

Medical Student-Run Health Clinics: Important Contributors to Patient Care and Medical Education

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BACKGROUND: Despite the popularity of medical student-run health clinics among U.S. medical schools, there is no information about how many clinics exist, how many students volunteer there, or how many patients they see and what services they offer.

OBJECTIVE: We describe, for the first time, the prevalence and operation of medical student-run health clinics nationwide.

DESIGN AND PARTICIPANTS: A web-based survey was sent to all 124 Association of American Medical Colleges allopathic schools in the 50 states.

RESULTS: Ninety-four schools responded (76%); 49 schools had at least 1 student-run clinic (52%). Fifty-nine student-run clinics provided detailed data on their operation. The average clinic had 16 student volunteers a week, and most incorporated preclinical students (56/59, 93%). Nationally, clinics reported more than 36,000 annual patient-physician visits, in addition to more nonvisit encounters. Patients were predominantly minority: 31% Hispanic; 31% Black/African American; 25% White; 11% Asian; and 3% Native American or other. Most student-run health clinics had resources both to treat acute illness and also to manage chronic conditions. Clinics were most often funded by private grants (42/59, 71%); among 27 clinics disclosing finances, a median annual operating budget of \$12,000 was reported.

CONCLUSIONS: Medical student-run health clinics offer myriad services to disadvantaged patients and are also a notable phenomenon in medical education. Wider considerations of community health and medical education should not neglect the local role of a student-run health clinic.

KEY WORDS: medical student-run clinics-underserved population; medical education; community health.

DOI: 10.1007/s11606-006-0073-4

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INTRODUCTION

Medical student-run health clinics have become popular programs among medical schools for fostering education and community service among students. The proliferation of these clinics has not, however, coincided with a better understanding of these programs' impact on medical education or public health. There are no data of how many student-run clinics exist or how many schools have one.

A medical student-run clinic is a health care delivery program in which medical students take primary responsibility for logistics and operational management and which is capable of prescribing disease-specific treatment to patients. Stereotypically, a student-run clinic serves poor patients who may be uninsured, marginally or completely homeless, and at high risk for inadequate management of serious medical problems including hypertension, diabetes, mental illness, substance abuse, and violence.¹⁻⁴ Anecdotally, some clinics incorporate undergraduate, social work, and other health professional students. One or more faculty physicians at the clinic site see all patients. Several resources are available to help students and physicians found new clinics.⁵⁻⁷

Although no research to date has established these programs as a distinct category of health care provider, student-run clinics medically serve many poor or uninsured patients. In general, privately and publicly operated health clinics are an increasingly important, efficient, and effective segment of the health care safety net⁸⁻¹¹; more than 10 million Americans now depend on local health centers for medical care.^{12,13} Student-run clinics' place in this safety net has not been described or even traditionally considered. In addition, student-run clinics are lauded for their potential to teach students clinical skills, medical humanism, and professional generosity.¹⁴⁻²⁰ Yet again, these programs' success towards these educational goals has not been assessed.

Ultimately, student-run health clinics have not been well described, and little data exist upon which to found future investigation of these programs. To initially characterize and advance research of these programs, we undertook a national survey of medical schools and their medical student-run health clinics, describing clinics' presence, organization, and services.

METHODS

We contacted all 124 Association of American Medical Colleges allopathic medical schools in the 50 states with an invitation to complete a web-based survey.²¹ We first sent e-mail invitations to schools' Deans or Directors for student affairs, asking them

Received June 27, 2006

Revised September 25, 2006

Accepted November 7, 2006

Published online January 5, 2007

to forward a survey uniform resource locator (URL) to student coordinators of their local medical student-run health clinics. (Our pilot research suggested that student leaders were the most knowledgeable about weekly activities at the clinic site.) Addressees were asked to contact persons from each of multiple student-run health clinics, if applicable. An initial email was followed by 3 subsequent invitations to unresponsive schools. Finally, we telephoned the office for student affairs to inquire about the presence of a student-run health clinic and obtain information for directly contacting clinic leaders. Data were acquired from May until December 2005.

Through the invitation URL, respondents were directed to a project website highlighting the study's definition of a medical student-run health clinic; they were asked to complete the survey if they felt their program was described by this definition: "a health care delivery program in which medical students take primary responsibility for logistics and operation management during clinic hours and which is capable of prescribing disease-specific treatment to patients. This definition does NOT include community service projects limited to handing out health supplies, merely checking blood pressure, or student volunteer programs hosted by professionally operated groups."

