdown distal to an obstructed airway. The symptoms of lipoid pneumonia are chronic cough and sputum production, but are present in only half of patients with this disease. Many patients only have radiographic abnormalities. Lipoid pneumonia has a diverse radiographic appearance and can mimic many other diseases including carcinoma, acute or chronic pneumonia or a localized granuloma. PFT may reveal a diffusion defect. BAL is often non-revealing, but may show a high lipid-laden macrophage index. Sputum can also be examined for lipids. Most cases are diagnosed only after lipid-laden macrophages are seen on transbronchial biopsy, transthoracic biopsy, or open-lung biopsy. Exogenous lipoid pneumonia elicits a chronic foreign body reaction and stimulates multi-nucleated foreign-body giant cells and fibrosis surrounding lipid droplets. This diagnosis needs to be considered in any patient with chronic cough and history of mineral oil use. Clinical recognition of this disease may help eliminate unnecessary invasive testing. Lipoid pneumonia is treated by stopping use of mineral oil and treating patients symptomatically.

OBVIOUS SIGNS TO DIAGNOSE THE OTHERWISE UNAPPARENTS. Kahlon[1]; J.Wiese[2]. [1]Tulane Health Sciences Center, New Orleans, LA; [2]Tulane University, New Orleans, LA. *(Tracking ID # 156986)*

LEARNING OBJECTIVES: 1. Recognize the clinical presentation of Kaposi's sarcoma. 2. Identify the causes of lymphedema.
CASE: A 45 year-old man presented with one year of progressive bilateral lower extremity edema. He noted aching pains in his feet, discolored lesions on the skin of his legs, and occasional serosanguineous drainage from multiple sites on his legs. His vital signs, cardiac and pulmonary examinations were normal. He had a normal liver size, and no evidence of ascites. His legs were edematous with a woody, non-pitting edema extending to the knee on the right and to the inguinal region on the left. He had matted, non-tender lymphadenopathy in the left inguinal region, and multiple purple, non-tender, nodular lesions scattered throughout both legs. A biopsy of the lesions was performed that confirmed the diagnosis of Kaposi's sarcoma. Based upon this finding, an HIV test was obtained that was positive for HIV.
DISCUSSION: Edema is a common presenting complaint in the practice of internal medicine. By using the physical examination, we were able to sequentially exclude cardiac, hepatic and vascular dysfunction as the cause of the edema. Lymphedema was established as the diagnosis. Lymphadema is caused by obstruction of lymphatics, and can be caused by damage to the lymphatic system from radiation, chemotherapy, tumor invasion, surgical intervention, infection (Wuchereria bancrofti) or traumatic injury. Kaposi's Sarcoma is a common cause of lymphadema in HIV-positive patients. It is thought to be due to a sexually co-transmitted herpesvirus 8 virus (HHV-8). The typical clinical presentation is that of vascular neoplasms that may be single or multiple. While our patient was not know to have HIV, deductive clinical reasoning established lymphadema as the cause of his lower leg swelling, and the observation of purpura prompted the biopsy to diagnose both Kaposi's Sarcoma and HIV.

OCTREOTIDE FOR TREATMENT OF PROFOUND, REFRACTORY SULFONYLUREA INDUCED HYPOGLYCEMIA. T. Shin[1]; B. Viswanathan[1]; B. Arora[1]; S. Pokharel[1]; G. Luger[1]. [1]St. Francis Hospital, Evanston, IL, Evanston, IL. *(Tracking ID # 156878)*

LEARNING OBJECTIVES: 1) Recognize that hypoglycemia in glycogen depleted, sulfonylurea treated diabetics may not respond adequately to glucose and glucagon, and can cause irreversible neurological damage. 2) Recognize the role of octreotide in the treatment of refractory, profound sulfonylurea induced hypoglycemia.
CASE: A 76-year-old African American female was seen in ER after she was found unresponsive at home with blood glucose of <20 mg/dl. She is a known type 2 DM patient who was on treatment with glyburide 5 mg/day. Patient had not been eating and drinking well for few days since recent hospitalization for pneumonia 1–2 weeks ago. On her way to the ER, she had received one ampoule of D50 and 1 mg of glucagon intravenously. Her blood sugar had increased to 90 mg/dl. In the ER her mental status had improved and was responding to commands. Her vital signs were stable and physical exam was unremarkable with no focal neurological deficit. In the ER her blood glucose again dropped to 24 mg/dl in a few hours. She received more ampoules of D50 and glucagon and was started on D10.But she became unresponsive again and her blood sugar dropped further to 9 mg/dl. She received more than 400 grams of glucose and repeated glucagon injections over next 16 hours and was also started on tube feeding. However her blood glucose remained low, ranging from 22 mg/dl to 56 mg/dl and she remained unresponsive. Patient then received a single dose of octreotide 50mcg subcutaneously. Within an hour, her blood sugar increased to 125 mg/dl and then remained stable thereafter. She also showed some improvement in mental status but without full recovery. EEG done later was consistent with metabolic encephalopathy. Labs: BUN 52, Creatinine 2.5, Albumin 2.8 and HbA1C 7.1, C peptide level 18.8ng/ml (0.8–3.1), insulin level 85.9 mIU/ml (<17). CT abdomen showed normal pancreas, liver, spleen and adrenals. CT brain showed no acute changes.
DISCUSSION: Glyburide is metabolized both in the liver and kidney. In hepatic or renal failure its metabolism is impaired. As in this case, high level of insulin and C- peptide indicates that hypoglycemia is mediated by endogenous insulin secretion induced by sulfonylurea. Patient did not respond adequately to glucagon since she was glycogen depleted. Repeated administration of glucose in sulfonylurea-induced hypoglycemia can cause rebound hyperinsulinemia and resulting hypoglycemia, creating a vicious cycle. Otreotide that acts by blocking all the GI secretions, including pancreatic secretion of insulin breaks this vicious cycle and helps to maintain stable blood sugars in these patients. So administering Octreotide early in this setting may prevent irreversible neurological damage due to profound refractory hypoglycemia.

OLIGODENDROGLIOMA–AN UNUSUAL CAUSE OF NEUROGENIC STUNNED MYOCARDIUM. C. Shenoy[1]. [1]Guthrie/Robert Packer Hospital, Sayre, PA. *(Tracking ID # 156357)*

LEARNING OBJECTIVES: 1. To recognize malignancies of the brain as a cause of neurogenic stunned myocardium. 2. To identify the clinical features of a case of neurogenic stunned myocardium.
CASE: A 58-year-old female presented with severe dyspnea, hypoxemia, ST-elevations in the anterolateral leads on the EKG and an elevated cardiac troponin. In the emergency room, she had an episode of generalized tonic clonic seizures. Her past history was significant for right frontal oligodendroglioma treated with radiation and chemotherapy six years ago. She had no history of cardiac disease. The physical exam and the chest X-ray were consistent with pulmonary edema and she was started on ventilatory support for severe hypoxemia. An echocardiogram revealed severe global dysfunction of the left ventricle with an ejection fraction of 10%. A CT scan of the head revealed a cystic space-occupying lesion in the right frontal lobe extending into the anterior limb of the internal capsule measuring about 3–4 cm with a midline shift of 6 mm. She was started on diuretics and ACE-inhibitors for the pulmonary edema and valproate for the seizures. With diuresis, her respiratory insufficiency improved over the next few days and was successfully liberated from the ventilator on day 3. Given the severe cardiomyopathy, elevated troponin and EKG changes, she was taken for coronary angiography on day 4, which revealed no coronary artery disease. Left ventriculography during the angiography confirmed the severe left ventricular dysfunction. On day 7, she had a craniotomy with a biopsy and stereotactic aspiration of the intracranial cyst. The biosy confirmed recurrence of the oligodendroglioma. An echocardiogram was repeated on day 11 which showed almost complete resolution of the left ventricular systolic dysfunction with no obvious wall-motion abnormalities and an ejection fraction of 50%. The patient was discharged home on day 15 and was free of cardiac symptoms at a follow-up visit in six months.
DISCUSSION: Neurogenic stunned myocardium (NSM) is a syndrome of sudden, reversible left ventricular dysfunction with abnormal left ventricular wall motion and reduced ejection fraction, described in association with subarachnoid hemorrhage, isolated cases of subdural hematoma and Guillain-Barré syndrome. It has not been described in association with malignancies of the brain. In NSM, the levels of cardiac enzymes may be elevated and EKG changes suggestive of ischemia or infarction may be seen in the absence of significant coronary artery disease on coronary angiography. It is hypothesized that NSM is induced by sympathetic over-stimulation from a sudden increase in the intracranial pressure. The release of excessive catecholamines damages myocardial cells by inducing constriction of the myocardial microcirculation leading to diffuse myocardial ischemia, which is generally reversible and cannot be identified by coronary angiography. The diagnosis can be confirmed by observing rapid, and often complete, improvement of the cardiac function on serial echocardiography after treatment of the inciting neurologic event and lowering of the intracranial tension. Management of the congestive cardiac failure includes diuretics and vasodilators. Mechanical ventilation should be considered in patients with severe fluid overload and hypoxemia. Vasopressor agents and beta-blockers should be avoided as best as possible.

ONE AMONG PLENTY CAUSES OF ASCITES. A.C. Jacob[1]; A. Mathews[2]; T. Murphy[1]; W.N. Jarjour[1]. [1]University of Virginia, Charlottesville, VA; [2]University of Kerala, Trivandrum, Kerala. *(Tracking ID # 151379)*

LEARNING OBJECTIVES: Recognize Protein Losing enteropathy as a cause of ascites.
CASE: A 26 year old Caucasian female with SLE and WHO grade III lupus nephritis) diagnosed 4 months earlier presented to the hospital with severe nausea and diarrhea of one week's duration. Physical examination was significant for 2+pedal edema. Laboratory assessment showed normal CBC, metabolic and liver function panels. Her albumin levels were low at 2.6 gm/dl. Her C3 and C4 levels were depressed at 38 and 12 mg/dl respectively, and she had a positive anti dsDNA, consistent with active lupus. Her 24 hr urinary protein was only 40 mg/dl. On day 3 of hospitalization, she developed ascites and a paracentesis revealed a transudate with a Serum-Ascites albumin gradient of 1.7, consistent with portal hypertension. Ultrasound and MRI/MRA of the liver and subsequent liver biopsy however failed to show any thrombosis or evidence of cirrhosis. Urinalysis was negative for proteinuria. An echocardiogram did not show any pericarditis. Despite paracentesis, her ascites reaccumulated within the next 2 days. Stool studies were negative for C. difficile toxin. Serum prealbumin levels were normal. A subsequent colonoscopy and biopsy showed no evidence of Crohn's disease. With other causes of ascites exhausted, stool Alpha1antitrypsin levels were ordered, and were seen to be elevated at 125 mg/dl (n < 54 mg/dl), consistent with a diagnosis of protein losing enteropathy. She was started on high dose steroids and protein supplementation and over the next week her symptoms gradually resolved.
DISCUSSION: Protein losing enteropathies (PLE) are characterized by the loss of protein in the gastrointestinal tract resulting in hypoalbuminemia, edema and ascites. PLE can occur either idiopathically or or as part of illnesses like SLE, Crohn's disease, tuberculosis, intestinal lymphomas and infectious colitis. In working up the etiology of the patients' ascites and edema, the normal LFT's, coagulation parameters and biopsy ruled out impaired liver synthetic function as a cause of ascites. The absence of proteinuria indicated normal renal function, and normal prealbumin levels ruled out malnutrition as a cause of ascites. The normal colonoscopy and biopsy ruled out Crohn's disease. The normal echocardiogram indicated no valvular lesion or pericarditis. In such circumstances, the possibility of PLE should be considered as causative of ascites. SLE in itself can cause PLE as a result of complement activation that causes capillary hyperpermeability and protein loss. The diagnosis of a protein losing enteropathy is made by demonstrating an elevated 24 h stool α-1 antitrypsin clearance. Normal α1AT clearance levels are <54 mg/dl. α-1AT has a molecular weight similar to albumin and is excreted intact and therefore considered a good indirect measure of albumin loss through the gastrointestinal tract. The treatment of PLE includes treating the underlying disease and protein supplementation.

OPTIC NEURITIS AS THE FIRST MANIFESTATION OF SYPHILIS: A CASE REPORT AND REVIEW OF ARTICLES. M.M. Meratee[1]; P. Sonja[1]; M. Meratee[2]. [1]Kaiser Permanente Southern California, Los Angeles, CA; [2]Maryland General Hospital, Baltimore, MD. *(Tracking ID # 151716)*

LEARNING OBJECTIVES: Syphilitic involvement of the optic nerves represents a heterogeneous group of conditions. The importance of syphilis as a cause of ocular disease has been recognized for many years. The exact incidence of ocular syphilis is unknown. Patients can develop retrobulbar optic neuritis, papilitis with retinal vasculitis, perineuritis and neuroretinitis. In this review, the differential diagnosis and treatment of syphilitic optic neuropathy is described.
CASE: A 44-year-old white male noted the sudden onset of decreased vision in the left eye. His visual acuity was 20/20 in the right eye and 20/400 in the left eye. Dilated fundus examination was normal in the right eye, and in the left eye the optic nerve was found to be swollen with some splinter hemorrhages. He had elevated ESR, negative ANA, and reactive RPR. Lumbar puncture showed normal opening CSF pressure, elevated WBC with lymphocytic predominance and positive CSF VDRL titer. FTA-ABS was positive for syphilis. Serum and CSF antibodies to HIV were negative. He received high dose of intravenous aqueous penicillin for 10 days. Four weeks later his vision improved to 20/25 in the left eye. The left optic nerve was mildly pale without swelling.
DISCUSSION: Early diagnosis of syphilitic optic neuritis is important, due to potentially sight-threatening sequelae of syphilitic eye disease, which strongly suggests involvement of the central nervous system. A history of chancre or primary infection may be absent, as in our patient. The diagnosis of syphilitic optic neuritis is established using a variety of serologic and CSF assay. Differential diagnostic consideration included other processes that can cause optic neuropathies with disc swelling, such as idiopathic optic neuritis, inflammatory optic neuropathies (sarcoidosis, optic perineuritis), lyme-associated optic neuropathy, infiltrative optic neuropathy (due to lymphoma/leukemia and metastatic tumors), and primary optic nerve tumors (glioma and optic nerve sheath meningioma). Since the presentation of syphilitic optic neuropathy is quite variable, the clinical suspicion for this condition must exist in all cases of atypical inflammatory optic neuropathy and unexplained progressive optic atrophy. Treatment with intravenous penicillin produces visual recovery in many cases; however, the disease may be difficult to cure, particularly in patients who are HIV-positive or who have acquired immunodeficiency syndrome.

OPTIC NEURITIS IN A YOUNG ADULT ASSOCIATED WITH SYMPTOMATIC BRADYCARDIA. M. Delimata-Dziekan[1]; A.P. Amin[2]; A. Leung[3]; G. Salame[1]. [1]John H. Stroger Jr. Hospital of Cook County, Chicago, IL, Chicago, IL; [2]Stroger Hospital of Cook County, Chicago, IL; [3]John H Stroger Hospital, Chicago, IL. *(Tracking ID # 156676)*

LEARNING OBJECTIVES: 1. Diagnose optic neuritis as an important cause of monocular vision loss in young adults, even when a fundoscopic and slit lamp exam are normal. 2. Recognize the oculo-cardiac reflex as a mechanism for symptomatic bradycardia.
CASE: A 27 year old male with an unremarkable past medical history, presented with 7 days of right eye vision loss. The visual loss initially began with blurred vision in the right eye and rapidly progressed to complete right monocular blindness. The patient complained of dizziness and dyspnea on exertion, nausea and vomiting which had started simultaneously with the blindness. His heart rate was 32 bpm on admission and an EKG revealed sinus bradycardia. The patient was admitted to a telemetry unit for continuous heart rate monitoring. A fundoscopic and slit lamp exam and a CT scan of the brain and orbit were completely normal. His labs including a CBC, BMP, ANA screen and liver function tests were normal. Over the next two days his sinus bradycardia persisted along with the dizziness on exertion. An MRI of the brain ruled out multiple sclerosis but revealed inflammation of the optic nerve. However this optic neuritis was limited to only the intra-conal portion of the optic nerve, about 3 cm proximal to the optic disc along with fatty inflammatory changes at that site. The proximal inflammation explained the normal ophthalmic exam. Treatment was initiated with methylprednisolone and he improved. Gradually his visual defect completely resolved. With restoration of vision, his bradycardia also resolved. At discharge the patient had normal sinus rhythm with heart rate of 70 bpm.
DISCUSSION: Monocular vision loss that is abrupt in onset can have a wide differential. However, when the fundoscopic, slit lamp exam and the CT scan is normal, the differential diagnosis is quite limited. Optic neuritis usually leads to optic cup edema, visible on fundoscopy. However, edema was absent in this case, because the optic nerve was involved only in the intra-conal region, about 3 cm proximal to the optic cup. Our young patient with no cardiac and vascular abnormality was severely bradycardic and mildly symptomatic. This was a unique finding in our case. We hypothesize that the bradycardia was related to the optic neuritis, since it resolved when the vision loss resolved after steroid treatment. The optic neuritis may have triggered the oculo-cardiac reflex, well known in the literature. The oculo-cardiac reflex is a triad of bradycardia, nausea, and syncope. (Our patient did not have syncope, but had near-syncope). The ocular causes are numerous. Orbital causes also exist. The ophthalmic division of the trigeminal nerve is the afferent limb. The impulses pass through the reticular formation to the vagus nerve's visceral motor nuclei. The efferent limb message is carried by the vagus nerve to the heart and stomach. Reflex bradycardia associated with optic neuritis is underscored by this case.

OSTEOPETROSIS - "MARBLE BONE" DISEASE. M. Romanova[1]; S. Izuchukwu[1]. [1]Department of Veteran Administration, Los Angeles, CA. *(Tracking ID # 152622)*

LEARNING OBJECTIVES: 1. Recognize the clinical and radiological presentations of osteopetrosis. 2. Distinguish osteopetrosis from other diseases that cause a diffuse increase in bone mineral density.
CASE: A 49 year-old male with past medical history of cervical spine fracture, diabetes mellitus and hearing loss presented for treatment of a complicated right femoral fracture. Six months previously, he had sustained a displaced transverse fracture of the right proximal femur, treated with operative reduction and internal fixation. The hardware was removed 4 months prior to presentation due to increased pain. Intra-operative cultures were positive for MRSA and P. aeroginosa. Despite adequate antibacterial treatment, the patient had remained bed-bound, with continued pain in the injured extremity. Examination of the right leg at the time of presentation revealed a healed scar over the lateral thigh, with diffuse tenderness to palpation of the proximal femur, mild limitation in hip flexion to 100 degree, and severe limitation in knee flexion to 30 degree with muscle stiffness and atrophy. Hemoglobin, PTH, calcium, 25-hydroxyvitamin D and 1,25-dihydroxyvitamin D, serum fluoride, total protein, and PSA levels were normal. Alkaline phosphatase was slightly elevated at 131 mg/dl, and ESR was 16 mm/hr. Plain films of the right femur revealed markedly increased density of the osseous structures, and evidence of re-fracture through the proximal mid diaphyseal/sub-trochanteric region. Films of the cervical spine noted diffusely increased density of all osseous structures, with sandwich appearance of the vertebrae, and a healed posterior spinous process fracture of C7. Similar increased bone density, giving a very bright appearance to the bones, was noted on the pelvic X-ray. Bone scan was negative for skeletal metastasis. The diagnosis of osteopetrosis was made based on the classic radiological picture
DISCUSSION: Osteopetrosis is a rare hereditary disorder of diminished osteoclast function, resulting in abnormally dense bone with an increased tendency to fracture. In adults it presents as an autosomal dominant variant. Patients may have bone pain, hearing loss, fractures, osteomyelitis, scoliosis, optic atrophy and facial palsy. Diagnosis is radiological, with either generalized osteosclerosis, most pronounced in the cranial vault, or thickening of vertebral end-plates (sandwich vertebrae, rugger-jersey spine) and bone-within bone structures. On initial presentation it is important to exclude other diseases that result in a similar "bright bone" appearance on x-ray such as myelofibrosis, hypervitaminosis D, fluorosis, diffuse skeletal metastasis of prostate or breast cancer, thyroid disease and Paget's disease of the bone. Once other causes of increased bone density are excluded, patients with osteopetrosis do not require additional testing. No treatment or cure has been established for this disease. Physicians caring over for adult patients with "marble bone" disease should be aware of potential bone fragility and tendency to develop osteomyelitis. Conclu-

sion: This case summarizes the classic presentation of adult osteopetrosis, with recurrent and poorly-healing fractures, osteomyelitis, asymmetric hearing loss and diffuse increase in bone density on the X-rays. This exceedingly rare disease may present in adult life, and presents an interesting diagnostic challenge.

OXACILLIN-INDUCED NEUTROPENIA - A RARE SIDE EFFECT OF A COMMON ANTIBIOTIC. B. Telivala[1]; J. Miller[1]. [1]Temple University, Philadelphia, PA. *(Tracking ID # 154021)*

LEARNING OBJECTIVES: 1. To recognize uncommon but serious side effects of commonly used medications 2. To review the common drugs causing neutropenia 3. To review the pathogenesis and management of drug induced neutropenia
CASE: A 26 yo woman with a history of intravenous drug abuse presented with chest pain, body aches and low-grade fever. On exam her T=101°F, P=112/min, BP=110/65 mm, RR=18/min, Pox=99% on RA. Exam was notable for a 3/6-HSM at the tricuspid area and scattered bibasilar crackles. Laboratory data showed WBC 17,600/ml, Hb 12.5 gm/dl, Platelets 175,000/ml. Blood cultures were positive for Methicillin-sensitive Staphylococcus aureus (MSSA). Echocardiogram showed moderate sized tricuspid valve vegetation with severe tricuspid regurgitation. She was started on Oxacillin and her symptoms improved. Her WBC count remained stable between 6900–9500/ml for the next 3 weeks. Her WBC count then dropped to 2200/ml with a differential of 35%S 56%L 4%M. Her counts continued to drop and reached a nadir of 1100/ml with an ANC of 125/ml. HIV, Hepatitis C ELISA as well as anti-neutrophil antibodies were negative. Her oxacillin was stopped and she was started on Vancomycin. Within 48 hours of discontinuation of oxacillin, her WBC count improved and had reached a level of 7200/cmm at the time of discharge.
DISCUSSION: Neutropenia is usually defined as an absolute neutrophil count (ANC) of less than 1500//ml. More than 70% of cases of neutropenia are drug-induced. Risk factors for neutropenia include advanced age, females>men, infectious mononucleosis, renal failure and underlying autoimmune disease. Patients with HLA-B38 phenotype and combined alleles DR4 and DQW3 are at an increased risk. Drugs commonly associated with neutropenia include clozapine, sulfasalazine, thionamides and ticlopidine. Other drugs include ACE inhibitors, H2 blockers, NSAIDS and flecainamide. Antibiotics associated with neutropenia include macrolides, TMP-SMX, chloramphenicol, sulfonamides, cephalosporins and semisynthetic penicillins. There are 2 mechanisms by which drugs cause neutropenia. 1. Immune mediated destruction of circulating neutrophils by drug-dependent or drug-induced antibodies. The drug or its reactive metabolite irreversibly binds to the neutrophil membrane. The drug can also act as a hapten in the production of antibodies. 2. Direct toxic effects upon the marrow granulocyte precursors. Detoxification of many drugs requires conversion to a chemically reactive intermediate, which may bind to nuclear material causing direct toxicity. Bone marrow aspiration and biopsy findings vary with the cause of neutropenia. Normal or mildly reduced cellularity with myeloid aplasia or hypoplasia is seen if the drug is acting as a toxin. Myeloid arrest at a later stage of myeloid maturation is seen if the damage is immune mediated. Treatment: Once neutropenia is documented, the offending drug should be withdrawn whether or not the patient is symptomatic. The neutropenia usually resolves within one to three weeks after cessation. There is controversy regarding the use of Granulocyte colony stimulating factor. Cited advantages include shorter recovery times, less antibiotic use and shorter length of stay compared to historic controls. Because of their minimal toxicities, growth factors are used for patients with ANC<1000/ml who have fever or signs of infection. Growth factors are also given to patients with ANC<500/ml that persists for longer than 5 days after the suspect drug has been withdrawn.

PANCREATIC DYSPNEA. W.B. Mansour[1]; F. Francis[2]. [1]University of Pittsburgh, Pittsburgh, PA; [2]University of Pittsburgh/VA, Pittsburgh, PA. *(Tracking ID # 150967)*

LEARNING OBJECTIVES: 1. To recognize that pancreatitis can present with pleural effusions 2. To recognize the treatment options for pancreatic pleural fistulas.
CASE: A 46 year old male with hypertension presented with new onset dyspnea and worsening back pain of 2 months duration. The back pain initially improved with ibuprofen but had become severe 1 day prior to presentation, diffusely spreading across the lower back. It was no longer relieved with ibuprofen. The patient also noted decreased appetite for the past 2 months, a 5 pound weight loss, intermittent chills and night sweats, but no abdominal pain, melena, hematochezia or hematemesis. Social history was current tobacco use and alcohol consumption of 2 beers per day for 20 years. Vital signs T 96.8, BP 120/82, HR 109, RR 20, saturation 100% on 4L NC. On lung exam he had absent breath sounds on the left with dullness to percussion and egophony. Abdominal exam was benign. CXR revealed large left pleural effusion and tracheal deviation to the right. A pleural catheter was placed and clear pleural fluid drained easily to the patient's symptomatic relief. Pleural fluid analysis revealed WBC 6850 (PMN 96%), RBC 50, LDH 385 compared to serum LDH 83 (ratio >0.6), amylase 6724, lipase 15713; serum amylase was 543 and serum lipase was 143. No organism was isolated in the serum or pleural fluid. Abdominal CT revealed a calcified pancreas with pseudocyst formation. MRCP was consistent with changes of chronic pancreatitis with 4.3 × 3.9 × 3.9 cm pseudocyst adjacent to the superior margin of the body and tail of the pancreas. Communication was seen inferiorly with the tail of the pancreas and superiorly with the left pleural space.
DISCUSSION: Acute pancreatitis typically presents with upper abdominal pain radiating to the back with nausea, vomiting, epigastric tenderness and distension. Our patient presented however with dyspnea and back pain and was found to have an exudative pleural effusion with elevated amylase and lipase levels. The differential diagnosis includes acute pancreatitis, chronic pancreatitis with Pancreatic fistulae (PF) and chronic effusion, esophageal rupture, and malignancy. Diagnosis of pancreatic pleural effusions is made when the fluid amylase is >5 × serum amylase (often >4000U) with a fluid albumin over 2.5 to 3 g/100 cc, confirmed with a secretin MRCP and ERCP mainly when endoscopic therapy is required. CT scan detects fluid collections. Treatment options for PF can be conservative (medical) or invasive including endoscopic, percutaneous (radiologic), or surgical modalities. Conservative management is the mainstay of therapy for PF since their resolution can be expected in about 75% of patients. Conservative measures include nasojejunal feeding, antibiotics, correction of fluid and electrolyte disturbances, pleural fluid drainage, and octreotide. If conservative measures fail, endoscopic therapy can be used mainly via stent placement across the disrupted pancreatic duct. One major complication of endoscopic therapy is infection of the pancreatic fluid collection. If this is technically not feasible then either percutaneous or surgical modalities can be used. Percutaneous drainage can lead to the formation of pancreaticocutaneous fistulae. Different surgical modalities can be used when conservative and endoscopic methods fail. Surgical therapy has a success rate of 90% but a mortality rate of 6.3%. Our patient responded well to conservative management and the pleural catheter was removed 2 weeks later.

PANCREATITIS AS AN UNUSUAL PRESENTATION OF SYSTEMIC LUPUS ERYTHEMATOSUS. K.V. Shenoy[1]; Z. Szep[1]; H. Shishodia[1]. [1]Temple University, Philadelphia, PA. *(Tracking ID # 156743)*

LEARNING OBJECTIVES: 1. Recognize acute pancreatitis as a rare initial presentation of Systemic Lupus Erythematosus (SLE) 2. Review the clinical manifestations, diagnosis and management of SLE
CASE: A 39 year old African American woman presented with dull epigastric abdominal pain associated with nausea, emesis and watery diarrhea for 3 weeks. The pain was not relieved with ibuprofen or tylenol #3. Her past medical history included DJD in her knees bilaterally and a cholecystectomy 18 years earlier. Family history was notable for her mother having SLE. She denied any alcohol or illicit drug use. On further questioning, she had fatigue, alopecia, ten pound weight loss, diffuse muscle pain, and bilateral knee pain. Physical exam revealed an obese woman in no acute distress. She had an erythematous macula facial rash over the malar eminences extending to the pinna of her ears bilaterally sparing the nasolabial folds. Her abdomen was tender to palpation epigastrically without guarding or rigidity with diffusely decreased bowel sounds. She had lower extremity edema with bilateral tenderness in her knees. Labs on admission revealed a lipase of 505 and a platelet count of 61 K/mm3 and an ANA of 1:1280 with a speckled pattern. Urinalysis was notable for a protein of 100 mg/dL. A CT scan of the abdomen was consistent with acute pancreatitis. A right upper quadrant ultrasound was unremarkable. She was started on intravenous hydromorphone, antiemetics and was maintained NPO. By hospital day two her symptoms of abdominal pain and nausea significantly improved and lipase was normal. Her diet was advanced with clinical improvement. Further lab data was notable for an ANA of 1:1280 with a speckled pattern, C3 of 40 (70–176), C4 of 3 (16–54) and positive anti-Sm and anti-nRNP antibodies. The patient was started on prednisone and hydroxychloroquine. Subsequently, her gastrointestinal symptoms and bilateral knee pain markedly improved.
DISCUSSION: SLE is a chronic inflammatory disorder identified through a combination of clinical and laboratory criteria. SLE is more common among women of childbearing age. According to the American College of Rheumatology (ACR) four or more of the following eleven criteria must be met in order to make the diagnosis of SLE: malar rash, discoid rash, photosensitivity, oral ulcers, arthritis, serositis, renal disorder, neurologic disorder, hematologic disorder, immunologic disorder and antinuclear antibodies. An elevated ANA to above 1:40 is the most sensitive among the ACR criteria. The most common initial manifestations are musculoskeletal and cutaneous. Among patients without major organ involvement, management is aimed at suppression of symptoms with analgesics and antimalarials. Glucocorticoids are the mainstay of therapy for any organ threatening manifestation of SLE. Pancreatitis is a rare initial manifestation of SLE which was first documented in 1939 by Reifensten. The diagnosis of SLE pancreatitis can by made once other causes of acute pancreatitis such as alcohol and gallstones have been excluded. Vasculitis is thought to be the mechanism of SLE pancreatitis. The diagnosis of pancreatitis is based on clinical findings of abdominal pain, nausea, vomiting and supported by abnormal pancreatic enzyme levels. The treatment of SLE pancreatitis is with steroids. It is important to consider the diagnosis of SLE when a straightforward diagnosis is associated with multiple concomitant abnormalities as SLE can involve any organ system.

PELLAGRA STILL EXTANT IN US: ONCE A DISEASE OF THE DEVELOPING COUNTRIES, RETURNS WITH A NEW FACE. J. Shah[1]; M. Panda[1]. [1]University of Tennessee, Chattanooga, TN. *(Tracking ID # 156611)*

LEARNING OBJECTIVES: 1. Recognize the prevalence of nutritional deficiency disorders in the United States. 2. Discuss the etiology and signs and symptoms of Pellagra. 3. Discuss the settings in which Pellagra can occur in developed countries like the United States.
CASE: A 42 year old male with ileostomy for Crohn's disease presented with high output from ileostomy, fatigue and a non-pruritic rash involving his whole body for approximately 4 months. Past history was significant for multiple perineal abscesses requiring drainage and colectomy with ileostomy for Crohn's disease. He had received topical and oral medications for the rash on multiple

occasions with no improvement. On examination the patient was afebrile, tachycardic and hypotensive. He had fistulae around ileostomy and scars of old healed fistulae in the perineum. The ileostomy bag had copious liquid brown output. Patient had a scaly exfoliative rash with erythema involving almost the whole of the body including head and neck but excluding the palms and soles. Initial lab data was significant for mild anemia H&H of 12.7gm/dl & 39.1%, MCV 84.8 fl, elevated ESR (90 mm in 1st hr), Na 126, K 5.5, Cl 92, CO2 17, BUN 34, Cr 5.0. HIV was negative. With fluid resuscitation repeat serum creatinine was 1.4. Serum Niacin, B1, B6, B12, folate levels revealed low niacin and B6 levels, others were normal. Dermatitis, diarrhea (here - high output of ileostomy) and low niacin level pointed to a diagnosis of pellagra. Patient was started on vitamin B supplementation. In order to reduce stomal effluent volume and bowel motility H2 blockers, proton pump inhibitors and antidiarrheal drugs together with eduction on hydration and oral hypotonic fluid restriction was used. At his one month follow up patient had gained 5 lbs weight and the rash was improving.
DISCUSSION: Pellagra is caused by a deficiency of nicotinamide or of its precursor tryptophan. It may occur in patients with dietary deficiency diseases (e.g. chronic alcoholics), carcinoid syndrome, HIV infections and drugs: fluorouracil, isoniazid, chloramphenicol and mercaptopurine. Pellagra leads to the triad: dermatitis, diarrhea and dementia, eventually followed by death. The skin changes are characteristic and pathognomonic. Recognition of pellagra is important; the prognosis is good after treatment. In the developed world though the traditional causes of pellagra such as hunger, malnutrition have disappeared the disease is still extant. In these countries the current etiologic causes include alcoholism, psychiatric disorders like anorexia and bulemia, diseases causing cachexy, malabsorption, Carcinoid syndrome, Hartnup Disease and chronic use of isoniazide as in treatment of latent tuberculosis and some drugs. Timely diagnosis and intervention is very important because the treatment is simple and the damages are reversible in early stages. Once dementia sets in - the changes are usually irreversible. Physicians need to be vigilant about the signs and symptoms as the recognition of pellagra is important and the prognosis is good after treatment.

PERSISTANT DIARRHEA IN THE TRAVELER: AN INITIAL PRESENTATION OF CELIAC DISEASE. N. Basu[1]; G. Kriegel[1]. [1]Beth Israel Deaconess Medical Center, Boston, MA. *(Tracking ID # 154233)*

LEARNING OBJECTIVES: 1. Review the diagnosis of persistent diarrhea after travel. 2. Describe the association between traveler's diarrhea and celiac disease.
CASE: A 32 year-old female presented to her primary care physician with intermittent diarrhea since a visit to Ireland five months prior. She and her two daughters had vomiting and severe diarrhea upon returning home. While her daughters' symptoms resolved in two days, hers continued for two weeks. Since then, she has had monthly six to ten day episodes of dyspepsia, nausea, and watery, non-bloody diarrhea associated with weight loss. The stool did not float and was not foul smelling. She had no significant past medical history and no family history of bowel disease. Exam was remarkable for a BMI of 18 kg/m^2, normal abdominal exam, and guaiac negative stool. Laboratory results demonstrated a hematocrit 33.9% and MCV 77fL and deficiencies of iron, B12, and folate. Three stool analyses for ova and parasites (O&P) were negative. Direct fluorescent antibody test (DFA) for Cryptosporidium and Giardia was also negative. Further workup revealed an anti-tissue transglutaminase (tTG) antibody level of 123 units (normal 0 to 19). Endoscopy revealed nodular, atrophic, scalloping of folds and mosaic pattern in the second part and third part of the duodenum. Biopsy showed diffuse active enteritis, with complete loss of villi and increased intraepithelial lymphocytes consistent with celiac disease. The patient was started on iron, folate, and parental B12 replacement. On a gluten-free diet, her symptoms and lab abnormalities resolved.
DISCUSSION: Forty to sixty percent of travelers experience an acute gastrointestinal illness. In nearly 80% of these, the illness, commonly caused by E. coli and rotavirus, is self-limited within one week. However, the 5–10% of people who experience prolonged symptoms should undergo evaluation for other more serious conditions, both infectious and non-infectious. Laboratory evaluation begins with stool DFA and O&P targeting Giardia, Cryptosporidium, Entamoeba, and Cyclospora. Stool cultures for salmonella, shigella, campylobacter, yersinia, E. coli are less useful in the immunocompetent host with diarrhea lasting more than 2 weeks. Non-infectious causes of traveler's associated persistent diarrhea are irritable bowel syndrome, colon cancer, inflammatory bowel disease, post-infective malabsorbtion syndromes, tropical sprue, and the initial presentation of celiac disease should also be considered. In this patient, the presence of malabsorption and elevated anti-tTG antibody was key in making the diagnosis of celiac disease. This was confirmed by endoscopy and resolution of symptoms with a gluten-free diet. Epidemiology suggests that celiac disease can develop in adulthood with nearly 20% of adult cases diagnosed in patients older than 60. The relationship between traveler's diarrhea and onset of celiac disease is unknown, with only case reports in the literature. Celiac disease following traveler's diarrhea and tropical sprue are indistinguishable in their presentation since both cause villious atrophy of the small intestine and subsequent malabsorption. However, tropical sprue does not have the presence of anti-tTG antibody, antigliadin antibody, or antiendomysial antibody and is treated effectively with folic acid and tetracycline. Given the high prevalence of celiac disease in people of European descent, physicians should suspect the initial presentation of celiac disease in persistent traveler's diarrhea.

PHENYTOIN TOXICITY IN A PATIENT WITH ALCOHOLIC LIVER DISEASE. R.L. Vande Voort[1]; S. Habib[1]; M.S. McCleary[1]. [1]Iowa Methodist Medical Center, Des Moines, IA. *(Tracking ID # 152865)*

LEARNING OBJECTIVES: 1. Distinguish neurological manifestations of antiepileptic toxicity from signs and symptoms of hepatic encephalopathy 2. Manage patients with liver disease on maintenance anticonvulsants to prevent toxicity and drug-induced liver injury
CASE: A 51-year-old white woman with a chronic seizure disorder on maintenance phenytoin was admitted to her local hospital with jaundice, slurred speech, and difficulty maintaining balance. She had a known history of alcoholic liver disease. She was transferred to our hospital for further management of hepatic encephalopathy after having no response to lactulose treatment. Examination was significant for jaundice, palmar erythema, slurred speech, ataxia, horizontal and vertical gaze nystagmus, and coarse tremors. The patient did not display signs of either a hypersensitivity reaction (fever, rash, or lymphadenopathy), or signs of encephalopathy (absence of mental confusion, disorientation, apraxia, and asterixis). Laboratory tests showed AST/ALT > 1, alkaline phosphatase greater than five times the upper limit of normal, and a phenytoin level of 32.7μg/mL. Liver biopsy displayed cholestasis compatible with drug effect, mild steatohepatitis, and bridging fibrosis without necrosis. The phenytoin was held and the patient's jaundice, neurological dysfunction, and liver function abnormalities improved gradually over several days.
DISCUSSION: Anti-epileptics, though commonly reported to have several adverse events, are usually well-tolerated in patients with or without underlying liver disease. Hepatic adverse events are relatively rare with phenytoin use. Asymptomatic elevation of serum alkaline phosphatase and gamma glutamyl transferase is a common hepatic adverse event. Acute hepatitis secondary to acute hypersensitivity syndrome with phenytoin use has been well-reported in the literature. Symptomatic dose-related cholestatic hepatotoxicity with phenytoin use has not been reported in the literature. Phenytoin and other anti-epileptics are metabolized by the liver. Presence of chronic liver disease may lead to toxic accumulation of a drug at therapeutic doses. We suggest frequent monitoring with free drug levels beyond the six week window when hypersensitivity reactions manifest to avoid clinical toxicity in a patient with underlying liver disease. Patients with underlying alcohol-related liver disease are prone to develop phenytoin toxicity at therapeutic doses. Phenytoin also causes dose-related cholestatic liver injury. Distinction between neurological manifestations of anti-epileptic toxicity in patients with liver disease and hepatic encephalopathy is important for appropriate treatment.

PRIMARY ADRENAL INSUFFICIENCY AS A PRESENTATION OF METASTATIC COLON CARCINOMA. G. Shahin[1]; N. Mikhail[1]. [1]Olive View/University of California, Los Angeles Medical Center, Sylmar, CA. *(Tracking ID # 154143)*

LEARNING OBJECTIVES: 1. Recognize the clinical manifestations of primary adrenal insufficiency. 2. Conduct appropriate screening for malignancy in a patient presenting with unexplained primary adrenal insufficiency.
CASE: A 64 year old woman with a past medical history significant for HTN and DM brought to the emergency room by paramedics for altered mental status. Blood glucose in the ED was 47. She admitted to multiple ED admissions in the past three months for symptomatic hypoglycemia in spite of repeated adjustment to her antihyperglycemic medications by her PMD. She was also taken off her antihypertensives several months ago because she "no longer needed them". On ROS, she admitted to generalized weakness and fatigue, anorexia, weight loss, dizziness, constipation, nausea, and darkening of her skin (noted initially by family members). She denied cough, fevers or chills, BRBPR or melena. Vitals on presentation were notable for a BP of 104/46 and HR of 87. Her exam revealed diffuse small lymphadenopathy and hyperpigmentation of both buccal and palmar creases. She had tenderness to palpation over the right iliac crest. Initial labs showed a Na of 128, K 5.1, iron deficiency anemia, and normal LFTs. Primary adrenal insufficiency was suspected. A cosyntropin stimulation test showed an inappropriate response, which confirmed the diagnosis of adrenal insufficiency. A malignancy work up was initiated in an attempt to explain the patient primary adrenal insufficiency. CT of chest/abdomen/pelvis revealed metastatic disease to both lungs, bone, liver, mesentery, and bilateral adrenal glands. Brain metastasis was seen on MRI. Further diagnostic testing, including cytology and immunohistochemical staining, identified colon cancer as the primary source.
DISCUSSION: Signs and symptoms of primary adrenal insufficiency include anorexia, abdominal pain, nausea, fatigue, weight loss, and hyperpigmentation. Laboratory abnormalities often include hypoglycemia, hyponatremia, and hyperkalemia. Hypotension is common. Causes of primary adrenal insufficiency include autoimmune destruction of the adrenal cortex, infections (e.g., TB, HIV, syphillis,), hemorrhagic infarction (e.g., sepsis, anticoagulation, trauma), and metastatic disease. Lung, breast, melanoma, colon, and stomach are the most common primaries reported to involve the adrenals. While involvement of both adrenals in widespread metastatic disease is not uncommon, clinically evident adrenal insufficiency on presentation is relatively rare since it requires the destruction of more than 90% of both adrenals. In the absence of a clear etiology to primary adrenal insufficiency, malignancy work up should be pursued. Work up should start with a thorough history and physical that should always include a rectal, breast, and pelvic examination. Laboratory work up should start with a CBC, chemistry panel including a calcium level, LFTs, CXR, UA, FOBT. Imaging with US, CT, and MRI are often utilized. Always consider a mammogram and a pelvic ultrasound in women.

PRIMARY CARE CHALLENGES IN A FORMER SLAVE. N. Shah[1]; R. Scudiere[1]; M. Grodin[1]; S. Crosby[1]. [1]Boston University, boston, MA. *(Tracking ID # 153427)*

LEARNING OBJECTIVES: Recognizing history of torture in survivors of slavery, and the potential challenges for providing primary medical care.
CASE: A 25 year old female from Mauritania with no reported past medical history was referred to the Primary Care Clinic by her attorney for an asylum evaluation. She spoke Pulaar, only available by pre-arranged phone interpreter. She presented with diffuse body pains, headaches, abdominal pain, nightmares, sleep disturbance, exaggerated startle response, and anhedonia. She was seeking asylum in the United States. Patient had difficulty recalling linear time of events in her life, and was also apprehensive to speak with the physician or lawyer, because she was fearful that information would be sent back to Mauritania, and that she would be returned to her master. The patient had never been to a physician, and was not familiar with the basics of western medical care. The patient revealed she had been born into slavery in Mauritania, and that starting before menarche, she had been repeatedly raped by the master. Other persecution included being buried to her neck as punishment, multiple beatings and deliberate burns. On initial physical exam, patient was noted to have multiple scars on her body. Abdominal exam revealed tender pelvic mass, and external GYN exam revealed clitoridectomy, although internal exam was unable to be performed because of terror reaction at even the external exam, and complete unfamiliarity with the concept of a vaginal exam. Transabdominal US revealed a pelvic mass. After many sessions of preparation, including visit to post-anesthesia recovery, patient underwent exploratory laparotomy, bilateral ovarian cystectomy and in collaboration with the obstetrician, had routine PAP smear done while under general anesthesia.
DISCUSSION: Though slavery was outlawed in Mauritania over 20 years ago, Amnesty International has documented accounts of slavery. The estimated number of enslaved Mauritanians range from 100,000 to as many as 1 million. Human rights organizations have been prevented from entering the country to conduct research and human rights investigations. Former slaves may suffer from PTSD, depression, feelings of worthlessness, social deprivation, inability to have a sense of self, feelings of loss, guilt for leaving their master and not upholding their religious duty. Some of the goals of care in this patient were to understand the source of symptoms and feelings; encourage an understanding of freedom and self; and to help create a social identity and personhood. Primary care physicians should recognize patients who are survivors of slavery and/or torture, and be aware that the physical exam can be a potential source of retraumatization and trigger flashbacks. For females, the routine GYN exam is not practiced throughout the world and can be a foreign and invasive concept. Routine practices, such as physical exams or procedures, may need to be delayed until trust and rapport is created with the patient and family, and mental health needs are addressed. Creating a safe environment is essential. A collaborative multidisciplinary model of care is important, which includes primary care, psychiatry, and OB-GYN.

PRIMARY SJÖGREN'S SYNDROME PRESENTING AS RECURRENT ASEPTIC MENINGITIS. M.K. Duggirala[1]; A.K. Ghosh[1]. [1]Mayo Clinic, Rochester, MN. *(Tracking ID # 151895)*

LEARNING OBJECTIVES: Recognize that recurrent aseptic meningitis can be a presenting manifestation of Primary Sjögren's syndrome.
CASE: A 32-years old woman was transferred to Mayo Clinic after being admitted to a local hospital with fever, headache and confusion. Initial evaluation included a normal CBC, negative non-contrast head CT scan. Cerebrospinal Fluid (CSF) analysis showed a lymphocytic pleocytosis with elevated protein and normal glucose. She was started on intravenous antibiotics. Upon arrival she was noted to be drowsy, stuporous with a temperature of 38 °C. Heart and lung examination was normal and neurological was nonfocal. Past medical history included several hospitalizations for similar episodes in the last four years. These were treated with empirical antibiotics, but no bacterial, viral or fungal or mycobacterial organisms were ever isolated. She remained completely symptom free in between the episodes. She smoked half a pack of cigarettes a day and drank alcohol rarely. She denied any illicit drug use or HIV risk behavior. A repeat CSF analysis at our hospital revealed 208 white cells (84% lymphocytes), protein was elevated 152 (14–45), glucose was 46 mg/dl (40–80). CSF gram stain, bacterial antigen tests were negative. Polymerase Chain Reaction (PCR) test were negative for Herpes Simplex Virus (HSV), Cytomegalovirus (CMV), Epstein Barr Virus (EBV). Acid fast smears were negative. RPR and lyme serology were negative. MRI showed a diffuse, subtle leptomeningeal enhancement. Her Anti-nuclear Antibody (ANA) was elevated at 10 U (<1) and extractable nuclear antibodies (ENA) to SS-A 189 U (<25) and SS-B 70 U (<25) were positive as well. She recovered completely with supportive care. Rheumatology consultation was obtained and a recommendation to treat future episodes with prednisone was made. She remained asymptomatic few months after the hospitalization.
DISCUSSION: Our patient was otherwise healthy with episodes of recurrent aseptic meningitis. No microbiological pathogen was ever identified. In such cases it is important to take a careful medication history because aseptic meningitis is often associated with the use of certain drugs (ibuprofen, sulfonamides, penicillin, azathioprine, immune globulin). She did not take any medications prior to onset of symptoms. Other etiologic considerations included Mollaret meningitis, which is a rare syndrome characterized by recurrent episodes of aseptic meningitis, separated by symptom free periods and spontaneous remission. Herpes Simplex Virus type 2 (HSV-2) had been isolated in the CSF in the majority of patients with this syndrome. Other distinguishing features include the presence of Mollaret cells (large monocytoid cells) in the CSF. Our patient's HSV PCR was negative and Mollaret cells were absent making this an unlikely possibility. Rarely, patients with epidermoid tumors may present with recurrent aseptic meningitis secondary to the rupture and release of the cyst contents into the CSF. The MRI scan did not support the diagnosis. The elevated ANA and ENA helped diagnosing Sjögren's syndrome in our patient. Neurologic manifestations such as multiple sclerosis and aseptic meningitis are very rare but reported in patients with Sjögren's syndrome. Though aseptic meningitis is reported in Sjögren's syndrome, as seen in this case, patients can present with 'recurrent' episodes of aseptic meningitis.

PROGRESSION OF HEPATIC SARCOIDOSIS TO CIRRHOSIS: AN UNUSUAL COMPLICATION. K.M. Swetz[1]; K.G. Lim[1]. [1]Mayo Clinic, Rochester, MN. *(Tracking ID # 151347)*

LEARNING OBJECTIVES: 1. Review the differential diagnosis of cholestatic hepatitis. 2. Recognize the extrapulmonary manifestations of sarcoidosis, and its typical clinical course. 3. Illustrate an unusual complication of hepatic sarcoidosis.
CASE: A 67-year-old Caucasian female with a three-year history of pulmonary and hepatic sarcoidosis was admitted for acute renal failure, worsening hepatic dysfunction, and anasarca. The patient initially presented three years ago with bilateral reticulonodular pulmonary infiltrates on chest CT, mildly decreased DLCO, elevated serum angiotensin converting enzyme, and cholestatic liver abnormalities. No portal hypertension or cirrhosis was seen on ultrasound, but liver biopsy revealed granulomatous hepatitis with marked ductular proliferation, consistent with liver involvement of sarcoidosis. Prednisone initially improved, but never normalized liver chemistries, and tapering was unsuccessful due to worsening cholestasis. She was then treated hydroxychloroquine and pentoxifylline, as steroid-sparing agents, for approximately two years. However, these did not prevent deterioration of lung and liver function, leading to admission at this time. On admission, patient's laboratories revealed worsening cholestasis, hypoalbuminemia, azotemia, thrombocytopenia, and a coagulopathy. A work-up for other etiologies of chronic liver disease was negative. Abdominal ultrasound showed a nodular, echogenic, cirrhotic liver with splenomegaly. MRI liver was negative for hepatoma. Liver biopsy revealed numerous non-caseating granulomas, predominantly within portal and septal areas, with associated ductal destruction, findings consistent with sarcoidosis. However, granulomatous inflammation was now associated with extensive scarring (cirrhosis), and bands of fibrosis encircling the granulomas and regenerative nodules. The patient responded to supportive measures to correct her volume status, and her coagulopathy was corrected with phytonadione. Ursodeoxycholic acid (UDCA) therapy was initiated with improvement of her cholestasis within days.
DISCUSSION: Hepatic involvement of sarcoidosis can be common, but is rarely associated with increased morbidity or mortality. Liver biopsy is critical to exclude primary biliary cirrhosis, cholestatic hepatitis, or drug effect. Biopsy shows granulomatous changes in up to 95% of cases of sarcoidosis, but most patients are asymptomatic, except for an elevated serum alkaline phosphatase. However, hepatic dysfunction and progression to advanced liver disease are rarely observed. In a series of 100 patients with sarcoid hepatitis, only 6 patients progressed to liver cirrhosis, with death from hepatic insufficiency being rare. Concurrent splenic involvement is seen histologically in up to 75% of cases, but splenomegaly is reported in 5–18% of cases. Our patient most likely had sarcoidosis and cirrhosis to account for the splenomegaly. Although corticosteroids remain the mainstay of treatment for hepatic sarcoidosis, our patient progressed to cirrhosis despite continuous therapy. UDCA has been used in sarcoidosis-associated cholestasis, with favorable results in younger patients without cirrhosis, with a response rate exceeding six months. UDCA has a reasonable side effect profile and should be considered in patients with cholestasis, not responding to steroids alone.

PROLONGATION OF PRIMUM NON NOCERE. D.S. Gloss[1]; J. Wiese[1]. [1]Tulane University, New Orleans, LA. *(Tracking ID # 156926)*

LEARNING OBJECTIVES: 1. Recognize torsades de points as a potential complication of low-dose haldol administration. 2. Recognize the importance of cardiac monitoring in the setting of haldol administration for acute agitation.
CASE: A 25 year-old woman with a history of schizophrenia and depression presented with one day of persecutorial paranoia. On admission, she was noted to be hitting herself and thrashing about in bed. She was given lorazepam and haloperidol by intramuscular injection. One hour later, she was noted to be unresponsive. Torsades de pointes was identified by telemetry, and an immediate 200 J defibrillation resulted in a return to sinus rhythm. Intravenous magnesium was administered to prevent recurrence of the arrhythmia. She had no history of cardiac disease, and her physical examination and a echocardiogram following the event were normal. Her EKG, however, demonstrated prolongation of the QT interverval. Her electrolytes and toxicology screen were also normal. She was monitored uneventfully overnight. The following day, her QT interval had returned to normal and there were no recurrent events of arrhythmias on telemetry. She was discharged from the medical service for further psychiatric care.
DISCUSSION: Because haldol-induced QT prolongation can be an idiosyncratic reaction, it is important for general internists to recognize this potentially lethal complication. QT prolongation reflects delayed repolarization of the myocardium. A premature ventricular contraction (PVC) during this at-risk repolarization time results in torsades de pointes. PVC's are more common during periods of cardiac excitation, such as agitation seen during clinical scenarios such as our patient's. Haldol is a known to induce prolongation of the QT interval, especially when administered intramuscularly and in combination with other medications that retard its clearance. The co-administration of haldol and

lorazepam may have induced torsades de points at doses not typical for this disorder. This case has implications for management of agitated patients in the emergency setting for whom haldol is considered for the acute management of agitation. Based upon this case, cardiac monitoring appears to be indicated even when low doses of haldol are administered, and especially if co-administered with other medications.

PROPHYLACTIC SUBCUTANEOUS HEPARIN: CAUTIONARY TALES. S. Viradia[1]; M. Rotblatt[2]. [1]University of California, Los Angeles, Westwood, CA; [2]Olive View/University of California, Los Angeles Medical Center, Sylmar, CA. *(Tracking ID # 155632)*

LEARNING OBJECTIVES: 1. Recognize that low-dose SQ heparin may significantly elevate PTT in some patients. 2. Consider using a Q12 hour dosing regimen in patients with a higher risk of bleeding.
CASE: Background: Low-dose SQ heparin is routinely ordered to prevent thrombotic events for many general medicine patients. While LMWH may be safer and more effective based on several RCTs, unfractionated SQ heparin is still utilized in many hospitals due to cost issues. However, it is not well appreciated that unfractionated heparin can elevate the PTT and/or cause bleeding complications, even with the 'low dose' used for DVT prophylaxis. Furthermore, the two usual dosing frequencies (Q8 and Q12 hrs) have never been compared in a clinical trial. Instead, the recommended daily dose is left to physician discretion, hospital policy, and "expert opinion". We report 3 patients with significant PTT elevations potentially due to low dose heparin used for routine DVT prophylaxis. 1) A 76 yo Philipino man (122 lbs) with mild renal insufficiency (Cr 1.5) was admitted for new onset CHF. A past PT/PTT had been normal. The intern ordered heparin 5,000 units subcutaneously Q8 hrs. The patient was diagnosed with an ischemic cardiomyopathy and a heart catheterization was scheduled. However, this was cancelled due to an elevated morning PTT of 154.6. SQ heparin was discontinued and the PTT corrected quickly, to 56.8 by that evening and to 32 the next morning. 2) A 48 yo Philipino woman (132 lbs) with SLE was admitted for sepsis vs. lupus flare. Her admission PT/PTT was normal. The intern ordered heparin 5,000 units subcutaneously Q8 hrs. The patient developed mild hemoptysis overnight, and her PTT was 58.4 the next morning and 120 by the evening. She was given 2 units FFP and the heparin was discontinued. The PTT was back to baseline the next morning. 3) A 58 yo Hispanic woman (110.7 lbs) was admitted for severe acute renal failure. Her baseline PTT was 34.1. The intern ordered heparin 5,000 units subcutaneously Q8 hrs. She was diagnosed with Wegener's Granulomatosis and treated with hemodialysis, steroids and cyclophosphamide. On hospital day 2, her PTT was 48.1, and the SQ heparin was held. The PTT normalized the following day, and the SQ heparin was restarted. She began daily plasmapharesis and was doing well for several days, when the patient was found to be acutely confused. The PTT was >201 and she had a large frontal subdural hematoma with significant mass effect and shift. She quickly deteriorated and was pronounced brain dead.
DISCUSSION: These cases illustrate that SQ heparin may significantly elevate the PTT, sometimes to high and potentially dangerous levels, thus resulting in bleeding complications or delay of appropriate medical care. Physicians should be aware of this, and should also not be unduly surprised at mild PTT elevations in patients on low-dose heparin. In addition, the efficacy and safety of Q8 versus Q12 hrs has not been adequately investigated. Patients who are small and receive SQ heparin Q8 hrs may be at higher risk of significant PTT abnormalities. In these patients (and others who are at higher risk of bleeding such as the elderly), consider Q12 hr dosing of unfractionated SQ heparin. Since prophylactic SQ heparin may elevate PTT and cause adverse outcomes, we hope that case reports such as these stimulate additional safety studies in general medicine patients.

PSYCHIATRIC ADMISSION IMPROVES GLYCEMIC CONTROL. D. Gutnick[1]; N. Shah[2]. [1]New York University, Hastings on Hudson, NY; [2]New York University, New York, NY. *(Tracking ID # 154088)*

LEARNING OBJECTIVES: 1. Recognize that aggressive treatment of depression can significantly impact glycemic control in diabetics. 2. Demonstrate the vital role of patient motivation for self-care in control of depression and diabetes. 3. Recognize the essential role of the PCP and chronic care team, described by the Chronic Care Model (CCM), in identifying and aggressively treating depression.
CASE: A 38-year-old man with Type 2 diabetes mellitus (A1c=13%, retinopathy, neuropathy and proteinuria, creatinine=0.9.) presented to medical clinic in September 2002. Medications were prescribed, but the patient was lost to follow-up until December 2003, when he was screened using the Patient Health Questionnaire 9 (PHQ9) and scored 18 (>10 denotes depression, range 0–27). He was enrolled in Depression and Diabetes registries and a multifaceted care plan was developed incorporating CCM principles. His PCP initiated treatment included sertraline 50 mg QD, close follow-up, patient-specific self-management goal (SMG) setting and education. One month later, sertraline was titrated, he was referred to psychiatry (but didn't keep his appointment) and the social worker became his dedicated care manager, attempting to contact him weekly to assess mood, compliance with medications, and SMG's. He was lost to follow-up again in March 2004, not reestablishing care until April 2005 (A1c=15.8%, PHQ9=22, creatinine=1.8). Diabetic and depression care were escalated, insulin added, sertraline titrated, SMG's set and weekly social work contacts resumed. In June 2005, the patient reported that he was depressed about deterioration of his physical condition (PHQ9=27, creatinine=2.5), and was started on quetiapine for sleep. When he missed his follow-up visit, his PCP contacted "Mobile Crisis," a psychiatric outreach service that made three home visits and helped coordinate his psychiatric care. In August 2005 (A1c=14%, PHQ9=26) the patient was voluntarily admitted to psychiatry for comprehensive depression treatment. After a 6-week hospitalization, during which he admitted his prior non-adherence to medications, he was seen by his PCP in October 2005 with considerable improvement (A1c=7.3, PHQ9=7). Three months later his gains have been sustained (A1c=7.5, PHQ9=5).
DISCUSSION: Diabetes is associated with a doubling in the risk for comorbid depression. Limited but promising evidence suggests an association between depression treatment and glycemic control, likely attributable to improved self-care behaviors and potentially decreased insulin resistance associated with depressed mood. This case illustrates that adequate depression treatment (in this instance, psychiatric admission) may be required to enable a patient to adhere to his diabetes medications. Although the patient was referred to psychiatry multiple times, he never followed up with any outpatient provider other than his PCP. Through application of the principles of the CCM and creative use of resources (social work care manager, mobile crisis and acute psychiatric service) the PCP played a pivotal role in managing both diabetes and depression resulting in a favorable outcome. Systems that permit integration of mental health treatment with care for chronic conditions are likely to benefit many patients with co-occurring medical and psychiatric illness.

PSYCHIATRIC MANIFESTATIONS OF NEUROSYPHILIS. Y. Scott[1]; A.A. Towfigh[1]. [1]Greater Los Angeles Veteran's Administration, Los Angeles, CA. *(Tracking ID # 154806)*

LEARNING OBJECTIVES: 1. Recognize the broad range of psychiatric manifestations of neurosyphilis. 2. Diagnose neurosyphilis in a patient presenting with psychiatric manifestations. 3. Appreciate the reversibility of symptoms, underscoring the importance of diagnosis.
CASE: A 45 year-old male with no previous medical or psychiatric history presented with a chief complaint of "my personality has changed." The patient's mother reported the patient as normally being highly functional. However, over the past seven months, he had lost his job and was on the verge of becoming homeless. He initially noted some subtle changes in his personality such as irritability and mood lability. This progressed to forgetfulness, difficulties in concentration, hearing voices, and exhibiting aggressive behavior. The patient was on no medications, had no history of criminal activity, and denied history of substance abuse or sexually transmitted diseases. Family history was negative for psychiatric conditions. Mini-mental status examination was 20/30. His physical exam was otherwise normal, including neurologic exam. CT head, B12, folate, TSH, and other pertinent labs were normal. Urine toxicology was negative. Serum RPR was positive 1:1 with MHA-TP 4+. HIV was non-reactive. A lumbar puncture revealed the following: glucose 65, protein 65, WBC 2 with 96% lymphocytes and positive VDRL, 1:4. The patient was admitted and treated with intravenous penicillin for two weeks. Improvement in symptoms was evident shortly after initiation of treatment. Specifically, his repeat MMSE was 28/30 and his irritability, agitation, mood lability and auditory hallucinations had substantially improved. His symptoms had entirely resolved at post-hospitalization and his functional status had returned to baseline.
DISCUSSION: Neurosyphilis can remain asymptomatic or manifest in a variety syndromes that can overlap. This patient developed general paresis which usually occurs about 20–30 years after initial infection. The onset of psychiatric symptoms can be gradual and include mood lability, memory problems, and withdrawal, later progressing to symptoms mimicking schizophrenia, mania, paranoia, or presenile dementias. A diagnosis is made through lumbar puncture showing either a positive CSF-VDRL or CSF pleocytosis and neurologic symptoms despite a negative CSF-VDRL. Standard treatment is aqueous penicillin G. In a five year follow-up of patients with neurosyphilis, 50% of patients showed resolution of disorientation, convulsions, tremors, incontinence, euphoria and depression, while only 25% of patients showed resolution in delusions, hallucinations, and impaired memory. While penicillin has dramatically reduced the number of presentations of neurosyphilis, HIV, and the recent rising incidence of early syphilis have made the possibility of encountering a case of neurosyphilis a reality. These presentations can often be missed as many patients present with subtle behavioral changes or psychiatric symptoms. Often, psychiatric manifestations can be the only symptoms exhibited upon presentation. Treatment of neurosyphilis can often lead to marked improvement in cognitive function, especially in early stages or mild disease. Given these considerations, it is imperative that clinicians encountering patients with neuropsychiatric symptoms have a high clinical suspicion for this "great imitator," especially in middle-aged to older patients with little to no prior psychiatric history.

PSYCHOSIS NOS, THINK AGAIN. C.E. Landaverde[1]; N. Mikhail[1]. [1]Olive View/University of California, Los Angeles Medical Center, Sylmar, CA. *(Tracking ID # 153276)*

LEARNING OBJECTIVES: 1. Recognize that the clinical spectrum of Hashimoto's encephalopathy (HE) is heterogeneous and diagnosis is often difficult. 2. Be able to diagnose and manage HE.
CASE: A 19 year-old previously healthy Hispanic man initially presented to an outside hospital (OSH) with symptoms of disinhibibition, perseveration, memory problems, insomnia, and aggressive episodes. A complete workup was undertaken, LP was unremarkable for infectious and inflammatory etiology. CT head and MRI brain findings were also unremarkable. The patient was reported to have had two tonic clonic-clonic seizures during that hospitalization, the EEGs demonstrated diffuse slowing, and no epileptic focus. The patient was discharged to home on phenytoin, valproic acid and empiric acyclovir. Two weeks later, the patient was brought to our ED after having had violently attacked his mother, unprovoked. The patient was afebrile, RR 16, HR 64, BP 112/56. The

patient's mental status exam continued to demonstrate memory deficits, perseveration, disinhibition, and was also noted to have problems with naming and ideas of grandiosity. The rest of the physical exam was unremarkable. The laboratory examination was also unremarkable (normal chemistries, CBC, ESR, RPR, HIV, ANA, and urine toxicology screen), except for a mild ALT elevation of 73. The patient had a completely negative infectious, rheumatological and inflammatory encephalopathy workup of both CSF and serum. During the hospitalization, the patient had a witnessed seizure resulting in lateral tongue lacerations. The patient was switched to Zonegram from phenytoin and valproic acid after it was noted that his liver tests became more abnormal. The acute viral hepatitis panel was negative and his liver tests subsequently normalized. The patient had normal TSH (1.85) and FT4, in addition, his anti-thyroglobulin antibodies were negative. The patient was discharged with neurology follow-up but was brought back to the ED the following day after having another violent attack. Upon going over the work up for this admission, it was noted that the anti-microsomal antibody, which had been pending, was strongly positive at 17 units/nL. The diagnosis was made of Hashimoto's encephalopathy, methylprednisolone 500 mg IV daily was started and the patient was discharged on prednisone. Six weeks later, the patient was seen in neurology clinic and noted to have returned to his high functional baseline.
DISCUSSION: Hashimoto's encephalopathy is rare, approximately 30 cases have been reported in the literature, 85% were women and the average age of onset was 47. However, HE may be under-recognized, since its clinical presentation is similar to more common disorders. Hashimoto's encephalopathy has been observed to have two clinical presentations. The first type is characterized by acute transient stroke-like episodes and epileptic seizures. The second form has a more insidious onset, progressing to dementia, psychosis, uncontrolled seizures and coma. No specific test exists for HE, thyrotropin and FT4 are usually normal. Positive antithyroid antibodies are necessary in the diagnosis of HE. This diagnosis should be entertained in the setting of any neuropsychiatric condition that is not responding to conventional therapy, especially when autoimmune thyroiditis is suspected or known. Hashimoto's encephalitis, generally, responds well to steroid or other immunosuppressive therapy. Therapy duration is usually 4–6 weeks and 90% of the patients stay in remission.

PULMONARY ALVEOLAR PROTEINOSIS (PAP) SECONDARY TO PNEUMOCYSTIS CARINII PNEUMONIA (PCP). L.V. Maramattom[1]; A. Rao[1]; J. Biller[1]; L. Santo Tomas[1]. [1]Medical College of Wisconsin, Milwaukee, WI. *(Tracking ID # 154089)*

LEARNING OBJECTIVES: 1. Recognize that all PAP patients have increased risk of developing unusual forms of pneumonia 2. Consider PAP in the differential diagnosis in asymptomatic patients or patients with chronic dyspnea on exertion and diffuse lung infiltrate 3. Consider PCP as a possible diagnosis in all immunosuppressed patients even if more than 12 months post transplantation.
CASE: A 25 y/o woman s/p heart transplant 5 years earlier presented with fatigue and progressive dyspnea. Cotrimoxazole prophylaxis was discontinued and Sirolimus was added a few weeks prior to development of symptoms. She was afebrile, comfortable at rest, and had a normal lung exam. She did not require any oxygen and did not desaturate with activity. Chest radiograph showed diffuse bilateral interstitial infiltration with right middle lobe consolidation and perihilar predominance. Pulmonary function tests showed moderate restriction with normal diffusion capacity. High resolution CT of the chest showed patchy ground-glass opacification, thickened intralobular and interlobular septa in the right upper and middle lobes forming polygonal shapes reminiscent of "crazy-paving pattern". Echocardiography revealed good cardiac function. A chest radiograph the following day showed worsening infiltrates though her oxygenation was unchanged. Due to concern for an opportunistic infection or unusual pathologic process a thoracoscopic lung biopsy was done. Histology revealed thin delicate alveolar septa, expanded and filled with abundant granular eosinophilic debris, scattered alveolar macrophages and irregular large proteinaceous globules. Granular debris reacted positively with periodic acid-Schiff stain. Gomori-methenamine silver stain showed scattered clusters of Pneumocystis carinii cysts. These findings were consistent with PAP and PCP. She was treated with cotrimoxazole and steroids for PCP and was discharged after symptomatic improvement. Two weeks later she was readmitted with acute pancreatitis and bilateral alveolar consolidation that improved rapidly after diuretics and positive pressure ventilation. Pneumocystis was no longer detected on bronchoalveolar lavage fluid, but she still had PAS positive material. Treatment dosing of cotrimoxazole was completed and chest radiograph showed complete resolution of infiltrates prior to discharge.
DISCUSSION: Pulmonary alveolar proteinosis can be congenital, acquired or secondary. Secondary PAP develops in association with conditions involving functional impairment or reduced numbers of alveolar macrophages. Such conditions include some hematologic cancers, pharmacologic immunosuppression, inhalation of inorganic dust or toxic fumes, and certain infections like PCP. The standard of care for primary PAP is whole lung lavage but for secondary PAP involves treatment of the underlying condition. Most of the cases of PAP secondary to PCP have been reported in HIV patients. PCP infection in transplant patients usually occurs early on after the transplant. This case illustrates PAP secondary to PCP in a non HIV patient 5 years after a solid organ transplant.

PURULENT PERICARDITIS AND CARDIAC TAMPONADE CAUSED BY HEMOPHILUS INFLUENZA. P. Garg[1]; R. Gupta[1]; V. Das[1]; J. Szalados[1]. [1]Unity Health System, Rochester, NY. *(Tracking ID # 154086)*

LEARNING OBJECTIVES: 1. Recognize Hemophilus influenza as an etiological agent for purulent pericarditis. 2. Differentiate bacterial pericarditis early in the course from viral pericarditis.
CASE: A 78-year-old white female presented with sore throat, dysphagia and recent onset of shortness of breath. There was no cough, chest pain, or palpitations. Her past medical history was unremarkable. She was afebrile with oxygen saturation of 97% on room air. However she was tachycardic (pulse of 106 per minute) and hypotensive (blood pressure of 70 mmHg systolic). Her posterior pharyngeal wall was erythematous. There was no cervical adenopathy. Chest exam revealed bilateral basilar crackles. Cardiovascular exam, abdominal and neurological exam were normal. Her white blood cell count was increased with significant bandemia. Chest radiograph revealed bilateral lower lobe infiltrates. Electrocardiogram revealed diffuse S-T segment elevation in all the leads. Serial Troponins were negative. A bedside 2-D echocardiogram revealed ejection fraction of 35% and a pericardial effusion without tamponade. A diagnosis of pericarditis was made. She was started on non-steroidal anti-inflammatory agents for pericarditis and antibiotics for possible sepsis. On the 3rd day, she became hypoxic, acidotic and hypotensive, despite fluid resuscitation. Sputum gram stain and culture were negative. However blood cultures returned positive for Hemophilus influenza. An urgent bedside echocardiogram revealed cardiac tamponade. Prompt bedside pericardiocentesis revealed brownish, greenish frank pus. Approximately 500 milliliter of pus was drained and drainage tube was left in place. The hemodynamics improved immediately after pericardiocentesis. Gram stain and culture of the pericardial fluid revealed Hemophilus influenzae. She was continued on antibiotics and made a gradual recovery. Repeat 2-D echocardiogram 3 weeks later revealed only scant pericardial effusion.
DISCUSSION: Bacterial infection of the pericardial space is uncommon in clinical practice. Most cases are associated with dialysis, thoracic surgery, chemotherapy and adult immunodeficiency syndrome. The common etiological organisms causing purulent pericarditis are staphylococcus, streptococcus, and tuberculosis bacillus. Though purulent pericarditis is commonly seen in the immunocompromised patients, our patient was immunocompetent and presented with upper respiratory tract symptoms, rapid progression to bibasilar pneumonia and progressive pericardial effusion leading to tamponade. She did not manifest fever and the typical symptoms of bacterial pericarditis. Absence of fever may have been due to empirical treatment with naproxen for acute pericarditis. Prompt diagnosis, percutaneous aspiration of the pericardial fluid and aggressive medical therapy was essential in treating this life threatening disease. This patient was treated with closed drainage with good response. Development of constrictive pericarditis would have required pericardectomy. Bacterial pericarditis should be differentiated from viral pericarditis early in the course as it is usually fatal if not recognized and treated early enough. Presence of upper respiratory tract symptoms, pneumonia or sepsis with evidence of pericarditis should alert the clinician to the possibility of a bacterial etiology. Hemophilus influenza should be recognized as a possible etiological agent of pyogenic pericarditis in immunocompetent elderly patients.

RAPID CLINICAL EXPRESSION OF BENIGN TERTIARY SYPHILIS IN THE SETTING OF HIV INFECTION. M. Canos[1]; V.T. Martin[1]. [1]University of Cincinnati, Cincinnati, OH. *(Tracking ID # 154514)*

LEARNING OBJECTIVES: 1) Recognize the potential for rapid progression of syphilis in the setting of HIV infection. 2) Prioritize neurosyphilis evaluation and early treatment in patients with visual complaints in the setting of a positive rapid plasma reagin test.
CASE: A 28 year old HIV positive type 2 diabetic male with CD 4 count of 45, HIV viral load of 78000, and history of noncompliance with anti-retroviral therapy consulted his doctor because of sudden onset right eye vision loss. The patient had a routine ophthalmologic exam two weeks prior to symptom onset that showed mild non-specific retinal pigment changes that were not consistent with diabetic retinopathy. The patient denied any constitutional symptoms such as fever, malaise, headache, nausea, anorexia, or joint pains. His last sexual encounter was six months prior to symptom onset and involved the use of a condom. The patient was referred to ophthalmology clinic and diagnosed with a new bilateral chorioretinitis, vitritis, and perivasculitis. Laboratory evaluation revealed a reactive rapid plasma regain (RPR) with a titer of 1:64, as well as a negative toxoplasmosis IgG and negative cytomegalovirus assay. The patient had multiple negative RPR tests during biannual screenings, including a negative RPR three months prior to presentation. The patient was admitted to the hospital for lumbar puncture and antibiotic therapy. The physical examination was significant for decreased right eye visual acuity with mild right temporal visual field impairment. There was no plantar or palmar rash, chancre, or condyloma latum appreciated. There was no Argyll Robertson pupil or focal neurologic deficits present. Cerebral spinal fluid testing revealed a mild protein elevation without pleiocytosis, but the spinal fluid cultures, cryptococcal antigen, and VDRL were all negative. Treatment was initiated with three million units of intravenous penicillin G every four hours for a three week course and vision improvement was reported upon completion of therapy.
DISCUSSION: Benign tertiary syphilis is characterized by gummatous lesions in the skin and mucous membranes. In some cases, the lesions may occur in the choroid, ciliary body, or iris. This case illustrates the potential for rapid progression of syphilis in the setting of HIV infection. Among HIV-positive patients, an increased frequency of ocular disease and a higher titer RPR have been reported. Although the RPR can be falsely negative in up to 30% of patients with late or latent disease, HIV status does not impact the incidence of latent disease or the sensitivity of the RPR test. Regardless of HIV status, visual complaints in the setting of a positive RPR necessitate a neurosyphilis evaluation with lumbar puncture followed by intravenous Penicillin G therapy.

RECOGNITION AND TREATMENT OF POLYMYALGIA RHEUMATICA IN THE OUTPATIENT SETTING. I. Katz[1]; A. Wright[2]. [1]Brigham and Women's Hospital, Boston, MA; [2]Brigham and Women's Hospital, Cambridge, MA. *(Tracking ID # 152290)*

LEARNING OBJECTIVES: 1) Recognize the clinical features of polymyalgia rheumatica 2) Long term management of polymyalgia rheumatica 3) Distinguishing polymyalgia rheumatica from other diseases with similar presentations
CASE: This is a case of a 77 year-old Caucasian woman who presented to the outpatient clinic with one month of increasing muscle soreness. She first noted this when she started to lift weights to try to build muscle strength. This occurred a month after starting her statin and after each workout she would feel slightly sore. Then after receiving a flu shot, she reported that her left shoulder ached. The soreness progressed to her hips and inner thighs. Two days prior to her presentation she had to log-roll herself off the bed to get to the bathroom. She took ibuprofen with minimal effect. She denied fevers, chills, nausea, vomiting, cough, rash. She reported no recent change in her medications. Her past medical history included depression, hypothyroidism, hypertension, hypercholesterolemia, and irritable bowel syndrome. Her medications included levothyroxine, hydrochlorothiazide, simvastatin, sertraline and amlodipine. On exam, she was afebrile and normotensive, with normal oxygen saturation. The remainder of her head, neck, cardiovascular, lung, and abdominal exam were normal. On musculoskeletal exam, she was noted to have mild bilateral shoulder girdle, thigh adductor, and biceps muscle tenderness. She denied paraspinal, trapezius, forearm, hip, knee, and calf swelling/tenderness. She denied temporal artery tenderness, headache, jaw pain or visual loss. For her initial workup, the patient was advised to discontinue simvastatin. In addition, a basic metabolic panel and erythrocyte sedimentation rate (ESR) were checked; the ESR was 99. Prednisone was initiated, and the patient's symptoms were immediately relieved. Over a one-year period, the steroids were gradually tapered with no residual symptoms.
DISCUSSION: This case is a classic presentation of polymyalgia rheumatica (PMR). Initially, however, the differential diagnosis was broad and included: statin-induced myositis; diuretic-associated electrolyte disturbances; or hypothyroidism. Other diseases that could present in this manner include: multiple myeloma, fibromyalgia, osteoarthritis, and rheumatoid arthritis. Of note, the patient denied visual symptoms and had no evidence of temporal artery tenderness. It is always important to discuss this with patients who are diagnosed with PMR, due to its association with Giant Cell Arteritis. Epidemiologically, PMR tends to affect Caucasians more than African Americans, and females more than males. In general, patients with PMR tend to be over 50 years old and have a classic pattern of abrupt onset of morning stiffness and proximal polyarthralgias (upper arms, neck, trunk), Often, their ESR is elevated (although it can be normal in up to 20% of those with the disease). Patients diagnosed with PMR usually have a brisk response to steroids. It is essential to remember to do regular bone density testing, and prescribe calcium and vitamin D to patients on steroids to prevent bone loss.

RED, WHITE, BLUE AND YELLOW: A FATAL CASE OF RAYNAUDS PHENOMENON AND TTP. F. Lansigan[1]; H. Tsai[1]. [1]Montefiore Medical Center, Bronx, NY. *(Tracking ID # 151674)*

LEARNING OBJECTIVES: 1. Recognize the clinical manifestations of Thrombotic Thrombocytopenic Purpura (TTP) and its complications 2. Differentiate TTP from other causes of thrombocytopenia and microangiopathic hemolytic anemia (TMA) 3. Use a highly specific ADAMTS13 assay to identify TTP
CASE: In August 2003, a 23 year-old black woman was seen in clinic for Raynauds phenomenon. She denied any history of rash, or alopecia, but reported infrequent mild arthralgias. Labs disclosed ANA 1:640 titer with a speckled pattern, with positive RNP > 100U/ml and Smith > 100U/ml antibodies. She was given the diagnosis of an undifferentiated connective disease and was given nifedipine for Raynauds. In July 2005, she presented with the complaints of shortness of breath for one week, nausea, vomiting and jaundice over two days. Physical exam showed 102.8°F, HR 136 and RR 30, and BP 124/80. She was visibly jaundiced and had diffuse petechiae on her legs. In the emergency room, she had a generalized tonic-clonic seizure. Laboratory studies showed: WBC 6.6k/L, platelet count 7 million/L, hemoglobin 8.3g/dL, indirect bilirubin 6.2 mg/dL, LDH 1301U/L, reticulocyte count 4%, haptoglobin 8 mg/dL, and schistocytes > 10/hpf. Renal function and coagulation tests were normal. The antiphospholipid antibody panel was negative. For a presumptive diagnosis of TTP she was started on daily plasma exchange and steroids without improvement in her laboratory parameters. Within 24 hours, she became hypotensive. An echocardiogram revealed diffuse hypokinesis and she had serologic evidence of a myocardial infarction, troponin 0.18ng/ml. She died on the third hospital day. The ADAMTS13 activity level was < 10%. All organs autopsied including the kidney, brain, lung, heart, pancreas, and adrenals had evidence of hyaline thrombi rich in platelets and von Willebrand factor consistent with TTP.
DISCUSSION: Clinical recognition of TTP is of utmost importance because of its high mortality rate without treatment. Institution of plasma exchange decreases the mortality rate from > 90% to 10–20%. Blacks, in particular females, are affected at a disproportionately high rate. Other risk factors include connective tissue disease, HIV, and exposure to ticoldipine, but most cases are idiopathic. Patients typically present with weakness, pallor, petechiae, headache or subtle mental changes. The classic pentad of TTP, thrombocytopenia, microangiopathic hemolysis, neurological deficits, fever, and renal abnormalities, are characteristic but not pathogmonic. TMA alone is enough to make the clinical diagnosis of TTP and plasma exchange should be initiated if suspected. Because the classic features of TTP are non-specific and can occur in other abnormalities such as hemolytic uremic syndrome, lupus erythematosus, other vasculitides, sepsis, DIC, and catastrophic antiphospolipid syndrome, it is important to utilize a test that will help clarify the diagnosis of TTP. The pathophysiology of TTP has now been elucidated and a deficiency or inhibitor of a disintegrin and metalloprotease with thrombospondin type-1 motifs (ADAMTS13) has been implicated. This protease cleaves von Willebrand factor multimers and prevents platelet aggregation. Assays of ADAMTS13 activity have been developed. In our experience, the ADAMTS13 assay by Tsai has shown 100% specificity when strict criteria are applied to define patients with TTP. This test helps differentiate TTP from other causes of TMA, and may have implications on choice of therapy.

RE-EXPANSION PULMONARY EDEMA: A POTENTIALLY FATAL COMPLICATION OF THORACENTESIS. P. Garg[1]; R. Gupta[1]; J. Szalados[1]; J.G. Dolan[1]. [1]Unity Health System, Rochester, NY. *(Tracking ID # 155736)*

LEARNING OBJECTIVES: 1. Recognize the clinical features and pathophysiology of Re-expansion pulmonary edema as a complication of thoracentesis. 2. Recognize the risk factors which may lead to Re-expansion pulmonary edema.
CASE: A 50 year old African American male presented to the emergency department with new onset dyspnea of 1 week duration. His co-morbidities included HIV, end stage renal disease, hypertension, diabetes, and coronary artery disease. On examination he was cachectic with a blood pressure of 114/92 mm of Hg and pulse of 106 per minute. He was afebrile and his oxygen saturation was 97% on room air. On chest exam he had stony dullness on percussion along with decreased breath sounds in lower half of the lung field on the right side. A large right sided pleural effusion was confirmed on a right lateral decubitus film. Diagnostic and therapeutic thoracocentesis was performed and 1500 cc of pleural fluid was removed. An hour after thoracocentesis he complained of sudden onset of cough and severely worsening shortness of breath. Oxygen saturation dropped to 82% on room air. A repeat chest X-ray revealed interstitial and alveolar edema on the right side suggestive of pulmonary edema. The patient was started on oxygen therapy and his symptoms improved dramatically over the next twelve hours. The pleural fluid returned as exudative in character. Chest X ray performed two days later revealed complete clearing of the pulmonary edema.
DISCUSSION: Re-expansion pulmonary edema has been reported as a rare complication following drainage of pneumothorax, a large pleural effusion and hemopneumothorax. It has also been reported after lobectomy and procedures recquiring single lung ventilation. Risk factors include young age, a large pneumothorax or pleural effusion, and a longer duration of collapse. The method and the rapidity of drainage of pleural effusion or pneumothorax however is probably the most important risk factor. Various pathophysiologic mechanisms proposed are surfactant depletion, hypoxic capillary damage in the affected lung with increased capillary permeability and an inflammatory response following lung re-expansion. The clinical picture is dramatic. Onset occurs immediately following lung re-expansion with majority of patients exhibiting symptoms with in 1 hour. Severe coughing heralds the development of pulmonary edema. Severe hypoxemia, hypotension and significant third spacing can occur within the affected lung. Re-expansion pulmonary edema is potentially fatal with mortality as high as 20 percent. Literature review revealed a paucity of data for re-expansion pulmonary edema following thoracentesis and there is no consensus as to how much fluid can be removed safely. In the largest case series so far, Mahfood etal reported 7 patients who developed re-expansion pulmonary edema following thoracentesis. The average volume of fluid removed was 2600 ml (range, 1000–4500 ml) and the mortality rate was 30%. Treatment is supportive. Mechanical ventilation with positive end expiratory pressure and hemodynamic support may be appropriate. Symptoms usually resolve within 24 to 72 hours. Physician should be aware of this potentially fatal complication while doing thoracentesis. Slow drainage and limiting the volume of fluid removed may help prevent this iatrogenic complication.

RENAL FAILURE RESULTING FROM ROUTINE COLONOSCOPY PREPARATION. A.L. Deluna[1]; P. Ng[1]. [1]Stanford University, Stanford, CA. *(Tracking ID # 151588)*

LEARNING OBJECTIVES: Recognize that renal failure can result from phospho-soda bowel preparations in the absence of pre-existing renal disease. Identify risk factors that predispose patients to renal failure resulting from phospho-soda bowel preparations.
CASE: BACKGROUND: Colonoscopy has become an increasingly prevalent technique to detect colon cancer both through screening and as part of the diagnostic workup for anemia. Risks of the actual procedure, such as perforation, are well described; however, the risks of the preparation itself are not as well recognized. For example, phospho-soda preparations, while convenient, can cause hyperphosphatemia and subsequent renal disease. CASE: A 63-year-old woman with a history of hypertension and anemia presented with oliguria after routine colonoscopy performed for workup of her anemia. Her only other medical problem had been hypertension well controlled with hydrochlorothiazide and captopril. Prior to the procedure, the patient received a phospho-soda bowel preparation.The procedure was without any complications other than mild transient hypotension. However, after the procedure, she noticed oliguria and contacted her physician, who advised her to come for further evaluation. Her vital signs were 97.7, 144/83, 84, 14 and her exam, including abdominal exam, was unremarkable; however, bladder catheterization produced only 100 cc of urine. Laboratory exams were notable for blood urea nitrogen 56, creatinine 6.2 (previously 0.9), calcium 6.8, and phosphorus 11.5. An ultrasound showed bilateral echogenic kidneys without evidence of hydronephrosis. The patient was admitted with acute renal failure presumed to be secondary to hyperphosphatemia and possibly acute tubular necrosis from peri-procedural

hypotension. Eventually, the patient required intermittent hemodialysis for uremia and fluid overload. Slow recovery of renal function prompted a renal biopsy, which demonstrated nephrocalcinosis, a tubulointerstital nephropathy characterized by calcium phosphate deposition. This biopsy result established transient hyperphosphatemia secondary to the bowel preparation as the most likely etiology of her renal failure. The patient was discharged from the hospital one month later and continues to need hemodialysis.
DISCUSSION: The potential for acute renal failure from the use of phospho-soda preparations in pts without pre-existing renal insufficiency is not well recognized. Multiple cases of hyperphosphatemia and renal failure have been reported, but few cases have occurred in patients without previously known risk factors such as renal disease or colonic dysmotility. Many of the patients without these risk factors, including this patient, were taking angiotensin converting enzyme (ACE) inhibitors or angiotensin receptor blockers (ARBs) prior to colonoscopy. Perhaps, these drugs predisposed patients to renal failure by exacerbating volume depletion or causing bicarbonaturia, thus potentially increasing calcium and phosphate concentration and subsequent precipitation. Because of the ease of use, phospho- soda preparations will continue to be used for colonoscopy preparations; however, this case highlights the possibility of acute renal failure for patients taking these preparations while taking ACE inhibitors or ARBs. Consequently, careful attention should be paid to the use of phospho- soda preparations in patients taking ACE inhibitors or ARBs, even without previously known pre-exisitng renal insufficiency.

REVERSIBLE POSTERIOR LEUKOENCEPHALOPATHY: AN UNPREDICTABLE CONSEQUENCE OF ALCOHOL WITHDRAWAL. J.L. Strande[1]; J. Fife[2]; A. Goyal[3]. [1]Medical College of Wisconsin, Milwaukee, WI; [2]St. Joseph's Regional Medical Center, Milwaukee, WI; [3]St. Joseph Regional Medical Center, Milwaukee, WI. *(Tracking ID # 151660)*

LEARNING OBJECTIVES: 1. Consider reversible posterior leukoencephalopathy syndrome as a cause of status epilepticus, especially in the setting of alcohol withdrawal. 2. Recognize the importance of blood pressure control early in the treatment of reversible posterior leukoencephalopathy syndrome to reduce long-term morbidity.
CASE: A 46 year-old man with a history of alcohol abuse was brought to the hospital after becoming unresponsive and having a witnessed seizure at home. His last drink was 18 hours prior to this episode. On arrival to the ER he was found to be hypertensive (BP 229/135), tachycardic (pulse 140) and seizing. He was treated with lorazepam, given a bolus of diltiazem and started on a continuous diltiazem infusion. His BP and pulse initially decreased to 183/106 and 135, but increased to 208/110 and 166 over 30 minutes. During this time his mental status did not improve, and he seized again after 40 minutes. He was treated again with lorazepam, and the diltiazem was changed to labetalol. He was sedated and intubated, and started on a valproate infusion. This regimen eventually controlled his seizures as well as his hypertension and tachycardia. Following his initial stabilization, the patient underwent a more extensive work-up for his status epilepticus. His basic metabolic panel, CBC, urine toxicology and CSF analysis were unremarkable, but his serum alcohol level was 0.085. A head CT was unrevealing, but a subsequent brain MRI showed extensive edema throughout the cerebellum and occipital and parietal lobes. Based on these findings, the patient was diagnosed with reversible posterior leukoencephalopathy syndrome (RPLS). His blood pressure control remained satisfactory, and within 10 days his MRI findings had resolved and he returned to his baseline neurocognitive level.
DISCUSSION: RPLS classically presents with headache, vision disturbances, and seizures in the setting of accelerated hypertension. Since this patient was unable to provide any history, his initial clinical picture (recent cessation of alcohol intake, tachycardia, hypertension and seizures) was more consistent with acute alcohol withdrawal. RPLS needs to be recognized and treated promptly, as delay might result in permanent brain damage. Therapy involves control of blood pressure, withdrawal of offending medications, and use of anticonvulsants. Hypertension in RPLS should be treated aggressively to prevent progression to irreversible ischemia and infarction. The neurologic derangement is often completely reversible if the condition is treated quickly. RPLS has been typically associated with eclampsia, renal disease and immunosuppressant use. To our knowledge, this is the first case of RPLS reported to be associated with alcohol withdrawal. This case emphasizes the importance of determining whether RPLS is a cause of seizures in the setting of alcohol withdrawal. It also emphasizes the importance of aggressively lowering blood pressure early in the treatment of RPLS to prevent long-term sequelae.

RIGHT ATRIAL MASS, ANEMIA, SPLENOMEGALY, AND VASCULITIS IN AN INTRAVENOUS DRUG USER. ENDOCARDITIS OR NOT?. P. Zhao[1]; A. Khan[1]; T. Ahmad[1]; M. Panda[1]. [1]University of Tennessee, Chattanooga, TN. *(Tracking ID # 151790)*

LEARNING OBJECTIVES: 1. To recognize the clinical manifestations of right atrial myxoma 2. To understand the overlap between clinical findings in bacterial endocarditis and atrial myxoma.
CASE: A 43-year-old white male with a long history of IV drug abuse presented with a six month history of shortness of breath, lower extremity edema and myalgias. He was initially treated at another facility for congestive heart failure, where an echo revealed a right atrial mass. A provisional diagnosis of infective endocarditis was made. At this point he presented to our facility. Physical examination revealed a markedly elevated JVD with cannon waves, a 2/6 systolic ejection murmur at the left lower sternal border, few purpuric lesions on the ankles, and hepatosplenomegaly. Laboratory showed leukocytosis, high ESR, normocytic anemia, thrombocytopenia, elevated PTT and PT. Hepatitis C serology was positive. Blood cultures were repeated several times and remained negative. Transesophageal echo demonstrated a 3.6×3.7 cm mass attached to the septal leaflet of the tricuspid valve. There was severe tricuspid regurgitation and the right atrium and the right ventricle were severely dilated. Although the patient had historical and clinical evidence of endocarditis blood cultures remained negative. Surgery was performed with removal of atrial mass and replacement of tricuspid valve. Pathology of the atrial mass revealed atrial myxoma. He was then started on aspirin and lovenox. His hospital course was complicated by development of worsening palpable purpura in his lower extremities and lower abdomen and a hemolytic anaemia with elevated LDH and low haptoglobin and hemoglobinuria. Cryoglobulin level was 1. Complement level was normal. C ANCA and P ANCA were negative. Pathology of skin biopsy showed leukocytoclastic vasculitis with capillary deposits of IgA, IgG, Ig M, complement and fibrin suggestive of mixed cryoglobulinemia. Purpura responded to steroids.
DISCUSSION: Atrial myxoma is a fairly rare tumor. It is even rarer in the right heart. The confounding history of IV drug use in our patient initially led us down the path of infectious endocarditis. Clinical findings that are common between endocarditis and myxoma include constitutional symptoms such as, fever, malaise, myalgia, joint pain; pericardial rub; heart murmur; chest pain; shortness of breath; embolization; leukocytosis; anemia; and elevated ESR. Blood cultures and echocardiogram are very important tools to differentiate endocarditis from myxoma. Hemolytic anemia, and thrombocytopenia are often noted in left atrial myxomas as they are in endocarditis. Cutaneous manifestation of myxoma may mimic vasculiltis or connective tissue disease. Skin biopsy in our patient showed leukocytoclastic vasculitis which can occur in endocarditis as well as cryoglobulinemia. This case demonstrates the complexity of clinical decision making in the setting of multiple clinical findings that can be explained by more than one underlying disease process. In addition management of endocarditis and indications for doing right heart valvular surgery in a chronic I/V drug user were brought to the fore.

RISK OF THIAMINE DEFICIENCY IN THE NON-ALCOHOLIC. W.A. Li[1]; O. Pickett[1]; M. Zetkulic[2]. [1]University of Medicine and Dentistry of New Jersey, Robert Wood Johnson Medical School, Somerset, NJ; [2]Saint Peter's University Hospital, New Brunswick, NJ. *(Tracking ID # 153103)*

LEARNING OBJECTIVES: Wernicke-Korsakoff syndrome is a preventable complication of thiamine deficiency. Rarely, we recognize the risk of thiamine deficiency in non-alcoholic. Treatment of the syndrome, once established, is only moderately successful. Therefore, recognizing the spectrum of thiamine deficiency is necessary for safe administration of intravenous fluid hydration.
CASE: A 44 year old woman with bipolar disorder, who experienced prolonged anorexia and vomiting for three months after valproic acid had been added to her regimen. Her profound weakness prompted her psychiatrist to send her for emergency evaluation. Upon admission, she was afebrile, blood pressure was 90/60 and heart rate was 61. The rest of the exam was normal. Despite two liters of intravenous hydration with D5 1/2 NS, the patient became more hypotensive and was given further fluids resuscitation. After 36 hours, the patient developed confusion with pronounced vertical nystagmus, decreased sensory motor strength, truncal ataxia, and dysmetria. She then developed significant short-term memory loss and she began to confabulate after 42 hours. A lumbar puncture was performed and cerebrospinal fluid studies were normal. Serum folate was low. MRI showed an abnormal hyperintense T2-weighted signal restricted to the mammary bodies with subtle enhancement of the post-gadolinium images consistent with Wernicke syndrome. EMG study showed moderate polyneuropathy in motor and sensory nerves. The patient was treated with thiamine and folate. Her nystagmus improved, however after three months, her ataxia remained and had to walk with assistance. Her mental status had improved, but her short-term recall remained severely impaired.
DISCUSSION: Thiamine deficiency, while common in alcoholic patients, may present in patients with malignancy, hyperemesis, AIDS, magnesium depletion, malabsorption syndromes, and after gastric bypass surgery. Thiamine is absorbed in the jejunum and ileum. It serves in cellular metabolic activities such as in the pentose phosphate pathway, and as a catalyst in the oxidative decarboxylation reaction. It is found in food products such as rice, yeast, pork. Ocular abnormalities, ataxia, confusion are the triad of Wernicke syndrome. Polyneuropathy and orthostatic hypotension can be present as well. MRI is 93% specific, but only 53% sensitive. Early administration of thiamine can reverse some of the neurologic sequelae. Intravenous fluids can be overlooked as medications with preventable side effects. As in this case, failure to be cognizant of nutritional deficiencies in non-alcoholic patients could impair one's ability to utilize fluid resuscitation safely.

RUB-A-DUB-DUB-CHUGALUG. D.A. Brokl[1]; E.D. Morse[2]. [1]Society of General Internal Medicine, Pittsburgh, PA; [2]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 152673)*

LEARNING OBJECTIVES: 1) Recognize the possibility of isopropyl alcohol (IA) ingestion in a clinically intoxicated patient with undetectable blood ethanol level (BEL). 2) Distinguish IA ingestion from ethylene glycol (EG) and methanol ingestions. 3) State the treatment and potential complications of IA ingestion.
CASE: A 52 year-old male with a past medical history significant for alcoholism, delirium tremens, and depression was brought to the emergency department and subsequently admitted to the intensive care unit (ICU) after being found at his home by friends, confused and crawling on his floor. Initial evaluation revealed a disoriented, thin Caucasian male with a sweet odor emanating from his breath. He was afebrile with normal vital signs and oxygen saturation.

Neurological examination revealed global neurocognitive depression without focal neurological deficits. He had poor dentition; physical examination was otherwise unrevealing. The patient received multiple doses of flumazenil and naloxone without improvement in his mental status. Laboratory evaluation revealed normal electrolytes, anion gap (AG), blood glucose, and CBC. ABG was normal. Urinalysis revealed ketonuria. Urine and blood toxicologies were positive only for benzodiazepines. Computed tomography of the head and chest plain films were unrevealing. His BEL was undetectable. However, his measured and calculated serum osmolarities were 362 and 292 respectively, resulting in an elevated osmolal gap (OG) of 70. Further analysis revealed significantly elevated blood IA and acetone levels of 96 and 218 mg/dL respectively, and undetectable levels of EG and methanol. The patient was treated supportively with intravenous normal saline and ranitidine. His mental status improved over 6 hours and he began to exhibit evidence of alcohol withdrawal. He was then treated with chlordiazepoxide and transferred to a general medicine ward for observation and counseling.
DISCUSSION: IA (aka isopropanol) is found in rubbing alcohol solutions, deicers and some solvents. Symptoms and signs of IA intoxication are similar to ethanol intoxication and it should be suspected in this clinical setting when the BEL is undetectable. IA is metabolized in the liver to acetone by alcohol dehydrogenase (AD). Acetone is volatile and undergoes dual excretion by the lungs during expiration (giving the breath a characteristic sweet odor) as well as the kidneys through urination. Acetone is an uncharged molecule with a neutral pH and thus does not directly affect the body's acid-base balance. Thus IA ingestion results in an elevated OG with normal AG and serum pH. EG and methanol cause an elevated OG but are metabolized by AD to acids that cause a significant AG acidosis. Ingestions of IA, EG or methanol can be confirmed by directly measuring their serum levels. It is important to distinguish ingestions of IA from EG and methanol as the latter two agents have more serious toxicities and require different management. The toxicity of IA ingestion results from IA itself, not its metabolites. Complications include hypotension (from vasodilatation and negative inotropy), hemorrhagic gastritis (local mucosal irritation) and obtundation/coma. Treatment is supportive and includes hydration, dopamine for hypotension, and intubation for obtundation/coma. IA is dialyzable and indications for dialysis include refractory hypotension or IA serum levels >400 mg/dL.

SARCOIDOSIS MANIFESTING AS DRY EYES AND DRY MOUTH: COMMON SYMPTOMS IN AN UNCOMMON DISEASE. A.C. Lee[1]; R. Gombiner[2]. [1]University of Pennsylvania, Philadelphia, PA; [2]VA, Philadelphia, PA. *(Tracking ID # 157141)*

LEARNING OBJECTIVES: 1. Assess symptoms of dry eyes and dry mouth 2. Recognize ophthalmologic and ENT extrapulmonary manifestations of sarcoidosis. 3. Manage ENT extrapulmonary sarcoidosis.
CASE: A 29 year old African American female with a past medical history only of lower back pain presented to the office with dry eyes, puffy eyelids, dry mouth and sinus congestion. She denied any blurred vision, joint pain, rashes or previous history of rheumatologic disorders. She had no complaint of shortness of breath or other pulmonary symptoms. Her exam was significant for parotid gland enlargement, periorbital edema, and lacrimal gland enlargement. She also had blue tinged boggy turbinates on nasal exam. Her Schirmer's test was positive, and SSA/SSB and rheumatologic serologies were negative. Lacrimal biopsy revealed non caseating granulomas consistent with sarcoidosis. Salivary scan showed decreased uptake consistent with sarcoidosis or a sicca syndrome. Extensive workup revealed a CXR with hilar adenopathy. Subsequent Chest CT showed a nodular disease pattern and hilar adenopathy. Pulmonary function testing including DLCO was normal. The patient was diagnosed with symptomatic extrapulmonary sarcoidosis with secondary sicca syndrome as well as asymptomatic pulmonary sarcoidosis. She was initially treated with plaquenil, followed by 3 months of oral steroids, saline eye drops, salagen, lemon drops with only partial resolution of symptoms. Meanwhile, her sinus complaints continued without abatement. Her "sinusitis" proved refractory to treatment with multiple courses of antibiotics, nasal steroids, antihistamines and decongestants. ENT evaluation with nasal biopsy also revealed non caseating granulomas, and her sinus complaints were attributed to extrapulmonary sarcoid as well. Having failed steroids, she was treated with a course of low dose methotrexate with resolution of symptoms.
DISCUSSION: Dry eyes and dry mouth are typically associated with Sjogren's syndrome, but can be markers of other rheumatologic diseases such as lupus, rheumatoid arthritis, mixed connective tissue disease. Other associated conditions include HIV, Hepatitis C, prior irradiation of the head and neck and sarcoidosis. In addition to serologies for Sjogren's, the evaluation can include Shirmer's testing, possible lacrimal gland biopsy, salivary gland biopsy, salivary scan, CXR, and disease-specific serologies. Sarcoidosis is an uncommon disease with infrequent but protean extrapulmonary manifestations. Ophthalmologic manifestations are the presenting diagnosis in about 11% of patients with sarcoidosis. Most of these cases are uveitis with lacrimal gland involvement is rare. ENT involvement is equally rare at presentation: 4% have involvement of the parotid glands, and 3% have sinus involvement.

SARCOIDOSIS PRESENTING WITH MULTIPLE VENOUS THROMBOSES. J. Chuy[1]; E.H. Green[2]. [1]Montefiore Medical Center, Bronx, NY; [2]Albert Einstein College of Medicine, Bronx, NY. *(Tracking ID # 153449)*

LEARNING OBJECTIVES: 1. Recognize the diagnostic challenges of sarcoidosis 2. Review the differential diagnosis of flank pain 3. Recognize indications for treatment of extrapulmonary sarcoidosis
CASE: A 57-year-old man with a history of hypercholesterolemia and thrombotic CVA presented with sharp, intermittent right-sided flank pain and generalized weakness for two weeks prior to admission. His medications included atorvastatin, aspirin, and oxycodone. On initial exam he was afebrile, had a heart rate of 104 and a blood pressure of 108/61. He had slight tenderness on the right flank. His complete blood count was normal aside from a hematocrit of 30.3, and his chemistry panel revealed a BUN of 54 and creatinine 1.7. Urinalysis showed large occult blood with 21-50 red blood cells. A CT scan of the abdomen and pelvis without contrast showed right hydroureteronephrosis with significant perinephric stranding but no calculus. Shortly after admission the patient developed an asymptomatic maculopapular rash on his trunk and his lower extremities. The patient also developed right lower extremity swelling. Dopplers revealed bilateral acute lower extremity deep venous thromboses (DVTs). Chest CT revealed no pulmonary emboli but did demonstrate mild mediastinal and extensive right axillary lymphadenopathy. CT of the abdomen and pelvis with contrast demonstrated thrombosis of the entire IVC, iliac vessels and right renal vein. Right axillary lymph node biopsy revealed non-necrotizing granulomas. A skin biopsy revealed granulomatous dermatitis of the sarcoid type, with plasma cells. A thrombophilia screen was negative except for a homozygous MTHFR gene mutation, with a normal homocysteine level. HIV testing, PPD, syphilis screen, SPEP, UPEP, CA 19-9, CEA, PSA, and urine cytology were all negative.
DISCUSSION: The differential diagnosis of flank pain includes nephrolithiasis, pyelonephritis, renal abscess, renal infarct, renal venous thrombosis, and even abdominal aortic aneurysm. Renal vein thrombosis in the acute setting can often present with flank pain, hematuria, fever, oliguria, and at times, complete renal failure. The goal of treatment is to prevent clot propagation. This case highlights an extrapulmonary presentation of sarcoidosis and possible implications of its role in a hypercoagulable state. Given that the pathogenesis of sarcoidosis involves granulomatous inflammation and an exaggerated cell-mediated immune response, it is possible that activation of such cells may induce a procoagulant state. There is one other case report to date in which sarcoidosis has presented with venous thrombosis. This patient had no other known risk factors for hypercoagulability prior to his hospitalization. There is no single definitive test for the diagnosis of sarcoidosis; rather, it involves combining a patient's clinical picture with imaging and biopsy. The most accessible areas of the body are the preferred choices for the site of biopsy; skin biopsies, in particular, are high yield with relatively high specificity and low morbidity. The diagnostic yield for a transbronchial lung biopsy ranges from 40 to 90 percent, and mediastinoscopy can provide yields of greater than 90 percent. Given the extent of the venous thromboses in this patient and possible correlation with active sarcoid, one may consider treatment for sarcoidosis for this reason alone.

SCARRING MOXIBUSTION AND RELIGIOUS SCARIFICATION RESULTING IN HEPATITIS C AND HEPATOCELLULAR CARCINOMA. A. Bardia[1]; E.E. Williamson[1]; B. Bauer[1]. [1]Mayo Clinic, Rochester, MN. *(Tracking ID # 152864)*

LEARNING OBJECTIVES: "Cultural competence" can be defined as attainment of proper knowledge, attitudes and behavior to deliver sensitive, humanistic care that is respectful of patients, involves effective patient-centered communication, and responds to patient's psychosocial needs. However, physicians and patients often hold discrepant models of health care that can affect diagnosis and management. We present a case in which understanding of culturally determined self-care measures led to a determination of the etiology of the patient's disease processes.
CASE: A 66-year-old Somalian gentleman presented with a one year history of significant weight loss and intractable itching. Examination was normal except for mild icterus and scar marks on his wrist, abdomen and buttocks. There were no other stigmata of chronic liver disease. Laboratory evaluation revealed elevated liver enzymes (AST-129, ALT-103) and abnormal liver function (Albumin-3, INR–1.3). Further investigations revealed positive Hepatitis A IgG antibody, Hepatitis B IgG antibody with positive Hepatitis B core antigen and Hepatitis C antibody with HCV RNA, and an elevated AFP (253). A CT scan of the abdomen demonstrated an ill-defined 2.8 cm mass in the dome of the right lobe of the liver near the junction of right hepatic vein and middle hepatic vein (panel 1). Possibility of hepatocellular carcinoma secondary to cirrhosis and Hepatitis C was raised. However, the patient did not have known risk factors for hepatitis C. Upon close questioning, patient mentioned he practiced a procedure known as "Moxibustion". He stated that he would burn specific points on his body and would cut his wrists, abdomen and buttocks using sharp objects/injections to release 'bad' blood. A close look at his CT scan revealed loculated subcutaneous gas in the right anterior abdominal wall (panel 2) and additional small subcutaneous collections present in the buttocks likely secondary to injections (panel 3). A liver biopsy confirmed he had hepatocellular carcinoma. The patient was referred to medical oncology service for hepatic radioembolization and chemoembolization.
DISCUSSION: 'Moxibustion' and 'Religious scarification' is widely practiced in some communities (Africa, Asia). It has been used along with acupuncture to treat a variety of aliments including pain, fatigue and reverting breech presentation. It can be either direct or indirect based on contact with body surface. The former is subdivided into further two types: scarring and non-scarring. Scarring moxibustion, involves stimulation of body by heat especially from combustion of the herb Artemisia (Japanese name for the herb is 'moxa') and frequently involves cutting one's body with knives or injections in an attempt to get rid of toxins in tissue fluids (scarification). The use of non sterilized needles/knives/injections can predispose recipients to hepatitis B, C and other infections. The present case highlights the importance of recognizing the cultural context in which an individual is presenting their symptoms or diseases, thus facilitating

early diagnosis and treatment. Unfortunately, this is an area of medicine that tends to receive less attention than it should.

SCHISTOSOMIASIS: AN UNUSUAL CAUSE OF MICROCYTIC ANEMIA AND HEME POSITIVE STOOL. L. Kallenbach[1]; B. Misra[1]. [1]Rhode Island Hospital/Brown Medical School, Providence, RI. *(Tracking ID # 154615)*

LEARNING OBJECTIVES: 1) To recognize schistosomiasis as an etiology of guaiac positive stool and microcytic anemia. 2) Recognize the importance of knowing the prevalence of parasitic infections in immigrant populations. 3) Recognize the utility of colonoscopy in the diagnosis of schistosomiasis.
CASE: A 58 year old Liberian woman presented with fatigue and weight loss. The patient had an otherwise negative review of systems, but did describe crampy abdominal pain that was alleviated with defecation prior to immigrating to the United States. Social history was significant for living in refugee camps for 12 years prior to immigration to Rhode Island. She denied alcohol or IV drug use. On abdominal exam there was tenderness to deep palpation periumbilically without rebound or guarding. Rectal examination showed heme positive stool. Her CBC demonstrated a hemoglobin of 11.5 g/dL with an MCV of 77.5. Leukocyte count was 7.5 k/uL with 34% eosinophils. Her liver function tests were significant for mildly elevated transaminases. She was found to be a chronic carrier of Hepatitis B. As part of the Rhode Island Refugee Health Screening program at our resident clinic, the patient underwent extensive testing based on where the patient immigrated from (Africa) and included PPD testing, RPR, HIV, and three stool samples for ova and parasites. All of the above were negative. Because of the anemia and OB+stool, the patient had a colonoscopy which revealed diffuse small angiectasias. Colonoscopic biopsies revealed active colitis with numerous schistosomal eggs and focal granulomatous inflammation throughout the lamina propria. Right upper quadrant ultrasound was done to evaluate the elevated transaminases and revealed a cirrhotic liver. Based on the colonoscopic findings, Praziquantel was prescribed. The patient is being followed closely to evaluate her cirrhosis which is likely due to chronic schistosomal infection.
DISCUSSION: Schistosomiasis is caused by five species of a parasitic trematode: S. Mansoni, S. Mekongi, S. intercalatum, and S. haematobium. Although rare in the United States, these five species infect close to 300 million people in South America, Africa, and Southeast Asia. Most infections are asymptomatic; clinical manifestations include diarrhea, hepatosplenomegaly, abdominal pain, and eosinophilia. These infections pose a significant public health risk (infection spread through contaminated water) and can cause significant morbidity if untreated. The course of acute schistosomiasis is generally benign; however, chronic schistosomiasis can result in cirrhosis and portal hypertension. Unfortunately, stool tests for ova and parasites are often nondiagnostic because a high schistosome load is required and can vary in number day to day in a patient. Rectal biopsies are helpful when diagnosis can not be obtained. As demonstrated in our case, colonoscopic biopsies can aid in the diagnosis. Praziquantel results in an 85% cure and reduces egg counts by >90%. This case illustrates the need for obtaining an appropriate epidemiologic history in patients who are recent immigrants. Primary care physicians can use web sites such as the Centers for Disease Control and Prevention (www.cdc.gov) which have up to date worldwide prevalance data on parasitic infections. Screening programs based on the patient's geographic background can be useful in detecting chronic infections as well as preventing spread of these diseases.

SEPTIC LATERAL SINUS THROMBOSIS FROM OTITIS MEDIA: A FORGOTTEN NEMESIS. A. Kumar[1]; N.A. Key[2]. [1]University of Kansas, Kansas City, KS; [2]Society of General Internal Medicine, Kansas City, MO. *(Tracking ID # 154665)*

LEARNING OBJECTIVES: LEARNING OBJECTIVES: 1. Recognize septic lateral sinus thrombosis as a complication of otitis media 2. Recognize the importance of rapid diagnosis and early intervention.
CASE: A 45-year-old Caucasian female presented to the emergency department with declining mental status and a one-week history of occipital headaches, dizziness and fever. She was intubated for worsening respiratory distress and transferred to the intensive care unit for further evaluation. Two weeks prior to admission, she had been diagnosed with otitis media and treated with azithromycin for five days. On exam at our institution, the patient was lethargic, not following commands, and withdrawing to painful stimuli. Her neurological exam had no focal deficits. Ear examination showed a dull right tympanic membrane with no light reflex, and no normal landmarks. Her breath sounds were decreased bilaterally. Laboratory tests revealed a normal hematocrit, normal leukocyte count, and decreased platelet count. Chest X-ray showed multiple nodular densities and bilateral pleural effusions. CT of the chest showed scattered nodular densities and confirmed the bilateral pleural effusions. CT of the head showed opacification of the mastoid air cells and right middle ear cavity and an increased density in the right transverse sinus, which did not completely fill with contrast enhanced images. MR cerebral venography showed a right transverse and sigmoid sinus thrombosis without acute venous infarct. Blood cultures were positive for MRSA. She was initially treated with heparin therapy and intravenous vancomycin and pipercillin/tazobactam. The sensitivity studies of the organism revealed susceptibility to vancomycin, gentamycin, rifampin, levofloxacin, tetracycline and trimethoprim/sulfamethoxazole. Her antibiotics were changed to vancomycin and gentamycin, and ENT performed a tympanostomy. She was weaned from the ventilator and had a complete recovery.
DISCUSSION: Septic lateral sinus thrombosis is an infrequent but potentially devastating complication of otitis media. Although risk has decreased immensely in the antibiotic era, emergence of resistant organisms and inappropriate antibiotic treatment may result in spread of the infection to the mastoid and epidural space. In patients with otitis media, complaints of persistent headache, earache or photophobia warrant a high index of suspicion for complications. Although more commonly isolated organisms include β- hemolytic Streptococci, Streptococcus pneumoniae, Proteus mirabilis, Bacteroides and Staphylococcus aureus, patients with prolonged symptoms despite antibiotic treatment should be suspected for MRSA infection due to increased incidence of these organisms in the community. The recommended protocol for investigation of suspected lateral sinus thrombosis includes CT scanning with contrast, MR scanning and MR venography. MR imaging and MR venography are preferred for diagnosis and in conjunction can image the brain for secondary effects from thrombosis. Rarely in lateral sinus thrombosis, chest imaging can show nodular densities from septic emboli passing into the internal jugular vein and pulmonary circulation, as occurred in this patient. The mainstay of therapy is systemic broad-spectrum antibiotics such as vancomycin and third generation cephalosporins, and tympanostomy. Mastoidectomy with possible opening of the sinus should be reserved for patients refractory to conservative treatment.

SEVERE DIABETIC KETOACIDOSIS WITH TRANSIENT MYOCARDIAL DYSFUNCTION; A NEW ENTITY?. S. Qureshi[1]; G. Kerolus[1]. [1]University of Illinois at Peoria, peoria, IL. *(Tracking ID # 156579)*

LEARNING OBJECTIVES: 1) Recognition of a factor other than hypophosphatemia, hyperkalemia, ischemia, diabetes mellitis (esp. chronic) causing left ventricular dysfunction. 2) Transient myocardial depression with complete reversal of function within 5–7 days of correcting acidosis. 3) Association of severe acidosis and hypoxia with myocardial injury.
CASE: 41 year-old African American female who is a known type I diabetic for 10 years admitted with severe diabetic ketoacidosis. She recently moved from out of town looking for work and did not take insulin for 4–5 days. On admission (day 1) her labs were: pH 6.88, pCO2 12, bicarb <5 mEq/L, glucose 1325, sodium 133, potassium 7.9, chloride 94, BUN 49, Creatinine 3.8, phosphorus 3.9. Anion gap 35. Drug screen was negative including ETOH. EKG showed sinus tachycardia, non-specific intraventricular conduction delay and peaked T-waves. Cardiac enzymes were normal on admission. Patient was treated with continuous intravenous saline and insulin infusion and responded well. Anion gap continued to improve and about 36 hours into treatment (day 3) patient while sleeping had an episode of non-sustained monomorphic ventricular tachycardia which lead to evaluation of cardiac enzymes and revealed a troponin I of 1.75, CPK 311, CKMB relative index 2.9, CKMB 0.9. Her chemistries at that time were: sodium 145, potassium 3.4, chloride 113, bicarb 18, phosphorus 2.1, anion gap 14. EKG showed sinus tachycardia and LVH. Echocardiogram showed high normal LV size with severe global hypokinesis, severely reduced LV systolic function with EF of 22%. Normal RV size but hypokinetic. Patient was started on aspirin, beta blockers, heparin, ACEI and cardiology was consulted. Patient's cardiac enzymes trended down and about 96 hours (4 days) after the first troponin rise patient underwent coronary angiography (day 7) which revealed normal coronaries and normal LV size with calculated EF of 56%.
DISCUSSION: Effects on myocardial LV function in severe diabetic ketoacidosis have been described with some degree of injury to heart muscle, related either to acidosis or hyperglycemia. Hyperkalemia in DKA and increased cardiac specific troponin with EKG changes and normal angiogram has also been described as "pseudo-myocardial infarction". Very high levels of cardiac specific troponin in severe DKA with pattern of rapid reversibility of wall motion abnormalities and depressed LV function normalization within 3–5 days has also been observed. Whether this is a consequence of severe acid-base disorder with transient coronary spasms leading to ischemic myocardial damage is not entirely clear. Although acute myocarditis has been described with DKA. but this seems unlikely in our case without preceding symptoms, however cannot surely be excluded without tissue diagnosis. Association of intracellar acidosis and hypoxia leading to death of cardiac myocyte has been postulated in a number of studies. In conclusion, severe diabetic ketoacidosis may be associated with myocardial ischemia, EKG changes, arrythmias either as a result of severe acid-base disorder, electrolyte abnormalities or coronary vasospasms leading to transient myocardial wall motion abnormalities and decreased LV function. The duration of acidosis is likely related to the transient nature of these abnormalities, leading to permanent cell death with continuing acidosis if untreated.

SHIVERS AND TREMORS: A CASE OF SEROTONIN SYNDROME. M.T. Rahim[1]; H. Jasti[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 151741)*

LEARNING OBJECTIVES: 1. Recognize the presentation of serotonin syndrome. 2. Identify common medications that can precipitate the condition. 3. Initiate early management.
CASE: A 67-year old female with a history of rheumatoid arthritis, coronary artery disease, atrial fibrillation, and depression presented with a 1-week history of confusion, lethargy, tremors, and ataxia. There was no history of trauma, loss of consciousness, or infection. Medications included oxycontin, duloxetine, and prednisone, in addition to her cardiac medications. Tramadol had been added a week earlier for worsening joint pain. Physical examination revealed a blood pressure of 152/73 mm Hg, pulse of 125 beats/min, and respiratory rate of 20 breaths/min. The patient was confused and had mydriasis, hyperhidrosis, hyperreflexia and rigidity. Labs, including a CBC and chemistry panel, were normal. A head CT scan did not reveal any abnormalities. A diagnosis of serotonin syndrome was proposed based upon the clinical picture.

The duloxetine, tramadol, and oxycontin were discontinued. She also received intravenous hydration and was monitored closely for hemodynamic instability. Within twenty four hours, her rigidity resolved and her mental status returned to baseline. She was also able to ambulate without any difficulty and was soon discharged to home.
DISCUSSION: Serotonin syndrome is a potentially life-threatening adverse drug reaction that results from therapeutic drug use, intentional self-poisoning, or inadvertent interactions between drugs. Common ones include monoamine oxidase inhibitors, tricyclic antidepressants, selective serotonin reuptake inhibitors, opiate analgesics, over-the-counter cough medicines, weight-reduction agents, antiemetics, and antimigraine agents. The condition is often described as a clinical triad of mental-status changes, autonomic hyperactivity, and neuromuscular abnormalities, although not all of these findings are always present. Patients with mild symptoms usually have tachycardia, associated with autonomic symptoms such as shivering, diaphoresis, or mydriasis. The neurological examination may reveal an intermittent tremor, myoclonus, or hyperreflexia. Severe cases present with significant hypertension and tachycardia that may abruptly deteriorate into frank shock. Additional abnormalities include metabolic acidosis, rhabdomyolysis, elevated creatinine and disseminated intravascular coagulopathy. Management of the serotonin syndrome involves the removal of the precipitating medications. The intensity of therapy depends upon the severity of illness. Mild cases can usually be managed with supportive care, while severe cases need close monitoring of cardio-respiratory and thermal abnormalities. Control of agitation with benzodiazepines is also an essential component. Physical restraints are not recommended and may even contribute to increased mortality due to isometric muscle contractions leading to severe lactic acidosis and hyperthermia. Some studies have demonstrated a possible benefit from early administration of cyproheptadine (an antihistamine with serotonin antagonist properties). Serotonin syndrome can be fatal. Given the increased use of pro-serotonergic agents, it is therefore critical to recognize the symptoms and discontinue the offending medications as early as possible.

SIROLIMUS ASSOCIATED DIFFUSE ALVEOLAR DAMAGE AND HEMORRHAGE. V. Patel[1]. [1]University of Tennessee, Chattanooga, TN. *(Tracking ID # 151332)*

LEARNING OBJECTIVES: To discuss the pulmonary side effects of Sirolimus and report an unusual but potentially serious pulmonary complication of Sirolimus therapy in solid organ transplant recipients
CASE: A 57 year old Caucasian male, status post cadaveric kidney transplant in 1993 presented with progressively worsening dyspnea, dry cough, and malaise for 2 days. Home medications included sirolimus and cyclosporine. Sirolimus had been started 1 week prior for worsening renal function. During his hospital stay he became progressively more dyspneic with worsening chest X-ray showing bilateral diffuse infiltrates in spite of being on broad spectrum antimicrobial agents. Initial sirolimus level was 22.20 (3–18 ng/ml). BAL revealed grossly hemorrhagic fluid with no organisms. Lung biopsy revealed focal areas of alveolar hemorrhage with hemosiderin laden macrophages without any organisms - findings consistent with diffuse alveolar hemorrhage. Sirolimus as well as antimicrobial agents were discontinued and patient was started on IV steroids with rapid clinical and radiological improvement.
DISCUSSION: Sirolimus is a novel immunosuppressant drug used in solid organ transplant recipients. Its use is increasing as it is less nephrotoxic than calcineurin inhibitors (cyclosporine and tacrolimus). Previously reported pulmonary side effects of Sirolimus include interstitial pneumonitis (lymphocytic infiltrate on biopsy) and BOOP (organizing pneumonia). Recently sirolimus associated alveolar hemorrhage was reported based on findings at bronchoscopy. In our patient the temporal relationship between sirolimus exposure and onset of pulmonary symptoms coupled with the absence of other alternative pulmonary disease and the improvement after its cessation suggests a causal relationship. Obtaining sirolimus levels in pulmonary tissue may be confirmatory and may suggest obtaining those in future suspected cases. Diffuse alveolar damage and hemorrhage were confirmed in our patient with bronchscopic as well as transthoracic lung biopsies. Because the use of Sirolimus in organ transplantation has become more widespread, and these patients are cared for by primary care physicians, it is important for physicians to be aware of this unusual and potentially serious side effect of Sirolimus as timely recognition, discontinuation of Sirolimus, and treatment with steroids can lead to rapid recovery as demonstrated in our patient.

SMALL BOWEL LYMPHOMAS; HOW THEY PRESENT AND HOW TO DIAGNOSE?. T. Shin[1]; H. Gavini[1]; S. Pokharel[1]; H. Friedman[1]. [1]St. Francis Hospital, Evanston, IL, Evanston, IL. *(Tracking ID # 156740)*

LEARNING OBJECTIVES: 1. Recognize small bowel lymphoma as a rare cause of GI bleeding. 2. The role of exploratory laparotomy in the diagnosis of small bowel neoplasm.
CASE: 81 year old Hispanic female presented with generalized abdominal pain for a few weeks. She also reported 3 episodes of maroon colored stool per rectum, generalized weakness and constipation, but denied weight loss, fever or night sweats. She presented with a GI bleed 4 months ago secondary to a gastric ulcer and was treated with esomeprazole. Past medical history is significant for hypertension, diabetes mellitus and medications included losartan, metformin, glimepiride and esomeprazole. She is a non-smoker and drinks alcohol occasionally. On examination: Temp 98.6 F, RR 20, HR 101/min, and BP 107/43. Abdomen was soft and diffusely tender, and bowel sounds were present. Hard and fixed mass was palpable in the right pelvic area. Hemoccult was positive. No lymph nodes were palpable. NG tube was placed and drained clear aspirate. Laboratory work up showed Hb of 9.1, platelet 366K, BUN 32, glucose 184, normal PT and PTT. EGD and colonoscopy were normal. Nuclear medicine bleeding scan showed activity in the pelvic region. CT abdomen revealed a solid mass in the right pelvis measuring 8.5 × 7.0 cm of unknown origin with a few small soft tissue densities in the mesentery. Patient underwent exploratory laparotomy and was found to have a 10'7.7 cm mass in the jejunal wall ulcerating into the mucosa, with multiple large mesenteric lymph nodes. Histopathology showed malignant B-cell lymphoma, follicular center cell type composed of small cells in a mixed follicular and diffuse architecture, with intermediate histologic grade and involving small bowel and mesenteric lymph nodes. Immunophenotyping showed kappa restricted population of small to intermediate B-cells expressing CD 10, 19, 20, 22 and 38.
DISCUSSION: The diagnosis of small bowel tumors is often difficult due to the rarity of these lesions, and delay in diagnosis is common which may result in the discovery of disease at a late stage, resulting in a poor treatment outcome. Lymphoma accounts for about 15% of small bowel malignancies. Abdominal pain, loss of appetite and weight loss are common presentations, and bleeding is reported in about 6% of cases. Our patient had normal EGD and colonoscopy findings, but further evaluation with abdominal CT and exploratory laparotomy led to the diagnosis. Despite a thorough history, physical examination and complete diagnostic workup, the correct diagnosis of small bowel malignancy is established preoperatively in only 50 percent of cases, with the remainder diagnosed at laparotomy. Exploratory laparotomy is the most sensitive diagnostic modality in evaluating a patient suspected of having a small bowel neoplasm, and should be considered in a patient with occult GI bleeding, unexplained weight loss, or vague abdominal pain, and an otherwise unrevealing negative diagnostic evaluation.

SOLITARY PLASMACYTOMA IN HASHIMOTO'S THYROIDITIS. R. Widjaja[1]; L. Dey[2]. [1]University of Illinois College of Medicine at Peoria, peoria, IL; [2]Chicago Medical School at Rosalind Franklin University, chicago, IL. *(Tracking ID # 156404)*

LEARNING OBJECTIVES: Objective To report a case of solitary plasmacytoma in a patient, previously diagnosed with Hashimoto's thyroiditis and monoclonal gammopathy of undetermined significance (MGUS).
CASE: Case presentation 65-year-old caucasian woman presented to the Endocrinology clinic with a complaint of progressive right neck swelling of eight months duration. Ten years ago, she was diagnosed with MGUS with elevated IgG and kappa light chains. The patient was also diagnosed with Hashimoto?s thyroiditis 4 months earlier and was prescribed levothyroxine. On examination, the thyroid gland was asymmetrically enlarged and a hard nodule was felt on the right lobe. There was no other neck mass or lymphadenopathy. Laboratory studies revealed an elevated thyroid peroxidase antibody level, normal blood urea nitrogen, serum creatinine, calcium, total protein and albumin levels. Serum protein electrophoresis showed a monoclonal (M) spike. Skeletal survey was normal. Sonogram of the thyroid gland showed a 3.3 cm × 2.6 cm irregular isoechogenic thyroid nodule in the right lobe. A technetium thyroid scan revealed a heterogenous, multinodular pattern of uptake and increased focal uptake within a nodule in the inferior right thyroid lobe. Fine needle aspirate showed lymphocytic pleocytosis which includes small lymphocytes, transformed cells and plasma cells. Resection of the right thyroid lobe and isthmus was performed. The pathology report revealed moderately differentiated plasma cells in the presence of Hashimoto?s thyroiditis. There was no evidence of extrathyroidal dissemination. Flow cytometry and immunophenotyping studies of the right lobe and isthmus were performed, and exhibited the characteristic of a plasma cell tumor. Bone marrow flow cytometry and urine protein electrophoresis were normal postoperatively. Serum immunofixation electrophoresis also revealed disappearance of the M spike. Positron emission tomography and computed tomography did not show evidence of metastases. Treatment was completed by local irradiation. The patient is well six months later with no evidence of recurrence.
DISCUSSION: Discussion Plasmacytomas are immunoproliferative, solitary masses of neoplastic monoclonal plasma cells in either bone marrow or soft tissue. Thyroid gland plasmacytomas are very rare. The diagnostic criteria for soft tissue plasmacytomas are tissue biopsy showing monoclonal plasma cell histology, bone marrow plasma cell infiltration not exceeding 5%, normal skeletal survey, absence of hypercalcemia and renal failure, and the absence of Bence Jones protein in urine. Solitary plasmacytomas occur most commonly in patients with Hashimoto?s thyroiditis and must be distinguished from plasma cell granulomas, reactive plasmacytosis, poorly differentiated neoplasms, and lymphomas. Progression to disseminated disease in the form of multiple myeloma occurs in 17% to 32% of the cases. Conclusions We describe a rare case of plasmacytoma in a patient with Hashimoto's thyroiditis and the importance of distinguishing it from other thyroid abnormalities. We also confirm the favorable prognosis of extra-medullary plasmacytoma when treated locally by irradiation and/or surgery.

SORE THROAT GONE AWRY. C.A. Engman[1]; J. Perras[1]. [1]Dartmouth-Hitchcock Medical Center, Lebanon, NH. *(Tracking ID # 153067)*

LEARNING OBJECTIVES: 1. Diagnose and Treat Septic Thrombophlebitis.
CASE: Ms. B is a 25 year old healthy woman who presented to her local emergency room with one day of throat pain, ear pain, and fevers. After her rapid strep test returned negative, she was discharged home with a diagnosis of a viral syndrome and a prescription for ibuprofen. She had fevers to 40 degrees Celsius then developed nausea, vomiting, diarrhea, right upper quadrant pain, and dysphagia. She was then admitted to her local hospital for further work-up.

Her admission chest radiograph showed a possible right lower lobe infiltrate. Blood cultures grew out gram negative rods and Streptococci, and patient was given penicillin, ceftazidime, and gentamicin. She developed mild hemoptysis and worsening dyspnea, right-sided chest pain, and jaw stiffness and continued to have throat pain. Throat pain and trismus elicited concern for peritonsillar abscess, so she was referred to Dartmouth Hitchcock Medical Center for evaluation by an otolaryngologist. No tonsillar abscess was found, but computed tomography of her chest revealed a large empyema and cavitating lung lesions. A cardiac echo was performed to rule out right-sided endocarditis, but no valvular pathology was found. At this time, blood cultures from the outside hospital grew out Fusobacterium necrophorum and Streptococcus milleri. Considering the constellation of symptoms, microbiology, and CT scan findings, the medical team was suspicious of Septic Thrombophlebitis or Lemierre's Disease. To confirm the diagnosis, duplex ultrasonography of her neck veins was performed and showed a non-occlusive thrombus in her right internal jugular vein. The patient was continued on penicillin monotherapy and her empyema was drained with a thoracostomy tube. Her dyspnea and fevers resolved and she was discharged to complete 4 weeks of intravenous penicillin with subsequent resolution of her disease. Her follow up blood cultures remained negative, and her repeat vascular duplex showed no residual thrombus.
DISCUSSION: Modern medical care frequently requires central venous catheters for hemodialysis, chemotherapy, antibiotics, and total parenteral nutrition. This has resulted in an increased rate of catheter-associated infections. A less common but potentially life-threatening complication of these infections is Septic Thrombophlebitis. These infections involve inflammation and suppuration of the vessel wall and typically occur in the subclavian vein and superior vena cava. A central venous catheter is usually implicated as the nidus of infections. Rarely, the jugular vein has this disease entity occur within it. When this occurs, it is usually associated with direct extension of tonsillar or pharyngeal infections as opposed to line infections. Symptoms of Lemierre's include sore throat, neck pain, and fevers, often followed by shortness of breath as the disease metastasizes to the lungs. Diagnosis is made by persistently positive blood cultures, CT of neck and chest, and vascular duplex. Potential complications of this phenomenon include metastatic septic emboli and their sequelae. Treatment is with drainage of absesses and antibiotics aimed at the causative organisms. These are typically members of the oral flora and include Fusobacteria, Streptococcus, Eikanella, and Bacteroides. Anticoagulation is controversial at this time. While this disease is potentially life-threatening, rapid diagnosis and treatment can yield excellent outcomes.

SPECIAL CONSIDERATIONS FOR ENDOCARDITIS IN CIRRHOSIS. A.A. Majesko[1]; R. Granieri[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 151485)*

LEARNING OBJECTIVES: 1. Recognize the association of Streptococcus bovis endocarditis and liver disease. 2. Differentiate the salient findings of S. bovis endocarditis from other causes of endocarditis.
CASE: A 57 year-old male with a history of alcohol abuse presented to an outside hospital with increasing abdominal girth, lower extremity edema and fatigue. Laboratory tests reveled elevations in his liver function tests, ammonia level, INR, and negative serologies for hepatitis B and C. He was diagnosed with acute alcoholic hepatitis and admitted for symptom management of cirrhosis. The patient had intermittent fevers and was evaluated with a chest x-ray, urine culture and paracentesis; all of these tests were negative. Blood cultures were positive for penicillin sensitive S. bovis. The association of S. bovis and colon cancer prompted investigation of the GI tract. A CT of the abdomen revealed ascities, hepatosplenomegaly and lesions in the spleen. A colonoscopy and upper endoscopy were negative for malignancy. In spite of continued antibiotic administration, the patient continued to have fevers. A transesophageal echo was performed and revealed a large vegetation on the aortic valve with severe aortic insufficiency. Because of the operative risk associated with Childs class C and relative stability of the patient, an elective aortic valve replacement was scheduled with the goal of improving his liver function prior to surgery.
DISCUSSION: Streptococcus bovis is part of the group D gram-positive cocci typically found in the intestinal flora of approximately 10% of the general population and 30–55% of patients with inflammatory bowl disease or colon cancer. The incidence of S. bovis endocarditis has been increasing over the last few years especially in southern Europe and current estimates indicate S. bovis causes 5% to 12% of infective endocarditis. S.bovis biotype I is associated with advanced age, involvement of native cardiac valves, bi-valve disease (43.3% vs. 7% in other endocarditis), underlying gastrointestinal malignancy and splenic emboli. The proposed association of S. bovis and colonic neoplasms may be due to spontaneous tumoral neoangiogenesis, vessel wall necrosis leading to bacteremia and valve colonization. The proposed mechanism for liver disease is bacteremia secondary to intrahepatic shunting and impaired bacterial clearance from portal blood and high levels of TNF-alpha which is often found in patients with chronic liver disease. It has been suggested that S.bovis infection in cirrhotics is not commonly associated with colonic lesions. A recent study found that liver disease and colonic adenomas are mutually exclusive in most cases of S. bovis endocarditis. Further investigation may provide more conclusive evidence that colonic malignancy can be excluded from the differential diagnosis of S. bovis infection for patients with liver disease.

SPEEDING TO A BROKEN HEART. A. Ludwig[1]; A. Buchwalter[1]; M.D. Feldman[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 152888)*

LEARNING OBJECTIVES: 1) Diagnose stress induced cardiomyopathy (Takotsubo's cardiomyopathy) using systematic review guidelines 2) Understand the differential diagnosis for apical ballooning on Echocardiogram 3) Recognize the clinical and social impact of methamphetamine use.
CASE: Ms. D is a 61 year old woman with history of COPD, hypertension and anxiety who presented with shortness of breath, chest pain and altered mental status. Per report, Ms. D had increased somnulence and fatigue for two days prior to admission. On presentation, she was febrile, tachypneic, tachycardic and hypotensive. Physical exam was notable for a somnulent, acutely ill Filipina woman in moderate respiratory distress. EKG showed diffuse ST elevations. Urgent cardiac catheterization demonstrated minimal 30% left main ostial atherosclerotic disease. Echocardiogram was remarkable for hyperdynamic basal and midventricular left ventricular segments with associated apical dyskinesis and ballooning. The left ventricle systolic function and size were preserved without evidence of left ventricular outflow tract (LVOT) obstruction. Laboratory evaluation revealed a urine culture positive for E. coli infection. Suprisingly, a urine toxicology screen was positive for amphetamines. Chest radiograph showed chronic obstructive lung disease. Ms. D was treated aggressively for infection and hypercarbia with clinical improvement within 24 hours. Repeat echocardiogram several days later showed resolution of apical wall motion abnormalities consistent with apical ballooning syndrome and transient stress induced cardiomyopathy. On further questioning, Ms D. informed us that she would occasionally add methamphetamine to her morning coffee, and had done so prior to this presentation.
DISCUSSION: Stress induced cardiomyopathy (also known as "broken heart syndrome" or "Takotsubo cardiomyopathy" after the ventriculography images that resemble a Japanese octopus trap) is most often seen in older women who present with ischemic-like chest pain or dyspnea. Characteristically, patients report a history of a sudden severe physical or emotional stress and have diffuse ST elevations on EKG, mild troponin elevation with limited or no coronary artery disease on cardiac catheterization. Typical echocardiogram findings include transient akinesis or dyskinesis of the apical and mid ventricular segments with associated apical ballooning. These changes can be associated with acute left ventricular failure and LVOT obstruction and most often resolve within one month. Similar Echo images can be seen in intracranial pathology, pheochromocytoma, coronary artery disease, myocarditis and hypertrophic cardiomyopathy. The etiology of Takotsubo cardiomyopathy is unknown but is thought to be secondary to catecholamine surges produced by stress leading to transient coronary artery spasm and myocardial stunning. Interestingly, our patient's stress induced cardiomyopathy was thought to be a result of acute illness (urosepsis and obstructive lung disease) coupled with the additional sympathetic contribution of methamphetamine boosted morning coffee. This appears to be the first case in the literature in which stress induced cardiomyopathy has been linked to methamphetamine use. This case reminds us that it is important to elicit a substance use history from every patient, regardless of age, gender, ethnicity or socioeconomic status. Substance use presents in protean ways, even contributing to a broken heart.

SPLENIC ABSCESS- RARE PRESENTATION OF SALMONELLA TYPHI. Y. Reddy[1]; R. Gudavalli[1]; S.K. Thambidorai[1]; H. Sakowski[1]. [1]Creighton University, omaha, NE. *(Tracking ID # 154862)*

LEARNING OBJECTIVES: 1. Recognize the typical and atypical presentations of typhoid fever and to recognize Salmonella typhi as an etiologic agent for splenic abscess 2. Review the pathology, clinical presentation, etiology and management of splenic abscess.
CASE: We report a case of an 87-year old male admitted after sustaining a traumatic amputation of the right upper extremity and an ankle fracture, during a farming accident. During the hospitalization, the patient underwent multiple debridements, revision amputation of the upper extremity, and open reduction and internal fixation of the right ankle fracture. During rehabilitation from his surgeries, patient complained of shortness of breath, fatigue and decreased appetite and had low-grade fevers. A chest radiograph revealed a newly developing pleural effusion on the left side. A computed tomography (CT) of the chest confirmed the pleural effusion and also showed a splenic cyst. Concerned about a splenic hematoma, an abdominal CT was obtained, which showed a splenic cyst measuring 10 cm, suggestive of a traumatic pseudocyst. Review of the CT scan of the abdomen done upon admission did not reveal any splenic mass or cyst. Surgical exploration with splenectomy revealed the presence of a splenic abscess. Cultures from the abscess grew Salmonella typhi B sensitive to all the antibiotics tested. Patient denied history of travel to endemic areas, diarrhea, sickle cell disease or trait, or symptoms of enteric fever. Patient was started on appropriate antibiotics and he eventually recovered and his systemic symptoms resolved. Follow up chest radiographs showed resolution of the pleural effusion.
DISCUSSION: Splenic abscess may result from a localized area of infection in the spleen or from generalized sepsis or trauma. The incidence of splenic abscess is roughly 0.1 to 0.7 percent and the disease has a high mortality rate if diagnosis and treatment are delayed. Salmonella typhi and paratyphi are well known to cause the systemic illness known as enteric fever. Hepatic and splenic abscesses are rare complications of enteric fever. Improvements in food handling and water sewage treatment have made enteric fever a rare occurrence in developed nations. Cases of Salmonella typhi causing splenic abscess have been reported in developing countries. Most of these are a result of hematogenous spread from bacteremia. Review of literature revealed no reported cases of splenic abscess caused by Salmonella typhi in the United States and our case is probably the first such reported case. We theorize that our patient suffered trauma to the spleen not present on the initial CT scan of the abdomen. He may have developed a traumatic pseudocyst or hematoma which became infected by hematogenous spread of the S.typhi. The source of the Salmonella is unclear, as the patient denied travel to endemic areas, diarrhea, sickle cell disease or trait,

or symptoms of enteric fever. Our patient might have been a chronic carrier who may have developed transient bacteremia during his hospitalization, leading to the seeding of the bacterium in the traumatized spleen. Splenectomy along with antibiotics is the standard of treatment for splenic abscess.

SPONTANEOUS CORONARY ARTERY DISSECTION- ROLE FOR INTRA VASCULAR ULTRASOUND IN IT'S DIAGNOSIS. S. Pasupuleti[1]; J. Tuma[1]; T. Pagano[1]; P. Burman[1]. [1]Creighton University, Omaha, NE. *(Tracking ID # 157084)*

LEARNING OBJECTIVES: 1. To learn about the clinical presentation and risk factors for spontaneous coronary artery dissection. 2. To realize the importance of intra vascular ultrasound in patients with atypical coronary angiogram. 3. To realize that coronary stenting could be a therapuetic option for coronary dissection.
CASE: A 35-year-old African American female presented with chest pain and ST segment elevation in the inferior and lateral leads. Since the patient did not have the usual risk factors for coronary artery disease, alternate diagnoses of aortic dissection and spontaneous coronary artery dissection (SCAD) were also considered. Initial aortogram revealed normal aorta. Subsequent left ventriculogram revealed posterior and lateral wall hypokinesis in the area of a diagonal or marginal artery distribution. Coronary angiography revealed proximal narrowing of the left main (LM) - left anterior descending (LAD) junction, which did not change with intra coronary nitroglycerin (NTG). There were no proximal intra luminal defects to suggest a proximal flap. A significant filling defect in the mid portion of the diagonal artery was thought to be the culprit lesion. No further intervention was undertaken given the small caliber of the vessel. The patient was managed medically and subsequently discharged after an uneventful hospital course. She was re-hospitalized three days later with recurrent chest pain and marked ST segment depression in V1-V6 leads. Repeat coronary angiography revealed hang-up of the dye in the LM artery near the catheter tip and marked narrowing of the distal LM-proximal LAD junction, which was successfully treated with a coronary stent. The diagonal artery was totally occluded but placement of the LAD stent resulted in re-establishment of flow in it. The patient was discharged several days later after another uneventful hospital course. A repeat coronary angiogram performed three months later demonstrated that the diagonal artery was widely patent.
DISCUSSION: SCAD is a rare clinical entity that is usually seen in middle-aged women. The common associations for SCAD like pregnancy, puerperium, contraceptive pills, systolic hypertension and cocaine abuse were absent in our patient. On retrospect the narrowing of the left main and LAD in the above patient is most likely secondary to coronary dissection. The intra luminal flap was probably not visualized during the initial coronary angiogram. Had intra vascular ultrasound (IVUS) been performed, an intra luminal flap or intramural hematoma would have been visualized and the diagnosis of coronary dissection would have been confirmed. The left anterior descending artery is the most frequently affected in patients with coronary dissection. Histologically, the most common finding is a hematoma occupying the outer third of the media, resulting in complete compression of the true lumen. The treatment options include coronary stenting or coronary artery bypass grafting. The first reported case of successful coronary stenting of spontaneous coronary artery dissection was in April 1997. Symptomatic patients with single vessel disease should probably be treated by primary stenting of the entry site.

STAPHYLOCOCCUS AUREUS PROSTATIC ABSCESS COMPLICATED BY INFECTIVE ENDOCARDITIS. M. Auron-Gomez[1]; M.Y. Duran-Castillo[1]; R. Raina[1]; R. Crook[1]; J.C. Pile[1]. [1]Case Western Reserve University, Cleveland, OH. *(Tracking ID # 154681)*

LEARNING OBJECTIVES: We present a case of prostate abscess caused by Staphylococcus aureus, complicated by mitral valve endocarditis with the same organism. Prostatic abscess caused by Staphylococcus aureus has been reported only rarely, and should prompt suspicion for metastatic infection including endocarditis.
CASE: A 50 y/o male with type 2 diabetes mellitus (HbA1c 7.5) was admitted with complaints of dysuria and abdominal pain for 1 week, accompanied by malaise and emesis. The patient appeared ill, with marked tachycardia and orthostatic hypotension, but examination was otherwise nonspecific. No cardiac murmur was present, and the prostate was non-tender. Laboratory studies revealed a glucose of 441, WBC of 19,440 (73% segmented neutrophils, 17% band forms), sodium 126, CO2 18, creatinine of 1.7, and an arterial pH of 7.44. Urinalysis demonstrated no leukocyte esterase or nitrite. Blood cultures drawn on admission quickly grew gram positive cocci in clusters, which proved to be methicillin-sensitive Staphylococcus aureus (MSSA), although urine cultures showed no growth. An abdominal CT scan demonstrated a prostatic abscess extending to the seminal vesicles. Ultrasound-guided sampling of the abscess grew MSSA A pigtail drainage catheter was inserted into the abscess cavity, with successful drainage documented by abscess resolution on repeat CT scan. Urine cultures were negative. A transesophageal echocardiogram obtained in light of high-grade MSSA bacteremia revealed 2 vegetations on the anterior leaflet of the mitral valve. The patient was initially treated with gentamicin and cefazolin, followed by cefazolin alone, with sterilization of blood cultures and clinical improvement within several days. He was discharged to complete a 6-week course of cefazolin.
DISCUSSION: Prostatic abcess due to Staphylococcus aureus is rare, with 1 prior report of endocarditis complicating this entity. Given that our patient's dysuria and lower abdominal pain began coincident with or just before onset of his constitutional symptoms, we postulate that the prostate was the initial site of infection, with subsequent bacteremic seeding of a presumably normal mitral valve. Prostate abscess is frequently associated with immunocompromised states; and our patient was likely predisposed to both Staphylococcus aureus infection and prostatic abscess by his diabetes mellitus. Diagnosis of prostate abscess may be delayed because symptoms and clinical finding are often nonspecific, and urine culture is frequently negative. CT scan appears to be the optimal imaging modality for both diagnosis and follow-up, and drainage accompanied by adjunctive antibiotics is the mainstay of treatment.

STATUTORY WARNING: SCREAMING CAN BE INJURIOUS TO YOUR HEALTH. R. Kapoor[1]; A. Atreja[1]; N.B. Mehta[1]; A.K. Jain[1]; M.C. Harris[1]. [1]Cleveland Clinic Foundation, Cleveland, OH. *(Tracking ID # 156119)*

LEARNING OBJECTIVES: 1. Emphasize all aspects of the history of a patient presenting with throat pain. 2. Recognize the presentation of tracheal tear as odynophagia and hoarseness of voice.
CASE: A 35-year-old woman presented to the ED with the chief complaint of throat pain for one day. She reported the pain to be 7/10, worsening, sharp and non-radiating. The pain was aggravated by swallowing, deep breathing and was associated with hoarseness of voice. She denied any history of fever, cough, sick-contact, chest pain, shortness of breath, nausea, vomiting, trauma or travel. She had no significant past medical or surgical history. She had no known allergies, never smoked and had no history of any recreational drug use or any significant family medical history. On examination, her vital signs along with oxygenation were normal. She had a hoarse voice and an occasional cough. Rest of the physical examination was unremarkable. Neck and Chest X-rays in the ED indicated free air in the neck and mediastinum. Subsequent CT scan provided further evidence of free air extending downward from the trachea to the diaphragm, surrounding the mediastinal structures. An esophagogram did not show any abnormality and ruled-out the possibility of esophageal perforation. ENT consult ensued and direct laryngoscopy revealed a small tear in the posterior wall of the trachea without any other abnormal findings. On direct questioning about her voice abuse the patient did acknowledge that two days prior to the presentation she was at an amusement park. While on one of the rides she was extremely scared and was screaming all along the duration of the ride. Her tracheal tear was attributed to her screaming and she was managed conservatively. Repeat CT scan done two days later showed resolution of the pneumomediastinum consistent with her clinical improvement.
DISCUSSION: A thorough review of literature yields numerous articles citing various causes for pneumomediastinum. Some of the unusual and unique causes include tracheal and esophageal perforations, endotracheal intubation, tracheotomy, tracheobronchomalacia, penetrating mediastinal injury, blunt chest trauma, Heimlich maneuver, transtracheal oxygen catheters, intubation necrosis, posterior dislocation of the sternoclavicular joint, tracheocele, closed tracheal injury during the game of Kendo (Japanese fencing) and Venturi jet ventilation during micro laryngeal surgery. Most of these causes of pneumomediastinum have a common underlying mechanism of instrumentation, i.e. are iatrogenic (procedural complication) or traumatic. In this particular case, increased tracheal intra-luminal pressure (screaming) appears as a plausible cause of tracheal tear and subsequent development of pneumomediastinum. Tracheal tear is a rare injury but can be life threatening since it can lead to tamponade. Chest roentgenogram is the standard initial screening examination followed by CT scan if tracheobronchial tear is suggested. Definitive diagnosis of tracheobronchial tear requires laryngoscopy, bronchoscopy or surgical exploration. Immediate treatment depends on the patient's condition and associated injuries. Small tears may be treated conservatively. This case should remind clinicians that a careful history about ***atruamatic*** causes need to be elicited and considered in patients presenting with pneumomediastinum. This would be a useful aid in suggesting the underlying etiology, such as voice abuse in our case, and in selecting appropriate investigations to verify the same.

ST-ELEVATION DOES NOT ALWAYS MEAN MYOCARDIAL INFARCTION: ACUTE MYOCARDITIS AS A CAUSE OF ST-ELEVATION. J.A. Clemmer[1]. [1]University of Pennsylvania, Philadelphia, PA. *(Tracking ID # 152778)*

LEARNING OBJECTIVES: 1. Recognize the differential diagnosis of ST-segment elevation. 2. Identify clinical predictors that suggest acute myocarditis as the cause of ST-segment elevation. 3. Recognize the broad range of symptoms caused by acute myocarditis.
CASE: A 21-year-old previously healthy female presented to the emergency department complaining of one hour of sharp, left-sided, non-pleuritic chest pain radiating to the back associated with shortness of breath. She denied fever, cough, viral prodrome, drug use, risk factors for or family history of deep vein thrombosis, and family history of premature coronary artery disease. Vital signs and physical examination were normal. Electrocardiogram showed three millimeter ST-segment elevation in leads V1 and V2 plus one millimeter ST-segment elevation in lead V3. After aspirin, sublingual nitroglycerin, and intravenous morphine, the chest pain and electrocardiographic changes resolved. Initial creatine kinase was 272 and troponin was 29.5. The white blood cell count was 4.4. Chest x-ray was normal. CT angiogram was negative for pulmonary embolism or aortic dissection. Intravenous heparin was started for presumed acute coronary syndrome. Five hours after presentation the chest pain and electrocardiographic changes returned and the creatine kinase had risen to 1982 and the troponin to greater than 50. Intravenous nitroglycerin was started. An emergent coronary artery catheterization revealed normal coronary arteries. The creatine kinase peaked at 3692 twelve hours after presentation. Cardiac magnetic resonance imaging 18 hours after presentation showed a large area of mid-myocardial delayed enhancement in the septum from the midcavity to the

base associated with mild hypokinesis, consistent with myocarditis. The ejection fraction was 45%. A beta blocker was started. The patient was discharged home in good condition several days later.
DISCUSSION: ST-segment elevation occurs with many conditions other than acute myocardial infarction including left ventricular hypertrophy, left bundle branch block, early repolarization, acute myocarditis, ventricular aneurysm, Prinzmetal's angina, pericarditis, hyperkalemia, pulmonary embolism, and Brugada syndrome. The shape of the ST-segments, leads involved, and clinical scenario often differentiate these conditions. However, acute myocarditis can mimic acute myocardial infarction. Myocarditis should be suspected in such situations when patients are young, without a history of coronary artery disease, with a history or fever or viral syndrome, and with cardiac enzyme elevation soon after symptom onset. Symptoms of myocarditis range from asymptomatic electrocardiographic abnormalities to fatigue, fever, palpitations, chest pain, arrhythmias, heart block, congestive heart failure, and cardiogenic shock. The gold standard for diagnosis is endomyocardial biopsy showing myocytolysis and lymphocytic infiltration despite limited sensitivity and specificity. Contrast enhanced cardiac magnetic resonance imaging has been used to diagnose myocarditis. In Western countries enteroviruses are the most common cause of mycoarditis. Viral genome detection in endomyocardial biopsies can provide be diagnostic. Treatment is largely supportive. Congestive heart failure, if present, should be treated in the standard manner.

SUBARACHNOID HEMORRHAGE: A DIAGNOSTIC HEADACHE. A. Mani[1]; S.R. Adams[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 150507)*

LEARNING OBJECTIVES: 1. To recognize that the diagnosis of subarachnoid hemorrhage (SAH) is frequently missed because of atypical presentations, limitations of the CT scan, and difficulty in CSF analysis. 2. To provide an approach for the recognition and diagnosis of SAH in the emergency room and primary care setting.
CASE: A 54 year-old male, with a past medical history significant for untreated hypertension and smoking, presented to the ER nine days after the sudden onset of a severe headache. The pain persisted for over a week with occasional violent exacerbations. Several days before admission, the patient went to a physician who prescribed an NSAID to relieve the headache, but his symptoms continued. In the ER, a non-contrast brain CT scan was negative. A lumbar puncture (LP) revealed a xanthochromic CSF with 505 RBC and 948 WBC per ml (differential notable for 64% lymphocytes). CSF glucose was low and protein was slightly elevated. He was initially diagnosed with meningitis and started on broad antibacterial and antiviral agents. After 24 hours, when gram stain, bacterial culture, and a wide array of fungal and viral tests were all negative, he had an MRI/MRA of the brain. A patent, non-thrombosed vertebrobasilar artery aneurysm, 11 by 6 mm, was found. Neurosurgical consultation was obtained, and the patient underwent a successful coiling procedure.
DISCUSSION: SAH most often results from ruptured saccular aneurysms, which have an estimated prevalence of around 5%. Risk factors include a positive family history, smoking, hypertension, and alcohol use. Misdiagnosis of SAH is a common problem complicating primary and emergency medicine (some published rates of misdiagnosis range from 12 to 51%). Patients with "typical" symptoms of severe headache (the "worst" of their life), loss of consciousness, nuchal rigidity, leg weakness, cranial nerve palsies, vomiting, and papilledema or retinal hemorrhages, more often receive a correct diagnosis because of the prompt use of CT. However, patients who delay their presentation or who do not appear as ill may either have a negative CT scan or will not receive one at all. Misdiagnosis occurs when physicians fail to recognize the spectrum of clinical presentations, do not understand the limitations of CT, or fail to perform and correctly interpret the LP. The sensitivity of brain CT decreases from 92% on the day of rupture to 58% five days later. Despite negative CT, a sudden, explosive headache should prompt further investigation. An LP may reveal numerous RBC and xanthochromia. "Traumatic taps" must be differentiated from SAH. Looking for decreasing RBC count in successive CSF tubes is used but not entirely reliable. In one series, xanthrochromia was present in all 111 patients who underwent LP between 12 hours and 2 weeks after onset of symptoms. Most agree that CSF xanthrochromia establishes a diagnosis of SAH in patients with negative CT. MRI using FLAIR and T2 also has a high sensitivity in patients with subacute presentation of their headache (>4 days from bleed). SAH is life threatening and frequently misdiagnosed in the primary care setting. Reasons include atypical presentation; over-reliance on diagnoses such as viral meningitis, migraine, or sinus headache; and misinterpretation of CT scan or LP findings. In patients with an acute onset of a severe headache and risk factors for saccular aneurysms, attempts to secure a diagnosis with LP and possibly MRI should be made with rapidity.

SUDDEN SWOLLEN SYMMETRIC SERONEGATIVE SYNOVITIS. A.C. Jacob[1]; W. Thinn[1]. [1]University of Virginia, Charlottesville, VA. *(Tracking ID # 150309)*

LEARNING OBJECTIVES: 1. Recognize RS3PE as a cause of hand edema 2. Investigate for underlying malignancy in RS3PE not responding to steroids.
CASE: A 73 year old white male presented to the clinic complaining of pain and swelling in his bilateral wrists and hands for about a month. He reported the sudden onset of swelling in bilateral hands followed by pain. He reported no preceding viral illness. He tried over the counter NSAIDS for about 2 weeks, but had no symptom relief. He had no morning stiffness, fever or fatigue. He had no past history of arthritis, gout or pseudogout. Examination was striking for florid edema of bilateral hands with decreased hand grip strength. Diffuse tenderness was elicited over bilateral wrists and MCP joints. Laboratory data revealed an elevated ESR of 37 and CRP of 3.4 (n<0.8), negative rheumatoid factor and hepatitis panels, and a normal TSH, CPK and metabolic panel. Urinalysis showed no proteinuria. MRI of the hands demonstrated extensive synovitis across all metacarpophalangeal joints and diffuse flexor tendon tenosynovitis, with no evidence of erosions. He was started on prednisone 10 mg a day and had significant improvement in all his symptoms within a week. An age appropriate malignancy screening did not reveal evidence of any underlying malignancy. He remains asymptomatic to date.
DISCUSSION: First described in 1985, Remitting Seronegative Symmetrical Synovitis with Pitting Edema (RS3PE) is a distinct syndrome characterized by the relatively acute onset of symmetrical distal synovitis, tenosynovitis of the flexor and extensor hand tendons, seronegativity for the rheumatoid factor, and pitting edema of the hands and/or feet. Patients present with the relatively acute onset of pain, swelling and limitation of movement at the wrists and hands. Laboratory tests demonstrate an inflammatory state with increased ESR and CRP. MRI demonstrate extensor tenosynovitis, which is felt to be the underlying cause of the pitting edema characteristic of the syndrome. Erosions are typically absent. Classically described as occurring in elderly males, RS3PE has a 3:1 male predominance. It can occur in isolation or as a paraneoplastic manifestation of an underlying malignancy. Cases of gastric, endometrial and pancreatic carcinoma have been reported in association with RS3PE. The benign form is characterized by an exquisite response to low dose prednisone (10–15 mg/d), whereas the paraneoplastic type does not, but usually remits once the underlying malignancy is treated. Recent reports have described a similarity between RS3PE and polymyalgia rheumatica, but whether they are both different manifestations of the same process is uncertain. PMR however is more frequent in women, and involves the shoulder girdle in almost all cases, unlike RS3PE where shoulder girdle involvement is rare. Whether the association with certain solid and hematologic malignancies and RS3PE is true or coincidental to the increased incidence of malignancies with aging is also unknown. However, the presence of pitting hand edema in an elderly patient, that is not steroid responsive, should prompt the search for an underlying malignancy. While pitting edema of the hands is rather unusual, other entities like CPPD disease, amyloid arthropathy, psoriatic and rheumatoid arthritis need to be considered in addition to RS3PE.

THE "BLUE HAND" SYNDROME: A CASE OF MUNCHAUSEN'S REVISITED. K. Connelly[1]; V.T. Martin[1]. [1]University of Cincinnati, Cincinnati, OH. *(Tracking ID # 154274)*

LEARNING OBJECTIVES: 1) List the features of factitious disorder. 2) Properly manage this difficult to treat disorder.
CASE: A 44-year-old white female nurse with a past history of a total pancreatectomy and islet cell transplant for chronic pancreatitis, insulin dependent diabetes and an undefined hypercoagulable state who presented to the emergency room with complaints of a cold, painful, blue right hand. She stated that the cyanosis of her hand began shortly after a fall in the shower. Physical examination revealed that her right hand was cyanotic, but both radial and ulnar pulses were strong. Capillary refill was less than three seconds. There were discrete puncture marks on both hands on the palmer surface of her thumbs and wrists that the patient states are from a combination of trauma from the fall and ABG's from the previous hospitalization. Both vascular and hand surgery were consulted and the patient was taken to the OR for angiography and fasciotomy. On angiogram there was only minor narrowing of the distal arch but ulnar and radial arteries had good blood flow and no evidence of thrombosis. The patient received twenty-four hours of directed arterial thrombolytics and systemic anticoagulation. During a previous admission the patient was found to have been intentionally injecting herself with insulin, proven with appropriate laboratory testing. It was suspected that the current presentation could have been self induced by injections of epinephrine into the palm of her hand. The patient had a history of severe allergies and she carried an epinephrine pen. A psychiatry consult was obtained and a diagnosis of factitious disorder was established.
DISCUSSION: Factitious disorder, or Munchausen syndrome, is a rare, often unrecognized, psychiatric disorder that is difficult to manage. Patients typically have a history of physical and emotional abuse in the past. They can have brief psychotic episodes, concomitant depression and anxiety, and traits related to personality disorders. Treatment is limited because patients are often unwilling to accept the diagnosis and unlikely to follow-up. As demonstrated in this case, one must recognize Munchausen syndrome to avoid unnecessary diagnostic tests and hospitalizations.

THE CART BEFORE THE HORSE: A CASE OF PARANEOPLASTIC NEPHROTIC SYNDROME. A. Kahn[1]. [1]University of Tennessee, College of Medicine–Chattanooga Unit, Chattanooga, TN. *(Tracking ID # 151326)*

LEARNING OBJECTIVES: 1. Recognize the importance of having a high index of suspicion for malignancy as a cause of membranoproliferative glomerulonephritis. 2. Recognize nephrotic syndrome as one of the paraneoplastic syndromes.
CASE: A 67 year old male was admitted by the renal service after having several admissions at an outlying facility for progressively increasing dyspnea and generalized edema over the past four months. A renal biopsy done three months prior had revealed membranous glomerulonephritis with nephrotic syndrome, which was diagnosed as being due to primary renal disease. He suffered from chronic obstructive pulmonary disease (COPD) with a history of heavy smoking, and was oxygen dependent. He complained of a cough for the duration of his illness. Physical exam revealed right sided pleural effusion, and bilateral DVTs.

Examination of the pleural fluid revealed it to be a transudate with no malignant cells. There was some suspicion of a right hilar mass being obscured by the fluid on the chest X ray. A CT scan of the thorax revealed a lung mass with paratracheal and sub carinal lymphadenopathy. Bronchoscopy with biopsy revealed the mass to be small cell undifferentiated lung cancer.
DISCUSSION: Membranous nephropathy (MN) and focal glomerulosclerosis are the two most common causes of nephrotic syndrome in non-diabetic adults. The incidence of occult tumor causing MN is under one to two percent in adults, with the risk being highest in patients over the age of 60. As a result, a tumor work-up should be initiated only in the presence of some suggestive finding such as unexplained anemia, guaiac positive stools, weight loss, or DVT as in our patient. A solid tumor (such as carcinoma of the lung or colon) is most often involved. Clinically significant paraneoplastic syndromes occur in about 10 to 20 percent of patients with bronchogenic carcinoma and may be the presenting finding or first sign of recurrence. It is important to note that on previous presentations our patient did not have pleural effusion. Because the patient had COPD, his complaints of cough were not different from his usual complaints. The presence of bilateral DVTs and a high index of suspicion for a lung malignancy resulted in the diagnosis of the cancer suggesting that his nephrotic syndrome was actually a paraneoplastic syndrome.

THE DIAGNOSTIC DILEMMA: DISSECTING ANEURYSM VS. ISCHEMIC BOWEL. J. Shah[1]; M. Panda[1]. [1]University of Tennessee, Chattanooga, TN. *(Tracking ID # 157106)*

LEARNING OBJECTIVES: 1. Discuss the clinical and radiologic diagnostic features of dissecting aneurysm and ischemic bowel. 2. Discuss the importance of obtaining detailed history from caregiver(s) when patient is unable to provide information.
CASE: A 67 year old independently living female was brought to ER by EMS for abdominal pain, nausea and vomiting noticed by the family living next doors. The only history that the patient provided was that her symptoms started few hours prior and had progressively become worse. The past history was significant for hypertension, GERD, COPD, tobacco abuse, 3.2 cm sized aortic aneurysm below the renal arteries seen on CT scan abdomen 3 months prior. On exam the patient was afebrile, tachycardic at 110/min, normotensive, abdomen diffusely tender to palpation with normal rectal exam and hemoccult negative stool. Lab results revealed mild leukocytosis (14,800/cu.mm) with left shift, 3+ blood on urine analysis, rest of the labs essentially normal. The initial CT scan with contrast showed pneumatosis in the wall of small bowel, interval development of dissection of aortic aneurysm, non visualization of IMA. In the mean time patient started to have hematemesis and decreased mentation. The presumptive diagnosis of dissecting aneurysm was made and the patient was taken for exploratory laprotomy. Intra operatively, the surgeons found small bowel volvulous with gangrenous appearing small bowel most of which immediately regained its blush on reversal of volvulous except for a short segment that got resected with end to end anastomosis. The aneurysm was 4 cm in diameter still below the renal arteries and no signs of active bleeding. A detailed history from the family members later unfolded the fact that the patient had been having symptoms of vague abdominal pain, nausea and constipation for 2 weeks, getting worse and later vomiting for 2 days. This history in retrospect would have been consistent with volvulous.
DISCUSSION: Both mesenteric ischemia and dissecting aneurysm could present with diffuse abdominal pain in elderly, however there are distinguishing points on initial evaluation - hemodynamic instability, tender pulsatile mass, back pain, abdominal pain mimicking renal colic, diverticulitis, pancreatitis, inferior wall coronary ischemia, or biliary tract disease favor dissecting or ruptured aneurysm as opposed to acute and severe onset of abdominal pain with or without chronic symptoms of intestinal angina, weight loss, nausea, vomiting and diarrhea suggestive of chronic atherosclerotic or ischemic cardiovascular disease; painful GI bleed are more suggestive of mesenteric ischemia. Volvulous, an extra vascular cause of mesenteric ischemia, presents with an insidious onset of abdominal pain, nausea, vomiting, constipation all gradually worsening. Vasculitis involving mesenteric vessels and mesenteric venous thrombosis are other causes of ischemia. Gas in bowel wall on CT scan is the hall mark of mesenteric ischemia, the presence of a double lumen with a visible intimal flap on IV contrast CT scan is the diagnostic criterion for aortic dissection. Looking retrospectively the management would not have been different; but since both of these conditions are found in the elderly who might not be able to provide good history; high index of suspicion and a detailed history from the care giver(s) is very important to distinguish the two conditions.

THE ENIGMATIC KIKUCHI FUJIMOTO DISEASE. N.C. Javier[1]; X. Mdluli[1]; S. Kazmi[1]; R. Chinai[1]. [1]Jersey City Medical Center, Jersey City, NJ. *(Tracking ID # 155804)*

LEARNING OBJECTIVES: 1. To recognize the protean and nonspecific clinical features of Kikuchi Fujimoto Disease 2. To distinguish Kikuchi's Disease from Systemic Lupus Erythematosus and Lymphoma through histopathologic studies.
CASE: A 22 year old male from South India without any comorbidities presents with a three week history of intermittent febrile episodes, chills, night sweats, fatigue, generalized body aches, and weight loss. The patient had no recent travel, vaccinations, exposure to pets and sick contacts, illicit drug use, sexual promiscuity, and occupational hazards. His initial work-up in the clinic included a negative Mantoux test and a normal chest radiograph. In the hospital, his physical examination was significant for multiple mobile cervical right-sided lymph nodes, the largest measuring two centimeters in diameter. His blood tests showed leukopenia (2,000 per cubic millimeter), relative microcytosis, high lactate dehydrogenase level and modest elevations in the erythrocyte sedimentation rate and aspartate aminotransferase. Differential diagnoses included Viral and Mycobacterial Infections, Lymphoma, Connective Tissue Disease, Immunodeficiency, and Protozoal Infection. Computed tomography of the neck, chest, abdomen, and pelvis showed multiply distributed lymph nodes in the cervical region. A second stage Mantoux test, malarial smear, and an HIV test were unrevealing. Serologic markers obtained showed a past exposure to Cytomegalovirus. His antinuclear antibody and rheumatoid factor were both negative. A bone marrow biopsy with flow cytometry showed a marginally hypocellular marrow without any evidence for leukemia and lymphoproliferative disorder. An excisional biopsy was eventually done which showed effacement of the nodal architecture with areas of necrosis surrounded by reactive and foamy histiocytes consistent with Histiocytic Necrotizing Lymphadenitis or Kikuchi Fujimoto Disease. Immunohistochemical studies confirmed this diagnosis with positive immunostains for CD 3, 30 and 68. During his hospitalization, the patient was managed supportively with antipyretics, fluids, and analgesics. He was discharged home and advised regular follow-up for recurrence and/or progression to Systemic Lupus Erythematosus.
DISCUSSION: Kikuchi Fujimoto Disease was first described in 1972 as a lymphadenitis showing reticulum cell hyperplasia with nuclear debris and phagocytosis. It is a rare, idiopathic, and self-limiting disease mostly affecting young Asian females but has become more prevalent worldwide. The proposed mechanism is an exuberant T cell response to multiple nonspecific stimuli including infectious and autoimmune factors. The disease course subsides from a few weeks to six months. There is disease recurrence in about 3% of cases. The typical clinical manifestations include lymphadenopathy, fever, night sweats, weight loss, fatigue, chills, and polyarthritis. The clinical picture overlaps with SLE and Lymphoma which can be distinguished histopathologically with the former having neutrophils, plasma cells, and hematoxylin bodies whereas the latter having the characteristic Reed Sternberg cells and incomplete architectural effacement of the lymph nodes. An excisional biopsy with immunohistochemical testing is the gold standard to obtain the diagnosis. The medical management is mainly supportive with addition of steroids for severe and generalized disease. Patients should be followed up regularly in the clinic for recurrence and possible progresstion to SLE.

THE EYES SEE ONLY WHAT THE MIND KNOWS. A CASE OF DEEP VENOUS THROMBOSIS MASQUERADING AS AN ACUTE URINARY RETENTION. S. Madhwal[1]; S. Khaderi[2]; D. Gugliotti[2]. [1]Cleveland Clinic Foundation, beachwood, OH; [2]Cleveland Clinic Foundation, cleveland, OH. *(Tracking ID # 157124)*

LEARNING OBJECTIVES: 1. Recognize the atypical presentations of acute DVT including that of acute urinary retention 2. Recognize the limitations of imaging modalities while evaluating complications of IVC filter placement.
CASE: A 50 year old male with past medical history of Type II Diabetes Mellitus, Hepatitis C Cirrhosis and remote DVT (s/p Greenfield filter) presented to the ED with urinary retention and suprapubic pain for one day. He denied any history of dysuria, urinary retention or prostatic hypertrophy. He had no known allergies and was monogamous in his sexual relationship. On examination, the vitals were unremarkable. Abdomen was mildly distended and tender to palpation in the suprapubic region. Rectal examination revealed a mildly enlarged prostate without any tenderness. The laboratory tests were significant for leucocytosis (WBC count >15,000/mm3) and subtherapeutic INR level (1.1). Non contrast CT abdomen was unremarkable for any mass or stone as the cause for urinary obstruction. He was catheterized in the ED with partial relief of symptoms. Patient was admitted to the medicine service with a diagnosis of acute urinary retention. However, the next day, patient reported worsening back pain with purulent discharge from the penile meatus. His WBC count continued to increase prompting further work up for an infection. MRI Cervical, Thoracic and Lumbar Spine was negative for any paravertebral/psoas abscess or necrotizing fasciitis. Overnight patient developed excruciating back pain, decreased urinary output with swollen penis and bilateral lower extremity edema and redness. At this time, the possibility of IVC clot was considered even though prior non contrast CT and MRI were unremarkable. The repeat CT Abdomen/Pelvis(this time with contrast) showed extensive thrombus within the IVC, below the IVC filter, Common Iliac Vein, Internal Iliac Vein, External Iliac Vein, Common Femoral Vein and Superficial Femoral Vein. Urgent thrombolectomy failed but patient was successfully thrombolysed with t-PA. His limb was salvaged in time and patient was finally able to walk back home.
DISCUSSION: While IVC filters have been shown to reduce the risk of PE in patients with DVT in acute settings, its long term effectiveness to prevent PE is questionable. Furthermore, the placement of filter leads to an increased risk of subsequent DVT and a false sense of security, which may lead to inadequate anticoagulation in many cases. Hence, there needs to be an increased index of suspicion for IVC clot in this group of patients. Most patients will present with bilateral lower extremity but some may have atypical presentations such as acute urinary retention in our case. A thorough review of literature reveals a few case reports of IVC clot with similar presentations. The correct diagnosis was missed in the initial work up (including non contrast CT abdomen and MRI spine) since none of these studies were done to look specifically for IVC pathology. Finally, a contrast CT focused on IVC lead to correct diagnosis and treatment. This case reminds clinicians that each imaging modalities has its limitation and clinical diagnosis should guide investigations, not vice versa.

THE LADY WHO LOST HER SENSES-A CASE OF PURE SENSORY STROKE. A. Raina[1]; C. Christos[1]; A. Tulsky[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 153126)*

LEARNING OBJECTIVES: 1. Recognize pure sensory strokes as rare variety of stroke. 2. Describe manifestations, anatomical correlations and risk factors for pure sensory strokes. 3. State management of these strokes.

CASE: A 73-year old right handed woman with h/o diabetes mellitus (DM), hypertension (HTN), and dyslipidemia presented to the ER with acute onset numbness involving the right half of her lips and tongue and right hand and shoulder.She was found to have a normal neurological examination and a normal CT scan. She returned to the ER with transient numbness involving the right side of face and right lower extremity.Her symptoms resolved in the ER.On admission her pulse was 81, BP136/60 mm Hg, respirations 18 and SaO2 93% on room air. Physical examination revealed II/VI crescendo-decrescendo murmur heard best at 2RICS radiating to the carotids. Neurological examination was normal except for symmetrically decreased deep tendon reflexes.T1-weighted MRI showed small vessel disease. Echocardiogram demonstrated a bicuspid aortic valve without evidence of thrombus.Carotid doppler ultrasound was unremarkable. Labs showed HbA1c 8.8, homocystine 23.9 mg/dl, cholesterol 261 mg/dl, TG 409 mg/dl,HDL 40 mg/dl and LDL 162 mg/dl. Clopidogrel and folic acid were started in addition to aspirin. Pioglitizone was added for hyperglycemic control and simvastatin for dyslipidemia. On hospital day 3, she experienced acute onset right sided hemianesthesia. A neurologic examination showed normal motor function and symmetrically decreased deep tendon reflexes. Babinski's sign was absent and cranial nerve were normal. Pinprick, temperature, vibration, and position sensations were reduced in the right limbs, right cheek and right side of trunk. Her symptoms resolved in a few hours with a normal neurological examination. T1 weighted MRI with FLAIR imaging showed an acute infarct of the left thalamus localized to ventroposterior nucleus. No additional changes were made to her treatment regimen and she was symptom free at discharge.
DISCUSSION: Pure sensory strokes (PSS) are defined as one-sided facial, brachial, or crural numbness in the absence of motor deficits or "cortical" signs.Studies suggest that PSS account for 4.7% of acute strokes, 5.4% of ischemic strokes and 17.4% of lacunar infarcts (LI). In one study,neuroimaging confirmed brain lesions in only 76% of cases–distributed to the thalamus (56%), internal capsule (6%), parietal lobe (5%), corona radiata (4%), pons (3%), and cerebral cortex predominantly with temporal lobe involvement (2%). While complete hemisensory syndromes with facial, brachial and crural distributions are present in the majority of cases, incomplete hemisensory syndromes represent 19% of patients with PSS. Acute onset, sensory symptoms, thalamic distribution, and symptom-free at discharge are more common in the PSS patient when compared to other lacunar syndromes. LI are small (0.2 to 15 mm3) noncortical infarcts caused by occlusion of a single penetrating branch of a large cerebral artery. The main risk factors are HTN, DM and hyperlipidemia. PSS is the second most common form of LI behind pure motor hemiparesis. LI represent a stroke subtype with a better prognosis than infarcts. Evaluation of PSS includes a detailed neurological exam, laboratory work up to rule our metabolic causes of symptoms, neuroimaging of the head/neck to rule out hemorrhagic or acute infarcts, and carotid artery ultrasound to evaluate for stenosis.Management includes optimization of HTN, DM, dyslipidemias and other risk factors.

THE MAN WITH THE SWOLLEN TONGUE. S.A. Sattar[1]; B. Singh[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 151971)*

LEARNING OBJECTIVES: 1. Recognize the clinical manifestations and laboratory findings which define acquired angioedema (AAE) 2. Distinguish between Type I Acquired Angioedema (Type I AAE) and Type II Acquired Angioedema (Type II AAE) 3. Discuss the management of AAE.
CASE: A 62 year old male presented to the clinic with a history of sudden onset tongue swelling. This swelling was so severe he began having impending airway obstruction and was rushed to the emergency room for treatment. There was no associated rash, wheezing, lip or extremity swelling, or throat tightening. There was no stressful preceding event or recent change in medications. Past medical history was significant for allergic rhinitis and hypercholesteremia. He had been taking aspirin and niaspan ER for several years without side effects. Family history was noncontributory. He had recently modified his diet with a subsequent 15 pound weight loss. Physical exam included stable vital signs and was remarkable for a swollen tongue obstructing his oropharynx. In the emergency room, he received intravenous epinephrine which abated the swelling. After discharge from the hospital, he experienced no further episodes of swelling. He presented to allergy and immunology clinic one month later for evaluation. Physical exam was unremarkable. Laboratory studies indicated a normal CBC with no eosinophilia. Complement studies showed decreased C4, C1 esterase inhibitor (C1 INH) quantity, C1 INH function, and C1q. In collaboration with hematology/oncology, further workup revealed that the patient had monoclonal gammopathy of unknown significance. C1 INH autoantibody was elevated. He was diagnosed with Type II AAE and was started on danazol. Ten months later, he has had no further angioedema episodes. His complement studies, including C1 INH quantity and C4, have normalized.
DISCUSSION: AAE manifests as recurrent attacks of intense, massive, localized nonpitting edema without concomitant pruritus. Edema may involve skin and both visceral and hollow organs. Facial areas typically involved are the lips, eyelids, and tongue. Manifestations typically occur in the fourth decade of life, and unlike hereditary angioedema, there are no familial trends. AAE occurs because either quantitative or functional levels of C1 INH are low. C1 INH controls the activity of C1r and C1s, the activated proteases of the first component of the complement. Uninhibited activation of the complement cascade leads to release of kinin-like mediators that can lead to angioedema. AAE is also characterized by decreased complement components including low C1q, C4, C2. There are two types of acquired angioedema, Type I AAE and Type II AAE. Type I AAE is associated with autoimmune disorders, B cell lymphatic disorders, carcinomas, and infection. Type I AAE is caused by increased catabolism of C1 INH. Type II AAE can also be associated with rheumatologic and lymphoproliferative disorders, but its distinguishing feature is the presence of autoantibodies directed against C1 INH molecule, causing C1 INH to be inactive. Type I AAE involves decreased levels of C1 INH, whereas in Type II AAE, C1 INH quantity may be normal, but the levels of functional C1 INH are low. Our patient's diagnosis of Type II AAE was confirmed by C1 INH autoantibody. Treatment of AAE involves treating the underlying condition. Acute management may involve airway protection. Long term therapy includes attenuated androgens, such as danazol, because they increase the hepatic production of C1 INH.

THE MISSED DIAGNOSIS: NATIVE VALVE ENDOCARDITIS DUE TO CANDIDA GLABRATA. P. Patel[1]; K. Pfeifer[1]. [1]Medical College of Wisconsin, Milwaukee, WI. *(Tracking ID # 153522)*

LEARNING OBJECTIVES: 1) Recognize the at-risk population for fungal infections. 2) Describe uncommon complications of treatment with broad spectrum antimicrobials for minor infections. 3) Emphasize the importance of an appropriate work up of fever that does not resolve with antibiotics.
CASE: We present the case of a 74 year-old nursing home resident who was sent to the hospital because of recurrent fevers and an abnormally high potassium level. The fevers were being treated in the nursing home with multiple short courses of antibiotics for presumed urinary tract infections since the patient had a chronic indwelling urinary catheter. On further examination, the patient was found to have left-sided hemiplegia and a holosystolic murmur at the apex. Initial laboratory studies revealed a creatinine of 6.1, and a head CT revealed a large cerebral infarct in the right middle cerebral artery territory associated with massive edema and 2 mm midline shift. Later, her blood cultures turned positive for C. glabrata. A transesophageal echocardiogram (TEE) showed a large mitral valve vegetation that was consistent with infectious endocarditis. Aside from diabetes mellitus, the patient had no other medical conditions predisposing to fungemia, and the yeast was not isolated from any other cultures. Her fungal endocarditis with septic emboli was attributed to the use of multiple prior broad spectrum antimicrobial therapies. Being a poor surgical candidate she was treated medically with caspofungin for 6 weeks. She returned to the hospital after the course of antifungals for a repeat TEE to look for resolution but then suffered another massive embolic stroke. She was transitioned to palliative care by her family and transferred to a hospice bed where she died peacefully a few days later.
DISCUSSION: As medical technology is advancing so is the incidence of fatal infections by opportunistic organisms including fungi. Fungal endocarditis is a life-threatening infection that is usually associated with central venous catheters, prosthetic heart valves and immunocompromised states. The use of broad spectrum antibiotics has also been suggested as one of the many predisposing conditions for development of fungemia, though the pathophysiologic mechanism is unknown. Given the significant risks of empiric antibiotic therapy, it is vitally important that fever and other objective findings of infection be thoroughly evaluated, even in patients with obvious sources.

THE MULTIPLE CAUSES OF ERYTHEMA. M. Hamblin[1]; J. Wiese[1]. [1]Tulane University, New Orleans, LA. *(Tracking ID # 156948)*

LEARNING OBJECTIVES: 1. Recognize the clinical presentation of erythema mutiforme minor and major. 2. Identify the risk factors for development of erythema mutiforme minor and major. 3. Recognize myocarditis as a complication of erythema multiforme.
CASE: A 75 year-old woman presented with bilateral foot redness and blistering. Eleven days earlier she had presented with diffuse painless erythema on both feet with multiple vesicular lesions. She had presented with signs of congestive heart failure five days prior to admission and was diagnosed with acute cellulitis, tinea pedis, and congestive heart failure. She was treated with cephalexin, fluconazole, and furosemide, and released. At the time of her second presentation, the erythema on her bilateral lower extremities had coalesced into a dusky, purple rash, with rupture of all the vesicles leaving multiple areas of denuded skin. A new urticarial rash erupted across her entire skin surface; she had no lesions on her oral mucosa. She had bibasilar crackles, jugular venous distension, and lower extremity edema. Upon further questioning she noted that she had had a mild upper respiratory tract infection one month ago earlier. She was diagnosed with erythema multiforme minor with myocarditis in progression to erythema multiforme major following drug exposure. All medications were discontinued, and diphenhydramine was given for symptomatic relief.
DISCUSSION: Erythema multiforme is a dermatologic reaction induced by a systemic exposure to an inciting antigen or toxin. It is sub-classified into erythema multiforme minor and major. The rash of erythema multiforme minor has three concentric zones of color change most commonly found acrally on the hands and feet. While most cases follow infection from herpes simplex virus, other viral and fungal infections have been implicated including echovirus and coxsackie virus. The association of erythema multiforme with myocarditis appears to be predominately explained by these viruses. Erythema multiforme major is distinguished from erythema multiforme minor by its truncal distribution and involvement of the mucosal surfaces of the gastrointestinal tract. Oral and gastrointestinal lesions portend higher mortality rates associated with erythema multiforme as these provide portals of entry for bacteria into the systemic circulation. Drugs are the incendiary culprit in erythema multiforme major, with notable offenders including phenytoin, barbiturates, sulfonamides, penicillins, and carbamazepime. Rarely mycoplasma pneumoniae has been associated in the development of erythema multiforme major. The morbidity

and mortality related to erythema multiforme is in direct relation to the amount of skin surface involved as well as mucosal involvement. Mortality rates are 60–90% when greater than 30% of the skin surface is affected. As was instituted for our patient, conservative management and removal of the inciting stimulus are the treatment for erythema multiforme. Steroid therapy while still widely employed has not been proven to be effective, and IV immunoglobulin therapy has only been shown to be effective in small studies when greater than 30% of the skin surface is involved. Severe cases are best followed in a burn unit.

THE MYSTERY OF EXTRAPANCREATIC TUMOR-INDUCED HYPOGLYCEMIA. L. Lu[1]; N. Mikhail[1]. [1]University of California, Los Angeles-Olive View Medical Center, Sylmar, CA. *(Tracking ID # 152883)*

LEARNING OBJECTIVES: 1) Recognize extrapancreatic tumors can cause hypoglycemia 2) Recognize tumor-induced hypoglycemia may be refractory to therapy and carry a poor prognosis. 3) Recognize a role for insulin-like growth factor II (IGF-II) in the proliferation of tumors.
CASE: A 48 year old Thai male with history of myasthenia gravis status-post thymoma resection presented with 2 weeks of fatigue and altered mental status. Patient noticed abdominal pain, diaphoresis and weight loss. The patient denied fever, nausea, diarrhea, hematemesis, melena, smoking, alcohol and illicit drug use. The patient took pyridostigmine as prescribed. On presentation, blood glucose was 24. Intravenous dextrose was administered, raising blood glucose to 84, but subsequently dropped to 46 in a few minutes. Physical exam was significant for lethargy, heart rate of 100, and hepatomegaly. CT scan showed carcinoma with metastasis confined to the liver. By ultrasound, the largest hepatic mass measured 6.3 × 22.8 × 18 cm. Biopsy revealed primary hepatocellular carcinoma. Lab abnormalities included a positive test for hepatitis B and undetectable insulin antibodies. Serum insulin was undetectable (<2 micro IU/ml) and proinsulin was 9.9 pmol/L (normal range <19.1), Insulin-like growth factor I (IGF-I) was <10 ng/ml (normal range 90–360), IGF-II was 831 ng/ml (normal range 414–1230) and IGF-binding protein 3 was 1.4 mg/L (normal range 3.3–6.7 mg/dl). A month later, patient presented with increased abdominal girth and worsened severity of hypoglycemia. His IGF-I decreased to <3 ng/ml and IGF-II increased to 967 ng/ml.
DISCUSSION: Primary hepatocellular carcinoma is the most common hypoglycemia-inducing tumor found in Asian countries but the hypoglycemia-inducing tumors in the Western hemisphere are generally mesenchymal in origin. These tumors are often located where they can proliferate to a large size. Once these tumors present with symptoms of hypoglycemia, it usually indicates a poor prognosis as they are usually large, indolent and malignant. There should be a high index of suspicion for a carcinoma (non-insulinoma type) causing hypoglycemia when the patient presents with abnormally low levels of blood glucose despite frequent infusions of dextrose and appropriately suppressed levels of insulin. Early recognition of tumor- induced hypoglycemia is important as the only treatment that has produced resolution of hypoglycemia was the debulking and eradication of the tumor. Symptomatic treatments include infusion of dextrose, glucagon injections, frequent ingestion of carbohydrates and glucose-rich foods, and glucocorticoids. Other therapies such as diazoxide and octreotide infusion have been tried but had minimal success. The pathophysiology of tumor-inducing hypoglycemia is unclear but there are three main theories: 1) The predominant thought is the increased production of active IGF-II. Pro-IGF-II produced by the tumor does not undergo the cleaving process as it does when it is produced by normal hepatic tissues. Pro-IGF-II has a decreased affinity for IGF binding protein allowing it to remain active. These active pro-IGF-II hormones competitively bind insulin receptors resulting in suppression of gluconeogenesis, an increase in glucose utilization and a reduction in counterregulatory hormone secretion. 2) Another theory is that large bulk tumors may be utilizing excessive amounts of glucose. 3) A third theory is decreased gluconeogenesis secondary to extensive cancer invasion of hepatic tissue.

THE NEXUS OF VULNERABILITY IN HUMAN TRAFFICKING. O.K. Alozie[1]. [1]Hennepin County Medical Center, Minneapolis, MN. *(Tracking ID # 154056)*

LEARNING OBJECTIVES: 1. Recognize that herpes zoster, in the absence of known immunodeficiency, should warrant an investigation for HIV. 2. Identify spousal abuse, in a non-US citizen, as a possible indication of human trafficking and explain that under a T-visa, non-US citizen victims of human trafficking can qualify for special immigration, housing and medical help. 3. Recognize that human trafficking is a risk factor for HIV.
CASE: A 45 yo woman came to the emergency room with progressive swelling of lips and face. She had developed a small blister on the left side of her upper lip which progressed to a vesicular rash that continued up her face, and now causes blurry vision and crusty drainage in her left eye. She also complained of general malaise, fevers, chills, weight loss, and anorexia. On exam, she had a vesicular eruption on her left upper lip, cheek, nose and into left eye, with an inflamed conjunctiva and tearing. She had erythema of her cheek on the same side with crusty drainage. Other findings included right arm weakness and vaginal discharge. A presumptive diagnosis of herpes zoster was made. The severity of her rash led to an HIV test which was positive; her CD4 count was 472. She came to the US 2 years ago from Kenya with her fiancée. She thought she contracted HIV from her fiancée, who was keeping her locked in their apartment, raping her and denying her access to her legal documents. She feels she is in danger and has planned to leave many times but has become too ill to do this.
DISCUSSION: This case exemplifies the intersection between medicine and public health. Herpes zoster in persons younger than 50 years may be an indicator of an immunocompromised state. Patients with zoster should be assessed for evidence of immunodeficiency, including HIV. Herpes zoster, which is a CDC Stage IV C2 AIDS infection, is a condition that should raise suspicion of HIV infection. The available data suggest that herpes zoster occurs at all stages of HIV disease but at higher rates with more advanced immunosuppression. In patients who are not legal residents of the US, domestic abuse and access to healthcare are difficult issues. In this patient, further dialog uncovered a history of being locked up at home and daily physical abuse. Intimate partner abuse qualifies for trafficking if the victim is subjected by force to give up money she makes. Trafficking victims may be granted continued presence by the Attorney General, allowing them to stay in the country temporarily during an investigation. They can also apply for a "T-visa," a special three-year visa for victims of trafficking which also allows them get immediate help with housing, food and medical care. People affected by intimate partner violence face an increased risk of HIV/AIDS on account of lack of control over their working and living conditions, including sexual relations. Women from sub-Saharan Africa, where HIV is most rampant, face poverty, exploitation and separation from families, which puts them at increased risk. The most powerful factor linking HIV transmission and trafficking is the powerlessness to negotiate and the absence of choices–the so-called "Nexus of Vulnerability". Multiple studies, including a recent study out of Kenya (Fonck et al., 2005), have shown clear association between physical partner violence and HIV risk. A key in counseling patients in this situation is to explain that they will not be imprisoned and deported.

THE RAVAGES OF ALCOHOL ABUSE IN A YOUNG ADULT. E.S. Iskander[1]; S. Kafaja[1]; M. Rotblatt[1]. [1]Olive View/University of California, Los Angeles Medical Center, Sylmar, CA. *(Tracking ID # 154777)*

LEARNING OBJECTIVES: 1. Recognize alcohol abuse as a cause of multi organ damage 2. Distinguish neuropathies secondary to alcohol abuse.
CASE: A 23-year-old African American woman with no past medical history presented to the ED complaining primarily of bilateral lower extremity edema and pain. ROS was significant for hand tremors and unsteady gait. She denied fever, chills, recent illness or palpitations, gastrointestinal distress, changes in hair texture, heat or cold intolerance. She admitted to drinking alcohol approximately 4 nights per week, drinking enough alcohol to "get drunk" for the past 5 years. She denied any IVDA or smoking history. She denied taking any medications or supplements. Physical exam revealed a well-nourished appearing young woman with jaundice, fever of 38.4 °C, tachycardia to ∼ 120, a soft II/VI non-radiating systolic murmur at the left sternal border, and pitting edema of the lower extremities. Her neurological exam was significant for a flat affect, decreased vision in both eyes, mild intension tremor in both hands and bilateral loss of proprioception. Her laboratory abnormalities were many and varied. She had a macrocyctic anemia (Hg 9.5, HCT 28.2, MCV 113, RDW 25), hepatitis (AST 149, ALT 59, ALKP 255, Total bilirubin 5.1, Direct bilirubin 4.2, Albumin 2.2), renal involvement (proteinuria), a very elevated LDH (3359), and evidence of hypothyroidism (TSH 22, low T3 and free T4). Abdominal ultrasound also revealed common biliary duct dilation of 7.6 mm with an enlarged gallbladder, and an exam by the ophthalmologists revealed bilateral optic neuritis. Our initial differential diagnosis included rheumatologic, infective, oncologic, hematologic and other disorders (SLE, SBE, mononucleosis, viral hepatitis, multiple myeloma, biliary cancer, vitamin B12 deficiency, and others). As our additional lab workup and imaging studies were negative, and as the initial lab abnormalities resolved with time, we realized that severe alcohol abuse was the most likely etiology.
DISCUSSION: Alcohol is a common substance of abuse seen in a growing number of young adults. Usually, its detrimental effects takes many years of heavy abuse before resulting in multi-organ damage. When encountering a constellation of symptoms involving multiple organs in a young adult, the differential diagnosis often includes a broad spectrum of diseases. Alcoholic neuropathy, one of the long-term findings in patients with alcohol abuse, is caused by axonal damage and is often complicated by demyelination of peripheral neurons leading to loss of proprioception and gait abnormality. This neuropathy can coexist with nutritional deficiencies manifested by burning paresthesias, pain and weakness. Alcohol abuse commonly leads to hematologic effects such as macrocytic anemia, as well as liver damage manifested by the classic AST to ALT 2:1 ratio. Our case demonstrates an unusual presentation in that the toxic effects of alcohol were widespread and confusing in this young adult, also resulting in proteinuria, optic neuritis, sick euthyroid syndrome and common biliary duct dilation.

THE SPONTANEOUSLY SHRINKING SWELLING: A CASE OF SPONTANEOUS PARTIAL REGRESSION OF HEPATOCELLULAR CARCINOMA. H. Gadadhar[1]; V. Bhatia[1]; M. Panda[2]; L. Schlabach[1]. [1]University of Tennessee, College of Medicine - Chattanooga Unit, Chattanooga, TN; [2]University of Tennessee at Chattanooga, Chattanooga, TN. *(Tracking ID # 151455)*

LEARNING OBJECTIVES: 1. To highlight the phenomenon of partial spontaneous regression of hepatocellular carcinoma (HCC). 2. Review the role of immune mechanisms involved in control of tumor progression.
CASE: A 56 year old white male with hepatitis C, diabetes mellitus type II and alcohol abuse presented with complaints of a twenty pound weight loss over one year and back pain. Physical exam showed a well-developed male in no distress with a normal physical examination. Laboratory studies revealed hyperglycemia, elevated transaminases and hypoalbuminemia. Abdominal ultrasound

revealed changes consistent with cirrhosis and three hypoechoic lesions in the right lobe of the liver, sizes ranging from 1.7 to 3.2 cm. MRI to further evaluate the liver lesions showed three lesions in the right lobe of the liver approximately 2 cm each and a 3 cm mass in the left lobe. Biopsy of the left lobe mass was consistent with HCC grade II and chronic hepatitis with possible cirrhosis. Further investigations revealed a hepatitis C viral load of 540,000 IU/ml and alpha-fetoprotein (AFP) level of 6705 ng/ml. Patient was evaluated by an oncologist and a gastroenterologist and discharged in a stable condition with appropriate follow up. Despite repeated attempts to contact him, patient was lost to follow up. Six months later he presented again with complaints of lower back pain. In the interim he had not received any treatment for his Hepatitis C or HCC. Physical exam was unremarkable. Laboratory studies showed for stable liver function tests and coagulation profile. Repeat abdominal ultrasound showed heterogeneous liver texture with a stable single left lobe mass, and complete regression of the remaining three hypo echoic lesions in the right lobe. MRI studies confirmed these findings. No new lesions were identified. Improvement in AFP levels from 6705 ng/ml to 1720 ng/ml was also noted.
DISCUSSION: Worldwide hepatocellular carcinoma (HCC) is one of the most common fatal tumors and 1.2 million new cases arise annually. It is believed that the high prevalence of Hepatitis C virus (HCV) infection has contributed to the increasing number of cases of HCC in USA. HCC has a poor prognosis and long-term survival is unusual. Liver resection or transplantation is potentially curative in selected cases only. Spontaneous regression of HCC, defined as a partial or complete involution of tumor in the absence of a specific therapy is rare but around 32 cases have been documented in the literature. The pathophysiology of this phenomenon is still unclear however it IS hypothesized that hormonal influence, withdrawal of agents required for tumor growth, disruption of blood supply and the development of an antitumor immune response might play a role. We present a case in whom biopsy proven HCC had shown no progression for a period of over 6 months without any treatment and multiple other lesions that were thought to be HCC had spontaneously regressed with a significant fall in serum AFP. Among the proposed mechanisms of spontaneous regression, an immunological response may play the most important role. It is proposed that the immune response is towards the AFP, which is a weakly antigenic self-protein and has to be presented by dendritic cells to initiate immune response. Dendritic cell vaccinations have actually been effective in the treatment of HCC in animals and human trials are underway. The ultimate role of tumor vaccines is in the prevention of HCC in high risk patients, such as those with cirrhosis.

THE TRIPLE THREAT: MULTI ORGANISM ESOPHAGITIS IN AN IMMUNOCOMPROMISED HOST. S. Amil[1]. [1]University of Tennessee, Chattanooga, TN. *(Tracking ID # 151335)*

LEARNING OBJECTIVES: Discuss the work up, diagnosis and management of dysphagia and odynophagia. Recognize the concomitant existence of multiple organisms in unresponsive dysphagia and odynophagia in immunocompromised patients.
CASE: A 59 year old white male with known history of recurrent B-cell non Hodgkin's lymphoma was admitted for severe odynophagia and dysphagia which had progressively worsened over 2 months. Dysphagia was equal for solids and liquids. He had associated low grade fever with chills and a 20 lb weight loss. Treatment with nystatin swish and swallow for 1 month did not provide relief. He was 3 weeks post chemotherapy with fludarabine and decadron. His absolute neutrophil count was 1.3 TH/MM3. On exam he was found to be hypotensive and tachycardic but not orthostatic. His oral cavity showed mild dryness of mucous membranes but no ulcerations or white plaques. His lungs had some coarse sounds and scattered rales bilaterally. An EGD was done which revealed, multiple whitish plaques in the hypo pharynx, a large, 6–7 cm ulceration in the distal esophagus, pyloric channel ulcer and an erythematous nodule of duodenal bulbar mucosa. Biopsies revealed esophagitis, gastritis, duodenitis with CMV, HSV and Candida.
DISCUSSION: HSV, CMV and Candida have been reported to occur in severely immunocompromised patients especially in HIV positive with a CD4 count less than 100. However, even in these patients the HSV, CMV or Candida commonly cause esophagitis as individual pathogens. Long-term immunosuppressive therapy provokes an immune deficiency. The initial approach to esophagitis in immunocompromised hosts with complaints (i.e., dysphagia or odynophagia) is to begin an empiric trial of oral systemic fluconazole for presumed Candidal esophagitis. If the individual remains symptomatic after 3 to 7 days or has any associated systemic complaints or concerning clinical findings (e.g., hematemesis), then upper endoscopy with biopsies is indicated. Based on the etiologic agent identified by histological, immunohistochemical, or culture methods, appropriate therapy can be initiated. Diagnosis of HSV and CMV esophagitis is important to evaluate the risk of hemorrhage and esophageal perforation in esophagitis. Thus, directed therapy needs to be administered appropriately and in a timely fashion to avoid short-term problems or long-term sequelae. HSV, CMV and Candida can be concurrently involved in the etiopathogenesis of esophagitis in immunocompromised hosts causing severe odynophagia and dysphagia. Timely workup and diagnosis is essential for early initiation of appropriate treatment thereby preventing untoward complications.

THICK HEADS PREVENTING THE DIAGNOSIS OF THICK SKIN. C. Miller[1]; J. Wiese[1]. [1]Tulane University, New Orleans, LA. *(Tracking ID # 157001)*

LEARNING OBJECTIVES: 1. Recognize the important of the physical exam in establishing the diagnosis of scleroderma. 2. Recognize the importance of deductive reasoning in establishing a diagnosis of scleroderma.
CASE: A 40 year-old carpenter with a year-long history of diarrhea, weight loss, and anorexia presented with a two-week history of progressive dyspnea on exertion. He noted associated fatigue, lethargy, and a painful throbbing in his hands. He had lost thirty pounds in six months. A prior gastrointestinal evaluation, including colon biopsies, elicited a diagnosis of irritable bowel syndrome. His vital signs were normal except for a pulse oximetry of 89%. He was thin and his face was "mouse-like," including a small mouth. Dry bibasilar crackles were heard on auscultation of the entire chest. His cardiac examination was normal. He had mild diffuse abdominal tenderness, but no rebound tenderness or guarding. His skin exam included a few scattered telangiectasias and significant sclerodactyly of his hands. His laboratory examination was normal with the exception of a partial pressure of oxygen of 68 mmHg and elevated fat in his stool analysis. A chest X-ray was indicative of interstitial pulmonary fibrosis.
DISCUSSION: Although he met the criteria for irritable bowel syndrome, our patient's age, acute onset of diarrhea, and significant weight loss were all "red flags" that an additional disease was the underlying cause of his symptoms. The history, physical examination and laboratory findings argued against malignancy, vasculitis and a chronic infection. However, his hand complaints, evidence of malabsorption by stool studies and the skin findings were suggestive of systemic sclerosis. An ANA was highly positive in a nucleolar pattern, and anti SCL-70 antibodies were positive. He was started on high dose corticosteroid therapy and oral doxycycline for suspected bacterial overgrowth due to fibrosis and hypomotility of the GI tract. His symptoms acutely improved and his appetite dramatically increased. This case demonstrates the importance of the internist heeding the warning of "red flags" and not dismissing seemingly unrelated anatomically complaints. While there remains no definitive treatment for scleroderma, early recognition and treatment qualified our patient for therapeutic trials, and substantially improved his quality of life.

THIS TIME IT'S NOT DUE TO THE CRACK. D. Victor[1]; C. Miller[1]. [1]Tulane University, New Orleans, LA. *(Tracking ID # 157014)*

LEARNING OBJECTIVES: 1. Recognize the clinical presentation of a coiled ICD lead displacement (Twiddler's Syndrome). 2. Interpret EKG findings that do not coincide with the normal cardiac rhythm.
CASE: A 58-year-old man with ischemic heart disease presented with multiple, frequent episodes of chest pain that occurred fifteen minutes after smoking crack cocaine. He noted a history of chest pain following crack cocaine use, but stated that on this occasion the pain was like, "being shocked from the inside". He attributed the pain to firings of his recently implanted cardiac defibrillator (ICD). A reading of his chest X-ray demonstrated the coiling of the leads around the pulse generator with dislodgement of the ventricular lead. Interrogation of the device revealed no significant cardiac events. The defibrillator function was manually turned off. Two nights after admission, he began to complain of persistent hiccups and a feeling of his "heart beating in his stomach". On examintation, he was noted to have repetitive abdominal heaving. An EKG showed aberrant pacer spikes that did not correspond with his cardiac rhythm. The spikes did, however, corresponded to his rhythmic hiccups. The placement of a magnet over the ICD brought the hiccups to an immediate halt. The pacer function was disabled the following morning.
DISCUSSION: Twiddler's Syndrome, first described in 1968 by Bayliss, is the permanent dysfunction of a cardiac pacemaker secondary to the spinning of a patient's pulse generator in the chest wall. The reeling of the pacemaker leads can result in stimulation of the phrenic nerve causing abdominal pacing, as in our patient. Further coiling can lead to stimulation of the brachial plexus and pectoral muscles. Sudden cardiac death has been documented and is the most concerning feature of this syndrome. Not only is the patient at risk because the ICD may not be capturing, there is potential to precipitate a fatal arrhythmia through aberrant firing. Both features, cardioversion and pacing, need to be disabled when leads become dislodged. The incidence of Twiddler's Syndrome is one to seven percent in patients with ICDs and is more common in the elderly because of laxity of the subcutaneous tissues. The treatment is the surgical replacement of pacer leads and anchoring of the generator to the underlying fascia. A Dacron patch that promotes tissue in-growth has been advocated for all ICDs, especially cases of repeat lead placement and high-risk patients. With the increasing placement of ICD's, it is likely that Twiddler's syndrome will be increasingly encountered by the general internist. 1. Bayliss CE, Beanlands DS, Baird RJ. The pacemaker-twiddler's syndrome: a new complication of implantable transvenous pacemakers. Can Med Assoc J 1968;99:371–3.

THIS YOUNG PATIENT'S HYPERTENSION WAS CAUSED BY A GENE. K. Moorthi[1]; P. Radhakrishnan[2]. [1]Reeves County Hospital District, Pecos, TX; [2]St. Josephs Hospital and Medical Center, Phoenix, AZ. *(Tracking ID # 154115)*

LEARNING OBJECTIVES: 1. Obtain family history in all patients with hypertension (HTN) 2. Consider aldosterone excess in young patients with HTN 3. Consider glucocorticoid-remediable aldosteronism (GRA) in patients younger than 20 with evidence of hyperaldosteronism.
CASE: An 18 year old female presented to the ER with dyspnea on exertion, and was found hypertensive. Her BP was 210/120 mm Hg. She was started on 10 mg of lisinopril and 12.5 mg of hydrochlorothiazide, and discharged home. She returned to the ER about 3 days later with generalized weakness. Examination revealed diffuse muscle weakness with hyporeflexia. Her serum potassium was 2.0 mg/dL. The potassium during the first visit was 3.7 mg/dL. She was admitted to the hospital and treated with intravenous potassium. Further questioning revealed that her mother, and 2 older brothers were hypertensive.

One of the brothers had a ruptured intracranial aneurysm when he was 22 years old. The work up of secondary hypertension revealed high plasma aldosterone levels and the plasma renin activity was very low. CT imaging of the adrenals was negative. Considering the age of the patient, a dexamethasone suppression test (DST) was done. This revealed hypersecretion of 18-hydroxy and 18-oxo cortisol. Blood was sent for genetic analysis. The test demonstrated a chimeric gene causing the fusion of the promoter region of the 11Beta Hydroxylase gene and the coding sequences of aldosterone synthase. This confirmed the diagnosis of GRA. She was treated with dexamethasone with improvement of her hypertension.
DISCUSSION: GRA is a rare autosomal dominant form of primary aldosteronism. GRA is caused by a chimeric gene which results in the ectopic expression of aldosterone synthase activity in zona fasciculata of the adrenal cortex. Normal subjects synthesize aldosterone in the zona glomerulosa, but not in the ACTH-sensitive zona fasciculata. Thus in patients with GRA aldosterone synthesis is under the regulation of ACTH. The most common presentation of GRA is the discovery of asymptomatic severe HTN, especially in infancy or early adulthood. A strong family history of HTN, often associated with early death of affected family members due to cerebrovascular accidents, characteristically is seen in some GRA families. An important clinical clue is the age of onset of HTN, with GRA patients typically diagnosed with high blood pressure as children; this is in contrast to patients with other mineralocorticoid excess states, such as aldosterone producing adenomas and idiopathic hyperplasia, who usually are diagnosed in the third through sixth decades of life. As expected plasma-renin activity is typically very low, and plasma aldosterone concentration high in those with GRA. Hypokalemia is often seen, but not the norm. However when these patients are treated with thiazides profound hypokalemia may result, from the increased sodium delivery to the distal tubule where it is exchanged for potassium. Genetic testing is 100% sensitive and specific for the diagnosis of GRA. DST is highly indicative of GRA, and easy to administer, but lacks the absolute specificity of the genetic test. The DST should be used in patients with biochemical primary hyperaldosteronism, who have a suggestive clinical history, and negative CT imaging of the adrenals. GRA may be more common in the hypertensive population than had been previously estimated. We encourage those with a clinical and/or family history indicative of GRA to be genetically screened for the disorder.

THYROTOXICOSIS PRESENTING AS THYROTOXIC PERIODIC PARALYSIS IN A HISPANIC MALE. P. Malapati[1]; U. Nawaz[2]; C. Ramaprasad[2]. [1]John H Jr. Hospital of cook county, Oak Park, IL; [2]John H. Stroger Jr. Hospital of Cook County, chicago, IL. *(Tracking ID # 154754)*

LEARNING OBJECTIVES: 1. Thyrotoxic periodic paralysis (TPP) is a rare complication of hyperthyroidism and an uncommon form of hypokalemic periodic paralysis. Its differentiation from more common forms of periodic paralysis is important because treatment of the underlying thyroid dysfunction cures the muscle symptoms. 2. Aggressive treatment with potassium can place the patient at risk for rebound hyperkalemia.
CASE: A 28 year old Hispanic man woke up complaining of inability to move his head or any of his extremities. These symptoms persisted for 2 hours with multiple attempts to get up and walk. Gradually, over the next few hours, he was able to move his feet in the bed and then he was able to sit up with assistance. Over the next 24 hours, his strength improved to normal. He denied weight loss, heat intolerance or diarrhoea, seizures, loss of consciousness, or tick bites. He also denied headaches, stiff neck, blurry vision, double vision, or any sensory symptoms. The night before, he had a large carbohydrate meal. He denied a family history of thyroid or neurological disorders. He consumes moderate amounts of alcohol, but none in the past 24 hours. His physical examination revealed a thin body habitus with mild tremors in the upper extremities. His BP was 125/84 and heart rate of 101/min regular. He had proximal muscle weakness (4/5) in the lower extremities. He did not have thyromegaly, lymphadenopathy or exophthalmos. His heart, lung, sensory, and cerebellar exams were normal. Serum chemistries were normal, except magnesium, which was low at 1.7 m/dl. CBC, sedimentation rate, and chest radiograph were unremarkable. CK was at the upper limit of normal. His thyroid function tests revealed hyperthyroidism, with a TSH of <0.03 uIU/ml: Free T4 of 4.89 ng/dl: free T3 of 13.99 pg/ml.
DISCUSSION: Thyrotoxic periodic paralysis is an uncommon disorder characterized by thyrotoxicosis and paralysis associated with hypokalemia. This condition occurs primarily in males (20:1) of oriental and Asian descent (90%); it is also reported in patients with American Indian and Hispanic ancestry. They may have a prodromal muscle pains, stiffness, or cramps in the thighs preceding paralysis. The paralysis can be precipitated by exertion, large carbohydrate meals, bouts of diarrhea, or a binge of alcohol. Patients may not have a family history of thyrotoxicosis or periodic paralysis. Sensation, as well as bulbar and respiratory muscle strength, remains intact. Reflexes may be decreased or absent. The mechanism of this condition is largely unknown. Thyroid hormone itself has a direct effect in stimulating the sodium–potassium–adenosine-triphophatase (Na–K–ATPase) pump. Pump sensitivity to adrenergic stimulation may be higher in patients with TPP than in those with hyperthyroidism alone, resulting in intracellular potassium shift and subsequent hypokalemia. Most attacks occur between midnight and early morning due to the diurnal variation in potassium movement where there is nocturnal potassium influx into skeletal muscle. Immediate therapy with potassium chloride supplementation would bring a rapid recovery of muscle strength, but with a risk of rebound hyperkalemia. Potassium supplementation should be done with caution and frequent monitoring. Nonselective beta-blockers may provide an alternative choice. Definitive control of hyperthyroidism with anti thyroid medication or radio active iodine will stop any further attacks.

TITLE: "WHEN VAGINAL BLEEDING IS ONLY SKIN DEEP". N.M. Denizard[1]; J.Z. Engel[2]. [1]Vanderbilt University, Nashville, TN; [2]Vanderbilt University, Brentwood, TN. *(Tracking ID # 156744)*

LEARNING OBJECTIVES: 1. Recognize that Melanoma is not only a cutaneous disease. 2. Appreciate the importance of mucosal evaluation in pelvic examination.
CASE: A 35 year-old white woman with past medical history of Hepatitis C presented with a ten day history of menstrual bleeding. Patient reports that her typical cycle is 28 days and menstruation lasts for 5 days. Patient denies previous history of abnormal menses or uterine fibroids. Patient had normal Pap smear and vaginal exam six months prior to presentation. Her medications include pegylated interferon and ribavirin for relapse of Hepatitis C. Physical exam was significant for a normal external genitalia, normal uterus, and brownish discharge. However a polypoid lesion was seen on the right vaginal wall near the labia. The biopsy was consistent with a Primary Malignant Melanoma of the Vaginal Wall.
DISCUSSION: Melanoma is the sixth most common cancer in the United States. The majority of melanomas are cutaneous however 1.3% represent mucosal melanoma. Primary malignant melanoma of the vagina is a very uncommon neoplasm, which accounts for 3% of all vaginal cancers. The tumor usually occurs in the 6th and 7th decades of life. The most common symptoms are vaginal bleeding, palpable mass, and discharge. The prognosis is poor with a 5 year survival rate of 8.4% regardless of treatment.

TO ERR IS HUMAN, TO LEMIERR IS NOT!. H.K. Gavini[1]; R. Boothpur[1]; B. Arora[1]; S. Ketha[1]; V.C. Maddukuri[1]; H. Friedman[1]. [1]St. Francis Hospital, Evanston, IL. *(Tracking ID # 156026)*

LEARNING OBJECTIVES: 1. Recognize Lemierre's disease as a rare complication of pharyngitis. 2. Management of Lemierre's disease with appropriate antibiotics. 3. Assess the need for anticoagulation in Lemierre's disease.
CASE: An 18-year-old male presented with complaints of fever with chills, sore throat, nausea, vomiting and diffuse abdominal pain for the past 5 days. Patient had visited the emergency department 1 week ago with complaints of sore throat and was treated with penicillin and prednisone, with temporary improvement in symptoms. He had no prior history of alcohol, cigarette or illegal drug use. Physical examination showed bilateral tonsillar enlargement with exudates and tender left anterior cervical lymphadenopathy. Chest was clear to auscultation with no murmurs or rub. Abdomen was mildly tender with no rebound tenderness and normal bowel sounds. Labs revealed WBC count of 14,300 with 10 percent bands. Antibodies for Ebstein Barr virus (EBV) and Cytomegalovirus (CMV) were negative. CT scan of chest and abdomen showed multiple wedge shaped cavitary nodules in both lungs. Anti-Neutrophil Cytoplasmic Antibodies (ANCA) were negative. Transesophagial echocardiogram (TEE) did not show any vegetations. Hepatitis panel for A, B, C, D, E was negative. HIV ELISA was negative. Based on the above findings a CT scan of the neck was done to look for septic thrombophlebitis of the jugular veins, which confirmed the diagnosis of Lemierre's disease. Patient was started on ertapenam and enoxaparin. Final blood cultures showed no growth. The patient had a rapid response to therapy and had completely recovered by 4 weeks.
DISCUSSION: Lemierre's disease is a rare complication of pharyngitis in this era of broad-spectrum antibiotics. It is a suppurative infection of the lateral pharyngeal space complicated by septic thrombophlebitis with subsequent distant metastasis. It is usually caused by Fusobacterium necrophorum, though a number of other bacteria have been implicated, which may not be sensitive to penicillin. Blood cultures are negative in 33 percent of the cases. Our patient's blood culture was negative but responded well to ertapenam, which also has anaerobic coverage. The role of anticoagulation has been controversial in Lemierre's disease. Although resolution of thrombophlebitis has been reported to be faster with anticoagulation, it still carries the risk of hemorrhage into the lungs. Our patient did well on anticoagulation with no bleeding complications. A repeat duplex ultrasonography at four weeks showed complete resolution of the thrombus and all medications were discontinued. This has also generated recent interest in the possibility of underlying thrombophilia predisposing one to Lemierre's disease.

TOXIC SHOCK SYNDROME: WHEN GROUP A STREP WREAKS HAVOC. J.M. Slomka[1]; P. Lamberty[2]. [1]University of Pittsburgh, Pittsburgh, PA; [2]University of Pittsburgh Medical Center, Pittsburgh, PA. *(Tracking ID # 151284)*

LEARNING OBJECTIVES: 1. Identify the presenting symptoms of Streptococcal toxic shock syndrome (TSS). 2. Explain the risks and complications of Strep Pyogenes infection, including TSS. 3. Review the management of patients presenting with TSS.
CASE: A 24 year old female with a history of mild pulmonary stenosis presented with a complaint of productive cough with rust-colored sputum, left lower rib and scapular pain, malaise, and decreased urination <1 day. On presentation, she was in respiratory distress (respiratory rate 30) with a temperature of 100.1 F, pulse of 181, blood pressure 92/36 and room air pulse oximetry of 88%. Physical examination was notable for perioral and peripheral cyanosis, decreased breath sounds and ronchi at the left base, and a fine scarlatiniform rash on her abdomen, back, and extremities. Significant laboratory findings included a WBC of 9.9 (73% PMNs, 11% Bands, 3% Metamyelocytes), BUN 49 and creatinine 3.1. Chest radiograph demonstrated a dense left lower lobe consolidation. A rapid strep screen was positive. The patient was started immediately on ceftriaxone, azithromycin, vancomycin and received aggressive crystalloid resuscitation. Her hemodynamics deteriorated, and she required

vasopressors and ventilatory support. Clindamycin was initiated for toxin neutralization with presumptive TSS, and recombinant human activated protein C (drotrecogin alfa), and hydrocortisone were administered for persistant circulatory shock. Anuric renal failure developed over the next 12 hours which required continuous venovenous hemodialysis. After Group A Strep was cultured from sputum, Penicillin G with IV Immunoglobulin (IVIG) were administered. She subsequently developed a left lung empyema, cerebral hemorrhages associated with drotrecogin alfa, and critical illness polyneuropathy; however she was extubated 3 weeks into her hospital course, and recovered fully after rehabilitation.
DISCUSSION: Group A streptococcus (GAS), also known as Strep pyogenes, is a beta hemolytic aerobe that stains as gram positive cocci in chains. It causes pharyngitis, superficial skin and soft tissue infections. Some strains produce toxins that cause mild disease, while other strains produce virulent toxins inducing invasive streptococcal TSS or scarlet fever. TSS is a rare sequelae of GAS pharyngitis, and there are no specific predictors to identify at risk patients. TSS can lead to bacteremia associated with life-threatening soft tissue infections, shock secondary to capillary leak, acute respiratory distress syndrome and acute renal failure, producing mortality estimated at 70%. This case demonstrates the rapid decompensation of a patient with TSS from pneumonia with the distinctive presentation of the diffuse, scarlatiniform rash that only occurs in 10% of patients. The most common presenting symptom of streptococcal TSS is the abrupt onset of severe, diffuse or localized pain prior to any physical findings. Others signs include fever, influenza-like syndrome, confusion, and evidence of soft tissue infection. Our case reinforces how a high suspicion for streptococcal TSS led to the rapid institution of appropriate antibiotics. This suspicion, coupled with the aggressive management of shock and multiple organ system failure resulted in patient survival when the prognosis was initially very poor.

TRANSIENT ISCHEMIC ATTACK ? TRY AGAIN !. T.R. Chandak[1]; R. Agrawal[2]. [1]Englewood Hospital and Medical Centre, Englewood, NJ, Englewood, NJ; [2]Mercy Hospital of Pittsburgh, Pittsburgh, PA., Pittsburgh, PA. *(Tracking ID # 154840)*

LEARNING OBJECTIVES: (1) To recognize the clinical features and etiology of transient global amnesia. (2) To identify it as an uncommon differential diagnosis of transient ischemic attack.
CASE: A 76-year-old Caucasian woman with no significant past medical history was brought to the emergency room by her husband because of an episode of acute confusion and loss of memory. She went to the toilet for a bowel movement and after she came out, her husband noticed that she appeared confused. She did not recognize her surroundings and was unable to recollect the date or time. This episode lasted for about an hour, after which she returned to her normal self. There was no history of seizure-like activity or recent head trauma. She denied smoking and drank alcohol only occasionally. On interviewing her in the emergency room, she had no recollection of the events during the episode. Her physical and neurological were normal. Her CT scan of the brain revealed no hemorrhage or mass and her MRI showed some peri-ventricular white matter changes suggestive of small vessel disease. Carotid dopplers were unremarkable Results of hematological and biochemical laboratory testing were normal except for serum cholesterol of 235 mg/dl and LDL of 160 mg/dl. Following an overnight observation, patient was discharged with no memory impairment except for the amnesia for the episode.
DISCUSSION: Transient Global Amnesia (TGA) presents as an abrupt onset of anterograde and retrograde amnesia, which persists for less than 24 hours duration. The patients are generally disoriented to time and place and the cognitive impairment is limited to amnesic component only. There are no changes in consciousness, loss of self-awareness, epileptic features or any other focal neurological deficits during or after the attack. The long-term memory remains completely preserved. The mean age of onset is sixty years and it is more common in females. The etiology of TGA is heavily debated. Many studies have demonstrated decreased blood flow in the temporal lobe and hippocampus in the acute stage. Various precipitating events including exercise, emotional stress, sexual intercourse, immersion in cold water, painful stimuli and valsalva maneuver have been identified. A popular hypothesis is that valsalva increases the intrathoracic pressure leading to decreased cerebral venous return from superior vena cava, thereby increasing the intracranial venous pressure leading to venous ischemia. Several case reports have demonstrated high-density hippocampal lesions on Diffusion Weighted Imaging (DWI). Recently, these have also been reported in patients who had transient ischemic attacks (TIA), which suggests the ischemic origin of TGA. Clinically, it is important to differentiate TGA from TIA, because of the excellent prognosis of the former. Recently a prospective study compared the seven years follow up of these two disorders. The authors found that the patients with TGA had a significantly lower risk of combined stroke, myocardial infarct or death. Patients with TGA had a more favorable vascular risk profile. Interestingly, the patients with TGA had a higher incidence of personal or family history of psychiatric diseases. The authors therefore implicated TGA as a benign disorder.

TREATING HYPONATREMIA: ARE CURRENT GUIDELINES REALLY SAFE? MORE QUESTIONS THAN ANSWERS. R.H. Orakzai[1]; S.H. Orakzai[1]; P. Hasley[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 152088)*

LEARNING OBJECTIVES: 1. Describe the appropriate management of hyponatremia 2. Recognize the complications of rapid correction of hyponatremia 3. Recognize that central pontine myelinolysis can develop even with "appropriate" correction of hyponatremia
CASE: A 52-year-old male with a history of alcohol abuse and recent heavy alcohol use was transferred from an outside hospital with confusion and jaundice. He was alert and oriented with no neurological deficits. Laboratory data showed sodium of 122 mEq/L. The following day his sodium was 130 mEq/L and his liver enzymes were elevated. He was treated with prednisone and pentoxyfylline for alcoholic hepatitis. 5 days later the patient's mental status deteriorated. He was awake but non-verbal, only grimacing to painful stimuli. Pupillary responses were sluggish. Extra ocular movements were intact. Right hand grip was 3/5 but he did not move other extremities. His reflexes were +2 and his plantar response was upgoing bilaterally. Lumbar puncture was normal except for a protein level of 83 mg/dl (12–60 mg/dl). Though initial MRI was normal, a repeat study 4 weeks later showed abnormal T2 prolongation of the central pons with lack of enhancement consistent with central pontine myelinolysis (CPM). Patient's hyponatremia was corrected appropriately and the rate of correction never exceeded 12 mEq/L/day. Patient underwent extensive neuro-rehabilitation with supportive care and physical therapy. He had marked improvement in his mental status and neurological function.
DISCUSSION: CPM is a syndrome characterized by spastic quadriparesis and pseudobulbar palsy generally following rapid correction (>12 mEq/L/day) of severe hyponatremia within 7 days. Pathological features include (i) symmetrical myelin loss (ii) absence of inflammation and (iii) relative preservation of neurons in the pons. During hyponatremia, adaptive changes in the CNS prevent the development of cerebral edema; these include a gradual loss of intracellular organic osmolytes. Once depleted, these osmolytes only reaccumulate slowly, requiring >5 days to reach normal levels during correction of hyponatremia and placing the brain at risk of osmotic dehydration if serum osmolarity is corrected rapidly. The mechanism leading to selective loss of myelin is uncertain but hypotheses include physical shearing of myelin from axons due to cell shrinkage. The characteristic clinical manifestations of CPM are spastic tetraparesis and pseudobulbar paralysis. Pseudobulbar paralysis leads to dysphagia, dysarthria, weakness of the tongue and emotional lability caused by destructive lesions in the corticospinal and the corticobulbar tracts in the pons. The patient's level of consciousness may be impaired, varying from lethargy to coma. Brain imaging is the most useful diagnostic test. CT shows central pontine and extrapontine lesions as symmetrical areas of hypodensity. MRI is more sensitive; lesions appear hyperintense on T2-weighted images and hypointense on T1-weighted images. CPM may not be apparent on scans within the first 2 weeks and later scans may be necessary. CPM developed in our patient in the setting of relatively mild hyponatremia with "appropriate" rates of correction. This has also been replicated in isolated case reports suggesting that current recommendations of limiting the increase in serum sodium concentration to 12 mEq/L in the first 24 hours and to 20 mEq/L in the initial 48 hours may not be safe and a lower rate of increase in serum sodium may be warranted.

TROUBLE IN PARADISE: LYMPHATIC FILARIASIS. M. Kuo[1]; J. Yeh[1]; C. Choi[1]. [1]St. Mary Medical Center, Long Beach, CA. *(Tracking ID # 155949)*

LEARNING OBJECTIVES: 1. Increase awareness about the clinical manifestations, endemic areas, and global impact of lymphatic filariasis. 2. Review the prevention and treatment of lymphatic filariasis.
CASE: This is a 68 year old male who presented with recurring pain in the right testis for 2 months without associated swelling or fever. He was initially diagnosed with probable bacterial epididymitis, but had no resolution of pain despite various trials of antibiotics. The patient was born in the U.S., is married and is a retired machine operator. His travels include the Panama Canal in 1996, the Caribbean 2004, and a cruise to Polynesia/Tahiti in 2004. Physical exam was unremarkable except for a tender right testis without obvious edema, discrete nodules or local lymphadenopathy. All laboratory results were within normal limits. Testicular ultrasound showed "filarial dance sign, consistent with filariasis of the testis". Empiric treatment for filariasis was begun.
DISCUSSION: Annually, Americans make over 300 million trips to other countries. According to the Centers for Disease Control and Prevention (CDC), 30–60% of them become ill as a result of their travels. 120 million people in 83 countries are infected with lymphatic filariasis and over 1 billion are at risk. Lymphatic filariasis is an infection by lymphatic-dwelling nematodes belonging to the family Filaroidea, which are transmitted via mosquito bites. Over 90% of cases are caused by Wuchereria bancrofti; most of the remainder are due to Brugia malayi. W. bancrofti occurs in sub-Saharan Africa, S.E. Asia, India, many Pacific islands, and areas in Latin America. B. malayi occurs in China, India, Malaysia, Indonesia, and the Philippines. In many cases, symptoms of filariasis, such as fever and malaise, can be nonspecific. Hydrocele is the most common manifestation and is only found in bancroftian infections. Diagnosis of filariasis can be made from detection of microfilariae on blood smears taken between 10 pm and 2 am due to nocturnal periodicity. Antifilarial antibodies or circulating filarial antigens (gold standard for bancrofti) can be detected in serum. Ultrasound and lymphoscintigraphy can reveal the presence of adult worms in lymphatics. On ultrasound, live worms tend to be in continuous motion, known as the "filarial dance" sign. Combination therapy of diethylcarbamazine (DEC) with albendazole or ivermectin has greater efficacy than any single drug. DEC is not distributed for use in the U.S., but is obtainable from the CDC. The steady use of DEC-fortified salt has resulted in improvement of hydroceles in endemic areas. The World Health Organization has estimated the burden of disease as 5,549,000 disability-adjusted life years. Our patient is currently being treated with ivermectin and DEC, with improvement of his symptoms and less movement of the worms on follow-up ultrasounds. Surprisingly, his serologies were negative; however, based on the radiological findings, travel history, and response to therapy, suspicion for bancroftian filariasis remains high. Therefore, a testicular biopsy is being pursued to confirm the

diagnosis. He is currently being treated with ivermectin and DEC, with improvement of his symptoms and less movement of the worms on follow-up ultrasounds. Travelers in endemic regions should take preventive protection measures including, mosquito repellents, bednets, and insecticide-impregnated materials. Currently, no vaccine is available to prevent infection, although attempts are underway.

TUBERCULOSIS MENINGITIS IN AN IMMUNOCOMPETENT FEMALE FROM MEXICO. M. Lotersztain[1]; N. Chambi[1]; S. Levingston[1]; L. Berry[1]. [1]Alameda County Medical Center, Oakland, CA. *(Tracking ID # 151520)*

LEARNING OBJECTIVES: 1-Consider tuberculosis in the differential diagnosis of acute meningitis. 2-Look for tissue samples from extra-CNS tuberculosis to confirm diagnosis if spinal fluid smears are AFB negative and suspicion is high.
CASE: A 29-year-old Mexican female, G.M., presented to the Emergency Department with severe, unprecedented fronto-occipital headache for the previous 5 days, nuchal rigidity, photophobia, nausea, vomiting and fever. The patient had no history of medical illness and had been completely healthy until 5–7 days previous. She denied smoking, alcohol or drug use and was not sexually active. G.M. has lived in the US for the past two years and works as a janitor. She lives with five family members in a two- bedroom apartment. G.M. denied sick contacts and did not recall having been exposed to TB. Laboratory: WBC: 8600; spinal fluid showed: 2 RBC, 116 WBC with a differential of 45% neutrophils and 49% lymphocytes, protein level of 146 mg/dl, glucose of 32 mg/dl, gram stain negative, bacterial and fungal cultures negative, AFB smear negative. The patient was initially treated with Ceftriaxone, but showed no improvement with persistent fevers during the first 48 hours. A second lumbar puncture was performed; the spinal fluid showed 180 WBC with a differential of 13% neutrophils and 78% lymphocytes, protein level of 190 mg/dl, glucose 36 mg/dl, gram stain, bacterial and fungal cultures negative, AFB smear negative. PPD: 19 mm. HIV negative. Brain MRI: Numerous small foci of signal alteration with contrast enhancement were noted in the cerebral hemispheres, cerebellum and basal ganglia. CT thorax, abdomen, pelvis: multiple small nodules, some cavitated, in the spine, para-aortic space, posterior to the IVC, and multiple abscesses involving both psoas muscles. The patient was empirically started on INH, Rifampin, PZA, Ethambutol, Fluconazole and Methylprednisolone. A CT-guided fine needle biopsy aspiration of a psoas abscess was performed, and the material obtained was positive for AFB. The patient improved and was discharged after two weeks on four anti-TB medications and Prednisone 40 mg to be tapered over 1–2 months. The two samples of spinal fluid were positive for Mycobacterium tuberculosis complex by genetic probe 17 days after they were received
DISCUSSION: Typically, tuberculosis meningitis develops subacutely. It is seen most often in young children and immunocompromised adults, especially those infected with HIV. If unrecognized, tuberculosis meningitis is uniformly fatal. Therefore, a high degree of suspicion is necessary to start early treatment. The diagnosis is made by demonstrating Mycobacterium tuberculosis in the spinal fluid by AFB smear or by culture. The diagnostic yield for AFB in the spinal fluid may be initially low, but can be increased by repeating lumbar punctures. The role of rapid detection of M. tuberculosis by polymerase chain reaction (PCR) is still controversial. We present an HIV-negative adult female, recent immigrant from an endemic TB area, with classical symptoms of bacterial meningitis developing over a 5-day period. Her condition was finally diagnosed as tuberculosis meningitis based on CSF characteristics, CNS imaging, and AFB positive smear from an extra-CNS tuberculous focus. These findings are a sound alternative for diagnosis if rapid detection tests are unavailable or unreliable, and repeated lumbar punctures are AFB negative.

UNEXPECTED BLEEDING DIATHESIS SECONDARY TO DEEP VEIN THROMBOSIS PROPHYLAXIS. A. Bhat[1]; I. Junaid[2]. [1]University of California, Los Angeles, Veteran Affairs, Los Angeles, CA; [2]University of California, Los Angeles, Veterans Affairs, Los Angeles, CA. *(Tracking ID # 153812)*

LEARNING OBJECTIVES: 1. Recognize that there is a risk associated with placing patients on subcutaneous heparin for deep vein thrombosis prophylaxis. 2. Appreciate that dosing of subcutaneous heparin three times daily may not be appropriate for all patients.
CASE: A 62 year-old African American male with history of advanced chronic obstructive lung disease (COPD), essential hypertension, Hepatitis C, and no prior history of gastrointestinal bleeding was admitted to medical intensive care unit for COPD exacerbation secondary to community acquired pneumonia and was started on subcutaneous heparin 5000 units two times daily (b.i.d.) for deep vein thrombosis (DVT) prophylaxis. CT pulmonary angiogram was negative for pulmonary embolism. Upon transfer to general medicine floor on hospital day # 16, subcutaneous heparin dose was increased to 5000 units three times daily (t.i.d). Three days later the patient developed hemoptysis and hematemesis with progressive lethargy. He was somnolent and pale and became orthostatic, hypotensive, tachycardic and required supplemental oxygen. Laboratory studies showed a drop in his Hgb from 11.1 to 5.1, along with new thrombocytopenia of 116 from 161. Activated partial thromboplastin time was 168 seconds with a normal prothrombin time and INR. His creatinine increased from 1.3 to 2.4. Fibrinogen, fibrin-split products and D-Dimer were within normal limits. Chest X-ray was notable for interval development of complete opacification of RUL which was thought to be secondary to infiltrate vs. hemorrhage. The patient was treated with protamine sulfate, and transfused seven units packed red blood cells, with subsequent normalization of coagulation panel, complete blood count, and chemistries. He had no further episodes of bleeding, and was discharged home several days later.
DISCUSSION: Among general medicine inpatients the incidence of DVT without prophylaxis is 10% to 26%. An estimated two million people in the United States develop DVT each year, and 100,000 of those sustain fatal pulmonary emboli. Prophylaxis against these conditions is clearly a crucial issue. Subcutaneous (SQ) unfractionated heparin was first used for DVT prophylaxis in 1980, and has continued to be a widely used and inexpensive choice for DVT prophylaxis in both medical and surgical inpatients. However, the use of this drug for DVT prophylaxis is associated with a small but potentially consequential risk of coagulopathy and bleeding. As many as 10% to 20% of patients receiving unfractionated heparin will experience a fall in platelet count to less than the normal range or a 50% fall in the platelet count within the normal range. In the above case, the patient developed a bleeding diathesis only after heparin SQ was increased to t.i.d. According to a meta-analysis by Yalamanchili et al, unfractionated heparin SQ dosed b.i.d. has been shown to be less efficacious than t.i.d dosing in preventing DVT. Additionally this study and others have found no difference in bleeding complications between b.i.d. and t.i.d. dosing. However, as this vignette illustrates, there may be an increase in bleeding complications with t.i.d. versus b.i.d dosing. It is crucial for clinicians to be aware of this phenomenon, and routine monitoring of platelet count and coagulation profiles for patients receiving unfractionated subcutaneous heparin is essential. Clinical trials are needed to further study the risk versus benefits between these two dosing regimens of subcutaneous heparin.

VAGINAL BLEEDING IS NOT ALWAYS FROM A GENITOURINARY PATHOLOGY. J. Kim[1]; L. Lu[1]. [1]Baylor College of Medicine, Houston, TX. *(Tracking ID # 154664)*

LEARNING OBJECTIVES: 1. Realize that vaginal bleeding can come from extravaginal pathology. 2. Learn that certain subgroups of patients with inflammatory bowel disease have a higher risk of developing colon cancer. 3. Recognize that total colectomy in patients with inflammatory bowel disease does not eliminate the risk for colon cancer.
CASE: A 37 year-old G1P1 female with a history of Crohn's disease presented with vaginal bleeding. She noticed painless post-coital bleeding for the last two weeks, but denied having any other vaginal discharge. Her menstruation had been normal and was not associated with her recent vaginal bleeding. The patient had undergone a tubal ligation three years prior and had been monogamous with one partner for fifteen years. Review of systems was negative for vaginal trauma, fevers, chills, abdominal pain, and weight loss. Her past medical history was significant for Crohn's disease which was diagnosed at the age of sixteen. She had a minimal response to medical therapy and at the age of twenty-five underwent partial ileoectomy and resection of the proximal 75% of the colon. Over the next decade, the patient continued to have intermittent exacerbations of her inflammatory bowel disease and had multiple perirectal, perianal, and rectovaginal fistulas complicated by abscesses. Approximately one year prior, the patient underwent resection of the remaining large bowel and abdominoperineal resection of the rectum with permanent diverting ileostomy. Resected bowel at that time showed no evidence of carcinoma. Physical examination revealed a small 1 cm ulcerative lesion on the posterior vaginal wall, a normal cervix, with no other visible lesions, masses or lymphadenopathy. Laboratory examination was unremarkable, including a negative urine pregnancy test and negative pap smear. The biopsy of the vaginal lesion revealed colon adenocarcinoma. Her colon cancer was staged as Duke's Classification B2, and the patient underwent surgical excision with adjuvant therapy.
DISCUSSION: Crohn's disease is associated with a two-fold increase in risk for the development of colon cancer. The mean age of occurrence for inflammatory bowel disease associated colon cancer is 40 to 50 as opposed to 60 for sporadic colon cancer. Carcinogenesis progresses in a stepwise fashion, with chronic inflammation playing an important catalytic role. Therefore, some have suggested that the medical treatment of inflammation may reduce the risk for cancer, though definitive data to support this hypothesis is currently under evaluation. Regardless, surveillance for colon cancer in patients with inflammatory bowel disease remains critically important. The American Gastroenterological Association recommends that patients with inflammatory bowel disease undergo a screening colonoscopy at least once a year. If high grade dysplasia or more progressive lesions are found, prophylactic colectomy is recommended. There are rare case reports describing the occurrence of adenocarcinoma in patients with inflammatory bowel disease after total proctocolectomy. In these cases, as well as the case described above, the cancer occurred despite appropriate surveillance and treatment. The patients all had severe, fistulizing variants of Crohn's disease, and the development of cancer in these patients was likely related to severe inflammation and unresected fragments of fistulized colon tissue.

VARICELLA PNEUMONIA IN AN ADULT: A RARE CASE; A CLASSIC PRESENTATION!. D. Bhasin[1]; R. Warrier[1]; B.L. Houghton[1]; L. Morrow[1]. [1]Creighton University, Omaha, NE. *(Tracking ID # 156379)*

LEARNING OBJECTIVES: 1. Recognize that varicella is a disease of children, with an increasing incidence in adults. 2. Identify pneumonia as the most common and life threatening complication of varicella in adults.
CASE: A 35 year old Nicaraguan male was admitted for respiratory distress along with pruritic skin lesions for three days. He complained of cough with yellow sputum production for five days prior to the rash with occasional fever and chills. The patient was unemployed and living in a homeless shelter. He denied any sick contacts. He was a known smoker but denied alcohol or

recreational drug abuse. No history of travel within or outside the US was reported. He had never been vaccinated. Examination revealed moderate respiratory distress with tachypnea. His oxygen saturations were 96% on 15 liters non rebreather mask. Diffuse crackles were auscultated. Skin examination revealed erythematous macules, pustules, vesicles and crusted lesions in various stages of evolution, typical of varicella. Initial lab work was normal except for a WBC count of 17,700. Chest X-ray revealed bilateral alveolar infiltrates with a nodular pattern. Intravenous acyclovir and steroids were started. The patient was intubated for increasing oxygen requirements. Bronchoscopy revealed tracheobronchial vesicles and shallow erosions, characteristically seen in varicella. Direct immunoflourescent staining of the cells from vesicles was negative. Serum IgG antibodies were elevated while IgM were normal. The patient was successfully extubated on hospital day 21. At discharge, the patient was free of any respiratory symptoms.
DISCUSSION: Varicella typically affects children (2 to 8 years) with less than 5% cases seen in adults above 20 years. The incidence of varicella in adults has doubled along with increased hospitalizations and mortality. Pneumonia is the most common and serious complication, with a 25 fold higher incidence in adults. Mortality rates of up to 25% are seen with pneumonia, which approach 50% in patients needing mechanical ventilation. Smoking is a significant risk factor. The exanthem of varicella starts in the scalp and head and spreads to the trunk and extremities. Respiratory symptoms are seen 1 to 6 days after the onset of rash but may precede it. Symptoms include cough, dyspnea, pleuritic chest pain and hemoptysis. Physical examination is poor indicator of severity, with fever and tachypnea being the most common findings. Chest radiographs reveal diffuse nodular or interstitial infiltrates. The virus can be isolated from skin lesions during the first 3 days of the vesicles in healthy adults. Direct immunofluorescence of antigen in lesions is the most sensitive test. Acyclovir is the treatment of choice for varicella pneumonia. Corticosteroids may be used as adjunctive therapy. Extracorporeal membrane oxygenation has been shown to be beneficial in refractory respiratory failure. Varicella zoster immunoglobulin is effective in modifying the severity of the infection if given within 96 hours. The long term effects of varicella pneumonia are not well documented but there is concern about a permanent decline in the diffusion capacity and diffuse miliary calcifications.

VISUAL HALLUCINATIONS IN AN ELDERLY WOMAN WITH BLINDNESS. M.J. Henke[1]; N.A. Key[1]. [1]University of Kansas, Kansas City, KS. *(Tracking ID # 156107)*

LEARNING OBJECTIVES: 1. Recognize Charles Bonnet syndrome (CBS) as a common cause of visual hallucinations in visually impaired patients. 2. Identify appropriate treatment regimens for Charles Bonnet syndrome.
CASE: A 68-year-old African American female with congenital visual impairment developed legal blindness secondary to diabetic retinopathy. Ten years later, she began to see bizarre visual hallucinations, including miniature clowns and fairy tale creatures. Her family reported no signs or symptoms of dementia. She denied symptoms of depression, mania, or substance abuse. She had no personal or family history of psychotic illness or cognitive impairment. Her review of systems was unremarkable. A review of her medications excluded pharmaceutical agents as the cause of her hallucinations. Her general physical exam including neurologic exam revealed no new physical findings. An extensive medical work-up, including MRI of the brain, serum chemistries, toxin screen, thyroid studies, and vitamin levels showed no new abnormalities. She was referred to psychiatry for further evaluation and treatment. The hallucinations continued through a 12 month course of atypical antipsychotic medications including risperidone and quetiapine. She was maintained on low doses of these medications due to intolerance of side effects including excessive sedation. At that point, re-evaluation of the clinical scenario suggested Charles Bonnet syndrome - non-psychotic hallucinations occurring in the setting of visual impairment without additional evidence of mental illness. The patient and her family were educated about Charles-Bonnet syndrome and reassured that she was not suffering from a mental illness. Over the course of the next several months, the hallucinations simplified and she saw only fields of color.
DISCUSSION: Charles Bonnet syndrome (CBS) is a well described, though under- recognized syndrome in which a visually impaired patient develops complex visual hallucinations. Bonnet initially described the symptom in 1760, in his elderly father who was blinded by cataracts. More than 10% of patients with visual impairment may be affected by these visual hallucinations. The etiology of the syndrome remains unknown. What is well documented is that the likelihood of developing hallucinations increases as the visual impairment worsens, regardless of age or cause of the visual impairment. Typically, the hallucinations are repetitive and involve human figures. This case illustrates a common, though poorly understood and infrequently recognized syndrome affecting visually impaired patients. The only universally successful treatment of CBS involves reversing the cause of the vision loss, if possible. Case studies suggest a variety of drugs may be effective, including antipsychotics, anti-depressants, anxiolytics and acetylcholinesterase inhibitors. However, most patients tolerate the symptoms well once provided with education and reassurance.

WAKING HER UP TO DIE: COMMUNICATION ERRORS IN PALLIATIVE CARE. G. Wood[1]; T. Campbell[1]; J. Hauser[1]. [1]Northwestern University, Chicago, IL. *(Tracking ID # 157086)*

LEARNING OBJECTIVES: 1. Recognize unique risks for medical errors in the palliative care setting. 2. Analyze how multiple hand-offs put patients at risk for miscommunication concerning goals of care.
CASE: A 50 year-old woman with advanced glioblastoma multiforme was admitted to our palliative care unit (PCU) from our home hospice program at 1:30 am with symptoms of agitation and restlessness after being seen by a home nurse. The on-call physician (a fellow in palliative care) covering the PCU was called by the nurse on the inpatient unit when the patient arrived. Having not previously heard about the patient, he asked the in-house physician (a second fellow who was moonlighting) to see her. This physician also had no knowledge of this patient's care. When saw her, he found that the family had left and had told the nurse that she was becoming increasingly agitated and aggressive at home and had stopped taking her medications. On examination, the patient was agitated with right-sided hemiparesis and expressive aphasia. A dose of 8 mg of IV dexamethasone was given. By morning rounds, the patient was more understandable, oriented, and comfortable. It was only when the family returned that further history revealed a critical error: the patient had been getting progressively weaker, more agitated and combative at home despite close monitoring by the home hospice team and repeated attempts to find a suitable dose of steroids. The hospice team had planned for the hospice physician to go to the home the next day to discuss admitting the patient to the PCU for withdrawal of steroids and terminal care. Before this happened, her symptoms had escalated, prompting an earlier-than-expected admission. This led to the administration of IV steroids and the unfortunate scenario of waking the patient instead of withdrawing her steroids and treating her agitation with other medications.
DISCUSSION: Although medical errors are receiving unprecedented attention, errors in end of life care have received less analysis. This case illustrates multiple errors in effective communication around goals of care. The primary goal (to withdraw a specific medication) was not communicated and a seemingly obvious intervention led to an emotionally trying situation for all involved, including the patient, as her brief period of lucidity slowly faded away. In this case, there were four physicians (the home hospice attending physician, the PCU attending physician, the PCU and the moonlighting fellow) and three nurses (the home hospice nurse, the on-call home nurse and the inpatient nurse) involved in this patient's admission and handoffs failed between all of these caregivers. Upon review, it was found that the home nurse had called the PCU to give report but had been told that the attending physician was not there. She was hesitant to "bother him at home" so she gave report to the inpatient nurse who called the PCU fellow, who called the moonlighter. None of the people in this chain of communication had prior knowledge of the patient or direct contact with any caregiver who knew her. Each of these handoffs amplified the error of miscommunicated goals of care. Palliative care faces many of the same problems with medical errors that general medical care faces, especially at "hand-offs" with "covering" physicians and nurses. Hand-offs and errors in communication of goals of care may be as dangeorus as errors in communication of more traditional medical information.

WEGENER'S GRANULOMATOSIS: A DIAGNOSTIC CHALLENGE. M. Velagapalli[1]; A. Kalyanasundaram[1]. [1]Geisinger Medical Center, Danville, PA. *(Tracking ID # 157144)*

LEARNING OBJECTIVES: 1) To recognize that pyoderma gangrenosum can be the initial manifestation of Wegener's Granulomatosis 2) To recognize that Wegener's Granulomatosis can mimic bacterial endocarditis.
CASE: A 51-year-old white male was evaluated for severe bilateral pyoderma gangrenosum (PG) that failed to respond to prednisone, colchicine and dapsone. When cyclosporine was added, he had a significant clinical response. After 6 months, his dose was reduced from 4 mg/kg to 2 mg/kg. Three weeks later, he was admitted to our institution with tenosynovitis, fevers, chills, and purpuric lesions of the extremities. TEE revealed a 7 mm × 5 mm vegetation on the anterior mitral valve leaflet. Skin biopsy of a purpuric lesion showed leukocytoclastic vasculitis (LCV). Multiple blood cultures were negative. His condition deteriorated rapidly despite antibiotics and increased steroids. Bronchoscopy, done for worsening respiratory status and alveolar infiltrates, showed oozing bronchial mucosa. Profound hypoxemia necessitated intubation. ANCA testing showed anti-PR3 > 100 U/mL (negative 6 months earlier). His renal function worsened, with Cr rising to 2.3 mg/dL and RBC casts in spun sediment. This constellation of clinical findings suggested the clinical diagnosis of Wegener's Granulomatosis (WG). Treatment with cyclophosphamide and pulse steroids led to eventual recovery, and he remains in remission 8 months later on a tapering regimen of cyclophosphamide.
DISCUSSION: Wegener's Granulomatosis (WG) is classically described as a triad of respiratory tract granulomatous inflammation, systemic small-vessel vasculitis, and necrotizing glomerulonephritis. We have reported a case of WG initially presenting as pyoderma gangrenosum (PG) and later confirmed clinically by a multi-system illness that had to be differentiated from bacterial endocarditis (SBE) due to the presence of a mitral valve vegetation. We emphasize the following points: First, his PG was most likely the initial manifestation of WG that was smoldering all along. Secondly, ANCA status may change over time - ANCA negative patients upon presentation may turn positive with generalized disease. Thirdly, isolated cases of WG simulating bacterial endocarditis with echocardiographic vegetations have been reported, as was the case with our patient. Finally, the clinical utility of ANCA testing is exemplified in our patient, who was too unstable to safely perform lung or renal biopsy. While histopathological confirmation of lung, kidney, or sural nerve is the gold standard of diagnosis, a positive PR3 antibody supported our clinical diagnosis of WG and permitted aggressive treatment with steroids and cyclophosphamide, the treatment of choice for this critically ill patient.

WERNICKE'S ENCEPHALOPATHY IN A NONALCOHOLIC PATIENT. C.H. So[1]; J.E. Cho[1]; S. Dea[1]. [1]University of California, Los Angeles, Sylmar, CA. *(Tracking ID # 156458)*

LEARNING OBJECTIVES: 1. To recognize the features of Wernicke's Encephalopathy/Korsakoff Syndrome in nonalcoholic patients. 2. To prevent the

occurrence of Wernicke's Encephalopathy/Korsakoff Syndrome in nonalcoholic patients.
CASE: A 28 year old Hispanic woman with a significant history of insulin dependent diabetes and two recent admissions for gastroparesis and gallstone pancreatitis requiring laparoscopic cholecystectomy, was brought in by her family for confusion and progressive gait difficulty. Since the last hospitalization, she has had progressive gait instability, bowel and bladder incontinence, and progressive confusion with nonsensical comments. Despite treatment for gastroparesis, the patient continued to have decreased appetite and lost 80 lbs over the past year. The patient has no history of alcohol or drug use. Her physical exam was remarkable for wide-based gait, gaze-evoked nystagmus, mid-epigastric tenderness, decreased anal tone and reflex, decreased bilateral lower extremity sensation, and 0-1+bilateral knee reflexes. Her Mini-Mental Status Exam was found to be 19/30 and the patient was noted to be confabulating. Given the clinical suspicion of encephalopathy versus Lambert Eaton syndrome versus hydrocephalus, brain MRI, lumbar puncture, urine tox screen, Vit B12, ANA, ANCA, RF, SPEP/UPEP, HIV, RPR, Lambert-Eaton antibodies, and CT of the chest and abdomen were obtained, which were all unremarkable. EEG showed diffuse 5–6 Hz theta general bursts consistent with toxic or metabolic encephalopathy. The patient was started on IV thiamine after thiamine level was drawn. Two weeks later, the thiamine and folate levels came back low at 62 and 4.2. The patient was continued on IV Thiamine for two weeks and switched to oral thiamine replacement with folate supplementation. After eight weeks of therapy, the patient's gait and mental status showed marked improvement.
DISCUSSION: Wernicke's encephalopathy is a life-threatening disorder due to thiamine deficiency often overlooked in nonalcoholics. The most common presenting symptom is confusion followed by ataxia and ocular findings, though only one-third exhibit all three symptoms. It is a clinical diagnosis made when two of the following four criteria are met: dietary deficiency, oculomotor abnormalities, cerebellar dysfunction, and altered mental status or mild memory impairment. MRI findings of increased T2 signal and decreased T1 signal surrounding the aqueduct and third ventricle and within the medical thalamus and mamillary bodies are also helpful in the diagnosis, though half of patients do not exhibit this, as in our case. Treatment of WE with intravenous thiamine often immediately resolve the ophthalmoplegia, with ataxia and confusion resolving within days to weeks. However, the majority of patients are still left with horizontal nystagmus, ataxia, and Korsakoff' syndrome. WE has been reported in nonalcoholic patient with HIV, chemotherapy induced anorexia, anorexia nervosa, recent prolong IV fluid, and recent bariatric surgery, though any form of malnutrition can trigger WE, as in the case in our patient. We suggest that clinicians should consider the diagnosis of Wernicke's encephalopathy in the setting of confusion in the malnourished patient. Given the safety of treatment, it may be reasonable to treat all patients with malnutrition with thiamine to prevent WE.

WHAT ELSE COULD GO WRONG? POLYGLANDULAR AUTOIMMUNE FAILURE-AN UNEXPECTED CAUSE OF DIZZINESS. S. Sayana[1]; A. Cooperman[1]. [1]University of California, Los Angeles, Sylmar, CA. *(Tracking ID # 151385)*

LEARNING OBJECTIVES: 1) Recognize adrenal insufficiency as a possible cause of dizziness 2) Recognize adrenal insufficiency as part of a polyglandular autoimmune syndrome.
CASE: A 32 year old woman with type 1 Diabetes for 10 years and hypothyroidism for 3 years presented to the emergency department on two separate occasions with dizziness, weakness, and nausea. Her supine systolic blood pressures (BP) were 90 to 95. Both times she was diagnosed with dehydration due to uncontrolled diabetes and inadequate fluid intake. Each time, she improved with hydration and was discharged home. On follow up in primary care, she reported continued dizziness, weakness, nausea, loss of appetite and irregular menstrual cycles. She denied fevers, abdominal pain, diarrhea, bleeding, polyuria or symptoms of infection. Physical exam revealed orthostatic changes; supine heart rate (HR) and BP were 76 and 96/50 respectively, while standing her HR rose to 116 with a BP drop to 74/45. She reported dizziness when standing. Her hands and left shin were hyperpigmented. The rest of her exam was normal. Laboratory testing revealed adequate replacement of her hypothyroidism. Diabetes was uncontrolled and potassium was elevated. An ACTH stimulation test confirmed a suspicion of adrenal insufficiency. Her symptoms improved with prednisone 5 mg and Florinef 0.1 mg a day.
DISCUSSION: While autonomic insufficiency and volume loss are frequently encountered in longstanding diabetes, we must consider other causes of dizziness and orthostasis. Three types of polyglandular autoimmune syndromes (PAS) have been described in the literature. Type 1 is associated with candidiasis, hypoparathyroidism and adrenal failure. Type 3 does not involve the adrenal cortex, but does include two of the following: thyroid deficiency, pernicious anemia, insulin-requiring diabetes, vitiligo and alopecia. This patient most likely has type 2 PAS. The diagnostic criteria for PAS type 2 are autoimmune adrenocortical insufficiency with autoimmune thyroiditis and/or type 1 diabetes mellitus. Other conditions commonly associated with PAS type 2 are gonadal failure, vitiligo, celiac disease, autoimmune hepatitis, alopecia, pernicious anemia and myasthenia gravis. The prevalence of PAS type 2 in the United States is 14–20 people per million with a ratio of female to male of 3–4:1. Patients present in the second to fourth decade of life. Approximately 50 percent of cases are familial. The pattern of inheritance is autosomal dominant with incomplete penetration. Treatment consists of lifelong replacement of deficient hormones and regular medical follow up with continued vigilance and appropriate screening for other auoimmune hormonal deficiencies.

WHAT GOES UP SOMETIMES COMES DOWN. F.B. Akanbi[1]; E. Anish[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 153544)*

LEARNING OBJECTIVES: 1) To appreciate how a common presentation of Guillain-Barre Syndrome (GBS) can mimic an acute CVA 2) To understand the diagnostic criteria for GBS 3) To outline the treatment options for GBS.
CASE: A 32 year-old male presented with the acute onset of a right facial droop, dysathria and right upper extremity weakness. He denied fever, chills or headache. Two weeks prior, he had been hospitalized briefly with an acute diarrheal illness. Stool cultures were negative and he had no neurological symptoms at that time. His PMH was significant for hypertension. Family history revealed a grandfather with a CVA in his 30's. He denied tobacco, alcohol or illicit drug use. On exam, vital signs were normal and his cardiopulmonary, abdominal, extremity and skin exam were unremarkable. On neuro exam, he was awake, alert, dysarthric and had a R facial droop. Other cranial nerves (CN) were intact. His R upper extremity strength was 4/5. Sensation was intact. Reflexes were+2 throughout. Initial testing included a CBC, serum chemistries, urine tox screen and a non-contrast Brain CT that were all normal. He was admitted with a presumptive diagnosis of a CVA. Twelve hours later, while undergoing a Brain MRI, he developed acute respiratory distress requiring intubation. A subsequently completed MRI was normal. Further testing, including CSF and rheumatologic studies were normal. Blood, urine, stool and CSF cultures were negative. Over the next several days, he developed progressive weakness of all four extremities resulting in flaccid paralysis. Additionally, reflexes could no longer be elicited in his extremities. EMG/NCS revealed a severe peripheral neuropathy with total axonal loss consistent with GBS. The patient completed a course of plasmapheresis without improvement. He subsequently underwent tracheostomy, PEG placement and transfer to a long-term care facility while awaiting neurological recovery
DISCUSSION: The Guillain-Barre syndrome (GBS) is an acute, autoimmune, inflammatory, demyelinating polyneuropathy. Anti-ganglioside antibodies have been implicated in its pathogenesis. Approximately 75% of cases are preceded by a respiratory or gastrointestinal infection. Campylobacter infection is the most commonly identified precipitant. GBS typically presents as a rapidly evolving, ascending, symmetrical, flaccid paralysis with areflexia. Extremity pain, paresthesias and autonomic dysfunction are frequently seen. The lower cranial nerves are often involved, causing facial diparesis and bulbar dysfunction. Bulbo-facial and respiratory muscle weakness can result in acute respiratory failure. Of note, GBS is a descriptive term and requires diagnostic criteria of progressive weakness of 2 or more limbs, areflexia, an evolving course of <4 weeks duration and exclusion of other causes. Supportive criteria include symmetric weakness, mild sensory involvement, facial or CN involvement, absence of fever, a typical CSF profile and EMG/NCS evidence of demyelination. Treatment for GBS includes plasmapheresis or IVIG. Combination therapy is not better than monotherapy. Corticosteroids have not been shown to be beneficial. Early treatment is recommended and patients often require critical care monitoring due to respiratory insufficiency and autonomic dysfunction. 70% of patients recover fully, 15% have minor residual neuro deficits and 10% have major disabilities. Mortality from GBS is around 5%, with death usually resulting from infectious or cardiopulmonary complications.

WHEN ANGEL DUST ATTACKS THE LUNG. S.M. Kohli[1]; T. Painter[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 152675)*

LEARNING OBJECTIVES: 1) To recognize the clinical presentation of Phencyclidine (PCP) Inhalation. 2) To recognize the management of PCP Inhalation Lung Injury
CASE: A 43 year-old female with a history of hepatitis B and C, alcohol and heroin abuse, COPD, and anxiety disorder presented to an outside hospital with one day of achy low back pain that radiated down her anterior thighs. She denied other symptoms. On examination, the patient was afebrile, tachycardic, hypoxic (77% on room air) and had scattered rhonchi. The remainder of the exam was normal. Chest X-ray showed diffuse patchy airspace disease. Chest CT showed patchy bilateral lung consolidations with ground glass opacities. Ceftriaxone and prednisone were started with a presumptive diagnosis of Pneumocystis jiroveci or community acquired pneumonia. Urine toxicology was positive for benzodiazepines, opiates, and phencyclidine (PCP). The patient was transferred to our institution. She remained afebrile and therapy was changed to azithromycin, ceftriaxone and methylprednisolone. Laboratory studies were significant for a white blood cell count of 9.0. Urine and blood cultures were negative. Sputum grew light viridans streptococcus and light micrococcus. A bronchoalveolar lavage was performed and Grocott and AFB stains were negative. No organisms were isolated. HIV antibody screen was also negative. Approximately 24 hours after administration of steroids, the patient's oxygen requirement decreased, she was more alert and chest X-ray was normal. The patient was discharged home on day five with oxygen saturations of 100% on room air and no antibiotic or steroid therapy. Given the patient's negative workup and rapid improvement both symptomatically and by x-ray after steroid administration, the diagnosis of acute toxic lung injury secondary to inhalation of phencyclidine was made.
DISCUSSION: Phencyclidine (PCP) or "angel dust" is a synthetic arylcyclohexylamine that was developed as an anesthetic. Illicit recreational use of PCP began on the West Coast in the 1960's as oral capsules and later as a powder for smoking or inhalation. PCP is often applied to a leafy material such as mint, parsley, oregano, or marijuana and smoked. Acutely, PCP causes anesthesia and analgesia, but subsequent withdrawal causes delirium, confusion, psychosis, and agitation. Common signs of PCP use include increased muscle tone, tremor, nystagmus, ataxia, normal pupil size, mildly elevated heart rate and blood pressure, diaphoresis, lacrimation, and increased bronchial and salivary

secretions. Phencyclidine inhalation injury is characterized by nonspecific interstitial pneumonitis, acute pulmonary infiltrates, and acute respiratory symptoms such as productive cough, wheeze, and shortness of breath. Hypoglycemia can be present in up to twenty percent of PCP users. PCP inhalation injury is treated like cocaine inhalation. Few studies have focused on the effects of PCP because PCP is often impure and mixed with other drugs, herbs, or chemicals. Treatment includes stabilizing the airway and providing supplemental oxygen. If pulmonary infiltrates are present, empiric antibiotics are often started. Methylprednisolone or prednisone often provides rapid symptomatic improvement however there are no studies recommending their use at this time. Patients should be referred to a drug and alcohol counseling program upon discharge.

WHEN MEDICINE IS BETTER THAN SURGERY: SECONDARY HYPERTENSION AND A RED HERRING. L. Mazotti[1]; C. Lai[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 152314)*

LEARNING OBJECTIVES: 1. Define "refractory" hypertension and review secondary causes of hypertension. 2. Recognize when and how to initiate a workup for secondary hypertension. 3. Distinguish bilateral adrenal hyperplasia from a primary aldosteronoma.
CASE: A 63 yo healthy woman presented to clinic for follow-up for hypertension. Blood pressure (BP) at three prior appointments ranged from 160/90 to 180/110 despite maximum doses of hydrocholorathiazide, atenolol, benazepril, hydralazine and a clonidine patch. She denied tobacco, alcohol or drug use. She denied snoring, weight changes, headaches and kidney stones. BP was 160/90 in both arms. Except for an elevated BMI, exam was otherwise normal. Labs revealed borderline-low K 3.5 and normal Na, BUN, Cr, Ca, TSH, and urinalysis. Given her borderline hypokalemia, plasma aldosterone and renin were ordered. Aldosterone was 23 (high) and renin was 0.2 (low) for an elevated aldosterone-to-renin ratio of 115, suggestive of primary aldosteronism. A CT scan revealed a 1.5 cm left adrenal adenoma. Adrenal vein sampling was performed to confirm the source of hyperaldosteronism; surprisingly, aldosterone levels were elevated in both left and right adrenal veins, despite the presence of the adenoma. The results of the adrenal vein sampling confirmed that the source of the hyperaldosteronism was not the adenoma, but rather bilateral adrenal hyperplasia.
DISCUSSION: Secondary causes of hypertension (HTN) include chronic kidney disease, renovascular stenosis, thyroid disease, hyperparathyroidism, coarctation of the aorta, Cushing's syndrome, medications and primary aldosteronism. Secondary causes account for 5–10% of all cases of HTN and should be considered when a patient's BP is "refractory," defined by the Joint National Commission-7 as "failure to reach a goal BP in patients who are adhering to full doses of an appropriate three drug regimen including a diuretic." When exam and review of systems do not identify a cause, lab tests should include CBC, lytes, BUN, Cr and a urinalysis. Primary aldosteronism should be suspected in setting of hypokalemia and/or hypernatremia. Primary aldosteronism may be caused by either bilateral adrenal hyperplasia or, less frequently, an aldosterone secreting adenoma (an aldosteronoma). After a high aldosterone-to-renin ratio is documented serologically, a CT scan should be performed to detect an aldosteronoma. In one study, however, approximately 25% of adrenal adenomas did not secrete aldosterone and thus were "red herrings"; in fact, co-existing bilateral adrenal hyperplasia was the source of the hyperaldosteronism. Therefore, instead of pursuing surgical removal of a possible aldosteronoma, all CT scans should be followed up with the gold standard test, adrenal vein sampling, which compares aldosterone levels in each adrenal vein, and confirms the source of aldosterone hypersecretion. A 4-fold elevation of aldosterone on the side of the tumor confirms an aldosteronoma. This case underscores the importance of considering secondary causes of hypertension and pursuing the gold standard test for hyperaldosteronism, adrenal vein sampling, even if the CT scan reveals an adrenal adenoma, since it may actually be a "red herring." Our patient continued on medical management of HTN, rather than inappropriately undergoing surgery. With the addition of a mineralocorticoid antagonist, spironolactone, to her five-drug regimen, the patient's BP was controlled effectively without surgical intervention.

WHEN PHYSICAL THERAPY MAKES THINGS WORSE: A CASE OF HEREDITARY NEUROPATHY SECONDARY TO PRESSURE PALSY. S.L. Shaffer[1]; S.H. DavÉ[1]; R.L. Conigliaro[2]. [1]University of Pittsburgh, Pittsburgh, PA; [2]University of Kentucky, Lexington, KY. *(Tracking ID # 151808)*

LEARNING OBJECTIVES: 1.To recognize the clinical picture of hereditary neuropathy secondary to pressure palsy (HNPP). 2.To recognize the range of presentations of HNPP–typical and atypical. 3.To outline a diagnostic strategy for HNPP.
CASE: SD is a 29 yo male, s/p acute coronary event and RCA stent placement one year prior, presenting with two month history of left shoulder weakness. He reports a similar problem at age 12; he developed weakness in his left shoulder with sleeping on his left side. Neurologist assessment at that time diagnosed nerve entrapment, and his symptoms resolved within 2 weeks with avoidance of sleeping on his left side. He reports that this current episode may have started with sleeping on his left side, but despite changing positions the symptoms continue. He has difficulty raising his left arm above his head, and he cannot lift or carry any weight in that arm. He denies pain or sensory symptoms. Initial exam revealed intact motor strength with mild infraspinatus atrophy. Patient underwent physical therapy (PT), consisting of strengthening, massage, and TENS, with worsening of symptoms, including new 4/5 external rotation strength. EMG of the left upper extremity revealed evidence of left suprascapular neuropathy, chronic left axillary and left long thoracic neuropathy as well as sensorimotor peripheral neuropathy involving bilateral median nerves, bilateral ulnar nerves, and right peroneal nerve. Patient discontinued PT and his symptoms gradually improved. Patient was advised to avoid pressure over common nerve entrapment sites.
DISCUSSION: Hereditary neuropathy with liability to pressure palsies (HNPP) is an autosomal dominant neuropathy characterized by recurrent, painless, monofocal, transient nerve palsies. Symptoms may be triggered by minor compressions at common anatomic sites of nerve entrapment. Although sporadic cases may occur, most cases are associated with deletion of the chromosome 17p11.2 region, containing the gene for peripheral myelin protein 22. Mean age at onset is the third decade (range 10–33 years old). Males are more commonly affected. About a quarter of patients can identify a family history of similar nerve palsies. The most common presentations (in descending order) are palsies of the peroneal, ulnar, brachial plexus, and radial nerves. Less common involvement includes median nerve (often confused with Carpal Tunnel Syndrome), facial nerve, and sensorimotor mononeuropathy. Other presentations reported in the literature include hypoglossal neuropathy, vocal cord paralysis, respiratory insufficiency, myoclonus, writer's cramp, as well as onset following strenuous exercise, weight loss, and chemotherapy. Approximately one third of patients with the gene deletion are asymptomatic; thus, the syndrome is believed to be under-recognized. The precise prevalence is unknown. Initial diagnostic test is EMG, which may show mild slowing of motor conduction velocity, prolonged distal latency, or diffuse sensory conduction velocity abnormalities. In the appropriate clinical setting, this is diagnostic and precludes the need for nerve biopsy, which is neither sensitive nor specific. The classic biopsy finding for HNPP is the tomacula, a focal thickening of myelin sheaths. Genetic testing may be performed in difficult cases or for screening family members. Treatment is supportive, with rest and elimination of inciting positions or pressure.

WHEN PLATELETS TAKE AN UNUSUAL HIT: TIROFIBAN INDUCED THROMBOCYTOPENIA. S.H. Orakzai[1]; R.H. Orakzai[1]; R. Granieri[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 152293)*

LEARNING OBJECTIVES: 1. To recognize thrombocytopenia as a potential complication of glycoprotein IIb/IIIa (GPIIb/IIIa) inhibitors. 2. To describe the pathophysiologic mechanism leading to thrombocytopenia induced by GPIIb/IIIa inhibitors and differentiate it from other causes of thrombocytopenia. 3. To describe the treatment of acute coronary syndrome in the setting of GPIIb/IIIa induced thrombocytopenia.
CASE: A 65-year-old male presented with chest pain, ST segment depression in anterolateral leads on EKG and positive troponin at 0.16 (positive > 0.10). He was diagnosed with acute coronary syndrome and given aspirin, clopidogrel, metoprolol, morphine and intravenous nitroglycerin. He was started on unfractionated heparin and tirofiban. Platelet count at admission was 204,000; 4 hours after starting tirofiban it was 3,000. Aspirin, clopidogrel, heparin and tirofiban were discontinued. Due to recurrent chest pain, patient was taken for angiography, which showed 100% occlusion of left anterior descending artery (LAD). His LAD was stented and he required platelet transfusion. Platelet count post transfusion increased to 76,000 and then stabilized. Aspirin and clopidogrel were restarted. Patient remained symptom free and was discharged home in stable condition with a platelet count of 141,000.
DISCUSSION: The glycoprotein IIb/IIIa (GPIIb/IIIa) antagonists are used in acute coronary syndromes and/or percutaneous coronary revascularization and reduce secondary complications following angioplasty. Thrombocytopenia is a feared complication which occurrs much less frequently with eptifibatide or tirofiban as compared to abciximab. In a pooled analysis of 8 studies tirofiban and eptifibatide did not significantly increase mild (platelet count < 100,000) or severe (platelet count < 50,000) thrombocytopenia as compared to placebo, whereas abciximab was associated with twice the incidence of mild thrombocytopenia and severe thrombocytopenia as compared to placebo. The development of profound thrombocytopenia (platelet count < 20,000) with tirofiban is rare with only 6 cases reported in literature. The pathophysiologic mechanism leading to thrombocytopenia induced by GPIIb/IIIa antagonists is not clear. Since acute thrombocytopenia develops within hours of first exposure, non-immune mechanisms might be responsible. Although we cannot exclude heparin induced thrombocytopenia (HIT), the most likely cause of patient's thrombocytopenia was tirofiban induced for several reasons. In the most common type of HIT, platelet count begins to fall 5–10 days after starting heparin as heparin requires a longer interval to initiate a humoral immune response, whereas tirofiban induced thrombocytopenia develops within a few hours after administration. In 30% of HIT cases, platelet count falls abruptly after starting heparin. But this results from circulating HIT antibodies due to recent immunizing exposure to heparin. Our patient had never received heparin. Additionally, thrombocytopenia seen in HIT is typically of moderate intensity and it rarely causes profound thrombocytopenia. Although GPIIb/IIIa inhibitors induced thrombocytopenia is rare, it is vital to evaluate the platelet count prior to treatment and within 2–6 hours after bolus. Since GPIIb/IIIa inhibitor induced thrombocytopenia may be due to preexisting antibodies, it may seem possible to prevent this complication by pretreatment screening to detect such antibodies. Whether such screening is practical and feasible remains to be determined.

WHEN THE ANSWER LIES IN THE MOUTH: A CASE OF HEPATIC ACTINOMYCETES. A. Koka[1]; J. Palermo[1]. [1]Temple University, Philadelphia, PA. *(Tracking ID # 154109)*

LEARNING OBJECTIVES: 1. Recognize clinical manifestations of Actinomycosis 2. Identify risk factors associated with Actinomycosis 3. Review the treatment of Actinomycosis.

CASE: A 62 year old male with no prior medical history was referred to oncology clinic because of a CAT scan that revealed multiple bibasilar pulmonary nodules and a liver mass. He reported a one year history of weight loss, right upper quadrant discomfort and a non-productive cough. He also complained of a year-long course of intermittent fevers, night-sweats and chills. The patient was employed as a supervisor at a boys home in Philadelphia, described a remote history of smoking and denied heavy alcohol use or illicit drug use. He had not traveled outside the Philadelphia area, and had no traditional risk factors for tuberculosis. On physical exam the patient was found to be having rigors with a temperature of 104.5 deg F. He was noted to have poor oral dentition, clear lungs and a tender right upper quadrant to deep palpation. Laboratory studies were significant for leukocytosis with polymorphonuclear leukocyte predominance. Review of radiographic imaging confirmed multiple pulmonary nodules and a hepatic mass. CT guided aspiration of the hepatic mass revealed purulent drainage. Pathologist review of the hepatic aspirate demonstrated filamentous rods consistent with Actinomyces. The patient clinically improved on ampicillin and was discharged. Unfortunately, he was lost to follow up.
DISCUSSION: Originally misclassified as fungi, Actinomyces are prokaryotic bacteria belonging to the family Actinomyceatacea that colonize the mouth, colon and vagina. Mucosal disruption as a result of dental infections, appendicitis, diverticulitis, or surgery is thought to allow invasion of the organisms and subsequent infection. Pelvic infections have been associated with placement of intrauterine or intravaginal devices. Pulmonary actinomyces is believed to be a result of aspiration of oropharyngeal or gastrointestinal secretions. Hepatic disease, which is likely caused via hematogenous dissemination through the portal vein is rare and less than sixty cases have been reported in the English literature. Known as "the great masquerader", actinomycosis is frequently mistaken for a neoplastic process, as in this case. Thus, diagnosing actinomycosis requires high clinical suspicion, as typical microbiologic features such as actinomyces filaments, sulfur granules or positive culture are negative in a substantial proportion of cases. Risk factors for actinomyces include male gender, poor oral dentition, prior abdominal surgery, or placement of intrauterine or intravaginal devices. Despite a frequently prolonged course prior to diagnosis, prognosis with treatment is excellent. Penicillins, tetracyclines, clindamycin and erythromycin have been successfully used in treatment. The optimal duration of treatment is not known, though historically, an extended duration of treatment (3 months) has been recommended.

WINE MAKETH MERRY: BUT THE GAP ANSWERETH ALL THINGS. K. Nashar[1]; S. Tsai[1]; R. Stiller[1]; E. Anish[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 153736)*

LEARNING OBJECTIVES: 1. To recognize ethylene glycol as a cause of neurotoxicity and acidosis in a young, otherwise healthy patient. 2. To list the metabolic derangements associated with ethylene glycol intoxication. 3. To outline the therapeutic interventions for ethylene glycol toxicity.
CASE: A 50-year-old male was transferred to our institution from an outlying hospital for further management of profound acidosis and renal failure. He had been intubated for airway protection prior to transfer, thus no other history was obtainable from the patient. Physical exam revealed an obtunded, tachypneic (RR-23) male who was hemodynamically stable. His pupils were equal and reactive to light. Cardiopulmonary and abdominal exams were normal. Neurological exam off sedation revealed a depressed level of consciousness, but no other focal deficits. Initial laboratory data included: glucose-186, BUN-16, Cr-3.3, K-8.2. He was found to have an anion gap of 44 with an ABG revealing a pH of 6.9 and a bicarbonate of 8. A toxicology screen was negative for salicylates and acetaminophen. Serum and urine ketones were undetectable and a blood alcohol level was zero. Serum osmolality was measured at 399, with a calculated osmolar gap of 61. Hemodialysis was initiated to correct severe hyperkalemia and acidosis. Subsequently, a methanol level was reported as undetectable, but an ethylene glycol level returned at 112 mg/dL (toxic >20). The patient was subsequently started on intravenous fomepizole, which resulted in a gradual improvement in his mental status. When the patient was able to communicate verbally, it was discovered that a few hours before becoming acutely ill, he had consumed liquid from an unlabeled bottle that he had stored in his garage that he thought contained wine. The patient received fomepizole for a total of 3 days and was subsequently discharged to home with no residual neurological dysfunction and with normal renal function.
DISCUSSION: Ethylene glycol (EG) is widely available as a component of antifreeze and solvents, and its sweet taste makes it easy to ingest. EG is metabolized by alcohol dehydrogenase into toxic metabolites that account for the symptoms of EG toxicity. Neurotoxic symptoms range from slurred speech and altered sensorium, developing within 1 hour of ingestion, to coma or death. Renal failure, heart failure, and pulmonary edema may occur. Specific metabolic derangements include a high anion gap metabolic acidosis, a high osmolar gap, and urine calcium oxalate crystals. Treatment is aimed at blocking the metabolism of EG. Ethanol, which has 10 times higher affinity for alcohol dehydrogenase than EG, has historically been used to treat EG ingestion. However, fomepizole, another competitive inhibitor of alcohol dehydrogenase, that first became available for use in the U.S. in 1997, has become the treatment of choice. Although no comparative studies with ethanol have been performed, fomepizole appears to have fewer adverse side effects, easier administration, and at least equal efficacy. Hemodialysis may be necessary in severe cases of renal failure and acidosis. However, recent studies have shown that the early administration of fomepizole may reduce the need for hemodialysis in selected patients. In conclusion, the early recognition that EG ingestion has occurred and the prompt administration of supportive care, antidotes, and measures to enhance the elimination of EG and its metabolites are critical to help assure favorable outcomes in cases of EG toxicity.

WISH YOU WERE HERE–DEVASTATING ENCEPHALITIS IN A TRAVELER. P.E. Moberg[1]; J. Critchfield[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 152925)*

LEARNING OBJECTIVES: Recognize signs and symptoms that suggest encephalitis. Select appropriate diagnostic tools to promptly and correctly identify Herpes simplex encephalitis (HSE). Treat HSE with an appropriate course of anti-viral therapy.
CASE: A 66 year old man with diabetes visiting from Colombia, South America was brought by family members to the emergency department because of persistent fever and personality changes. The family reported that following several days of fevers, he exhibited unusual emotional outbursts and poor short-term memory, forgetting or misidentifying several family members. On exam the patient had normal vital signs and was in no apparent distress. He was alert but disoriented, speaking Spanish easily, but without purpose; he followed commands intermittently. He also had increased right deep tendon reflexes at the biceps and patella. The remainder of his exam was normal. His serum laboratory values were unremarkable and his head CT and chest X-ray were negative. The CSF, obtained after an opening pressure of 22 mm, showed 38 RBC's, no xanthochromia and 53 WBC's (68% lymphs, 30% monos), glucose 165 mg/dL, protein 59 mg/dL, negative VDRL and a negative gram stain. He was started empirically on vancomycin, ceftriaxone, ampicillin, and acyclovir, treating for presumed bacterial or viral meningitis/encephalitis. On hospital day 3, cultures of the CSF and blood remained negative as well as RPR and HIV tests. An MRI of the brain revealed medial temporal lobe T2 enhancement with extension into the limbic system. The PCR of the CSF eventually returned positive for HSV 1, confirming a diagnosis HSE. Despite prompt treatment with acyclovir, by day 14 of therapy the CSF had 102 WBC's (91% lymphs), and a protein of 95. The patient remained disoriented and amnesic and was discharged to a long-term care facility.
DISCUSSION: There are approximately 2000 to 4000 cases of HSE in the US annually. HSV-1 is the pathogen in 90% of adult cases. Patients may present with neurobehavioral abnormalities including ataxia, aphasia, photophobia, anomia, and loss of emotional control. Notably, patients rarely have characteristic herpetic skin lesions. Since these symptoms are not unique to HSE, the diagnosis of HSE can be challenging and appropriate diagnostic tests must be used. The brain biopsy has been replaced in nearly all cases with CSF PCR for HSV DNA (both types I and II). Several studies indicate the PCR test can achieve 98% sensitivity and 94% specificity, though the test characteristics seem dependent on the laboratory. A MRI with FLAIR images can be sufficient for diagnosis especially with classic findings of unilateral inflammation or edema localized to the temporal lobe with extension into the limbic system. With 70% mortality for untreated HSE, clinicians need to maintain a high degree of suspicion for the disease with a low threshold for empiric therapy. Even with appropriate therapy, mortality rates reach 19% with combined mortality/morbidity rates reaching 28–62%. Advanced age, severity of mental sedation, and duration of illness prior to treatment all negatively correlate with outcome. Acyclovir at 10 mg/kg IV every 8 hours for 14–21 days remains the standard of care. Some centers will perform HSV PCR on a second CSF sample to test for cure at 14 days. If a patient is still positive at that point it is suggested they begin oral therapy for up to 90 days.

YELLOW NAIL SYNDROME: A CAUSE OF CHYLOUS PLEURAL EFFUSION. E.K. Chung[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 156447)*

LEARNING OBJECTIVES: Recognize the clinical presentation, diagnosis, and management of a rare disease known as yellow nail syndrome.
CASE: A 32 year-old Hispanic male with two prior hospitalizations for "idiopathic" chylous pleural effusion and lower extremity edema presented again to the emergency department with a two day history of increasing shortness of breath, pleuritic chest pain and a three week history of increasing massive lower extremity edema resulting in a 25 pound weight gain over the past month. He denied any trauma, or cardiac, hepatic, or renal diseases. Physical exam revealed decreased breath sounds 2/3 of the way up bilateral lung fields with dullness to percussion. The patient also had massive lower extremity non-pitting edema that extended above his waistline. He had presented twice in the past two years and each time was thoracentesed and found to have a chylous pleural effusion. In addition, he was extensively evaluated for infectious as well as malignant causes which were negative. Thoracentesis during this admission again revealed chylous effusion with a lymphocyte predominance, and was negative for infection, including TB, and malignancy. Total body pet scan was negative for malignancy and abdominal/pelvic CT was only positive for massive anasarca and negative for masses. A lymphangiogram was performed which showed bilateral lymphedema in the lower extremities and deep fibrosis encasement of lymphatics with circumferential and dermal back flow within the lymphatics transcending to collateral venous drainage within the pelvis and a leaking left thoracic duct which was consistent with the lymphatic dysplasia of yellow nail syndrome. The patient underwent left chest tube placement, followed by right sided video-assisted thorascopic surgery (VATS) and thoracic duct ligation with talc pleurodesis, which was then followed by left sided VATS and talc pleurodesis. The patient was also started on a high protein, low fat diet (a medium chain triglyceride diet was unavailable). The patient's pleural effusions did resolve with symptomatic improvement and a remarkable decrease of the patient's lower extremity edema.
DISCUSSION: Yellow nail syndrome (YNS) is a clinical diagnosis and is based on the presence of two of the following three features: yellow or dystrophic nails, chylous effusions, and lymphedema similar to the presentation of our patient. Rhinosinusitis and bronchiectasis have also been associated with YNS. The complete triad is only seen in a minority of patients. The incidence is estimated

at 0.1 per 100,000 persons under the age of 20 and median age at presentation is between 40–50 years. Prior trauma, surgical or otherwise, and malignancy should be ruled out as they are the commonest causes for chylous effusions. The pathogenesis is believed to be a structural lymphatic hypoplasia. However, there have been some studies to suggest that YNS may be due to a functional lymphatic impairment. The natural history of this disease is variable. Lymphangiography and lymphoscintigraphy can be used to confirm the diagnosis by allowing a functional and anatomical assessment of lymphatics. Treatment is multi-factorial and includes initial therapeutic thoracenteses to eliminate effusions, dietary modification that includes a high protein, medium chain triglycerides with fat-soluable vitamin supplements in an effort to reduce the flow of chyle from the intestinal tract, and surgical options to manage recurrent pleural effusions.

YOU CAN'T GO HOME AGAIN. S.E. White[1]; S. Lundberg[1]. [1]Olive View/University of California, Los Angeles Medical Center, Sylmar, CA. *(Tracking ID # 154751)*

LEARNING OBJECTIVES: 1) Recognize features of dengue fever and dengue hemorrhagic fever. 2) Understand the importance of monitoring for dengue hemorrhagic fever and dengue shock syndrome.
CASE: A 20-year-old male presented to the emergency department with four days of fever, myalgias, fatigue, retro-orbital eye pressure, and crushing low back pain. His symptoms began following a three-month visit to his hometown in the Philippines. He denied headache, neck pain, photophobia, sore throat, rash, or cough. He was not taking malaria prophylaxis and was bitten by mosquitoes. Physical exam revealed temperature 40.1, blood pressure 99/50, pulse 111, respirations 16, mild epigastric and right upper quadrant tenderness and a positive tourniquet test (^{3}20 petechiae in one square inch on the forearm after blood pressure cuff deflation). Laboratories included WBC 1.9, hemoglobin 15.9, platelets 76,000, AST 59, ALT 40, lipase 469 and sodium 134. The patient was aggressively hydrated, and was given Tylenol for pain and fevers. Thick and thin smears were negative. By hospital day 3, WBC and platelets reached 1.1 and 12,000, respectively; 3 units of platelets were transfused. Patient was afebrile on hospital day 4, but had increasing transaminases. On hospital day 5 the patient developed severe epigastric and right upper quadrant pain with a transaminase spike (AST 800, ALT 468). CT revealed bilateral pleural effusions, perihepatic fluid, and free pelvic fluid. Hemoglobin remained stable; the fluid on CT was attributed to plasma leakage from dengue hemorrhagic fever. The patient was discharged after final laboratories revealed platelets 168,000, WBC 4.4, AST 512 and ALT 411. Dengue serologies revealed IgM 1.32, IgG 4.15 (both positive).
DISCUSSION: As one of the major emerging infectious diseases, dengue fever should be in the differential diagnosis in febrile patients with recent tropical travel and mosquito exposure. There are four viral serotypes; infection with one confers long-term immunity only to that serotype. Dengue hemorrhagic fever and dengue shock syndrome are thought to be due to repeat infection with a second serotype. Dengue fever is characterized by sudden onset of fever, retro-orbital eye pain, fatigue, myalgias, arthralgias, thrombocytopenia, leukopenia, elevated hepatic aminotransferases, and hyponatremia. Plasma leakage occurs in hemorrhagic fever, develops four to seven days after fever onset, and is associated with abdominal pain, increasing hepatic aminotransferases, and worsening thrombocytopenia. Dengue shock syndrome can cause death within 12–24 hours. This case illustrates disease course and demonstrates the importance of monitoring patients with dengue fever and thrombocytopenia, as well as the increased risk of shock or hemorrhagic fever in travelers returning to an endemic area in which they previously lived.

YOUNG MAN WITH PROGRESSIVE BACK PAIN. S.N. Khan[1]; W. Hadid[2]. [1]Stroger Hospital of Cook county, Chicago, IL; [2]John Stroger Hospital of Cook County, Chicago, IL. *(Tracking ID # 152563)*

LEARNING OBJECTIVES: 1-Recognize spinal tuberculosis as an uncommon but important cause of back pain in young immunocompetent patient 2-Recognize the radiological manifestations of spinal tuberculosis and the differences between infectious vs. non-infectious lesions. 3-Recognize the complications, medical treatment, and the indications for surgery of spinal tuberculosis.
CASE: 29-year old male was admitted with progressive focal mid-lumbar and right paraspinal pain with increasing severity and frequency over 6 months, associated with fever, night sweats, and a 20-pound weight loss over 3 months. The pain was not responsive to non-steroidal anti-inflammatory drugs. The patient had a history of positive Purified Protein Derivative (PPD) with a normal chest X-ray 2 years back. On physical examination, the temperature was 101 Fahrenheit and he had right paraspinal tenderness lateral to thoracic vertebra 11 to lumbar vertebra 4 (T11-L4) without focal neurological deficit. Chest X-ray was unremarkable, and plain films of thoracolumbar spine showed T11 vertebral body wedge-shaped lucency. Computed Tomography Scan (CT Scan) of the chest and abdomen showed multiple lytic lesions involving T7, T9, T11, T12 and L2 vertebral bodies and mulitloculated illiopsoas fluid collection. CT-guided drainage of right psoas abscess showed purulent fluid which was positive for acid fast bacilli, and the culture grew sensitive mycobacterium tuberculosis complex. Anti-tuberculous regimen with 4 drugs was started: isoniazid, rifampin, ethambutol, and pyrazinamide. He responded well to therapy with no residual sequelae.
DISCUSSION: The incidence of tuberculosis infection in the United States was 5.2 per 100.000 in 2002; approximately 20% have extrapulmonary disease, and 1% have spinal tuberculosis. Patients present with localized back pain which varies from mild and constant to severe and activity-related, fever, weight loss, and night sweats. Radiographical findings on plain X-rays generally occur late, and over 50% of trabecular bone must be destroyed before it becomes evident on radiographs. It is difficult to distinguish tuberculous spondylitis from pyogenic spondylitis radiologically. Computed tomography can show bony sclerosis and destruction within the vertebral bodies, epidural abscesses, bony fragmentation and spinal canal compression. MRI is very sensitive and can detect changes in the bone marrow and intervertebral disc involvement early in the disease process. Patients with lumbar disease may develop an anterior abscess in the psoas muscle. These patients have a "psoas sign" where they tend to lie with the leg drawn up in a flexed position, and they experience exquisite pain when the hip is extended to a neutral position. An abscess within the spinal canal may compress the cord or cauda equina, and cause rapidly progressive neurologic symptoms, or the abscess may compress a nerve root and cause symptoms mimicking a herniated disc. In rare cases, meningitis develops in association with spinal disease. The treatment is the usual treatment for tuberculosis which includes the combination of isoniazid, rifampin, ethambutol, and pyrazinamide. Other changes can be done depending on the sensitivity of the bacteria.