The survey consisted of 53 questions and covered various topics including a description of the clinic; hours and locations of operation; sources and amount of funding; patient volume, demography, and reasons for visit; number and sources of volunteers; students' reasons for volunteering; and educational activities at the clinic. Respondents also named all the medical student-run health clinics at their medical school. To promote dissemination of our survey, respondents were invited to further forward the survey as they saw fit. All questions were either multiple-choice or required a quantitative response (e.g., annual budget). There was a free-form space for comments or questions.

Although we identified medical schools and clinics by name, individual respondents remained anonymous. Our resulting inability to recontact survey participants to obtain clarification precipitated two dilemmas. First, multiple surveys were completed for 2 student-run clinics. Second, on 2 other occasions, student leaders from different clinics at the same school reported a different number of student-run clinics at their school. As these differences could not otherwise be objectively validated, and anonymous respondents could not be recontacted, we resolved these discrepancies by accepting data from the chronologically first respondent and disregarding that from the second. The Institutional Review Board (IRB) at the University of Pennsylvania School of Medicine approved the study protocol.

RESULTS

Participants

Ninety-four schools replied to study e-mail or telephone invitations—a response rate of 76%. Twenty-five schools had one medical student-run health clinic (27%); 24 had two or more clinics (26%); 45 schools lacked a student-run clinic (48%), but three indicated current plans to start one. By asking respondents to list all the student-run clinics at their school, 111 student-run clinics in 49 schools were identified

among 25 states. The results reported here are based on those clinics from which detailed surveys were returned (typically 57–59 clinics depending on survey item). Most surveys were completed by the clinic's student coordinator (54/59, 90%).

Patient Operations

The average length of clinics' operation was 7.4 years (SD±6.8, median 6, 12 respondents did not know). Most frequently, student-run clinics operated at a homeless shelter or other community agency, although the use of other sites was common (Table 1). Clinics often had associations with community organizations outside of their medical school (40/59, 68%).

Typically, clinics saw uninsured patients (51/58, 88%) and never accepted any payment from patients (45/58, 78%). Several others described "suggested" or "waivable" payments for indigent patients. In lieu of such financing, clinics received funding from a private or community grant, student fund-raising, or the government (Table 1). Twenty-seven schools

Table 1. Operational characteristics of student-run health clinics

Sites of Operation, n (%)*	Clinics
Homeless shelter/community agency	19 (32%)
Hospital	11 (19%)
Church	8 (14%)
Self-owned/rented location	7 (12%)
State-run health clinic	5 (8%)
Mobile unit	3 (5%)
Other locations	14 (24%)
6 clinics reported more than one site	
Hours of operation, n(%)*	
Operate twice a week	6 (10%)
Operate once a week	42 (71%)
Operate biweekly	4 (7%)
Operate 3 weeks a month	3 (5%)
Operate once a month	4 (7%)
Finances	
Source of funding, n (%)*	
Private or community grant	42 (71%)
Student fund-raising	37 (62%)
Government grant	15 (25%)
Medical school or university	13 (22%)
Other source, including medication donations	6 (10%)
Annual operating budget, \$ [†]	
Median	\$12,000
Lowest	\$500
Highest	\$95,000
Patients	
Race/ethnicity, percent (%) across all clinics [‡]	
Hispanic	31%
Black	31%
White	25%
Asian	11%
Native American/other	3%
Reasons for visits, percent (%) across all clinics [‡]	
Acute/emergent complaint	36%
Monitor chronic health problem	33%
Checkup/physical	18%
Regular receipt of particular medication	10%
Other	3%
Weekly clinic volume, mean (SD)	
Patients in contact with clinic [‡]	19 (±12)
Patients seeing a physician [‡]	15 (±10)
Returning patients [§]	9 (±12)

*59 clinics reporting.

[†]27 clinics reporting.

[‡]57 clinics reporting.

[§]52 clinics reporting.

shared their annual operating budgets. The mean annual budget was \$18,889 (SD±\$19,205). The median annual budget was \$12,000, ranging from \$500 to \$95,000.

Nationally, most clinics' patients were minority: 31% Hispanic, 31% Black/African American, 25% White, 11% Asian (57 clinics reporting, Table 1). All clinics served women (58/58, 100%) and most served men (57/58, 98%) and seniors (55/58, 95%). Fewer saw children (37/58, 64%). Doctor's visits most frequently tended to an acute or emergent complaint or monitored a chronic health problem. In a given week, the average clinic had 19 (SD±7) patient contacts, of which 15 (SD±10) patients were seen by the physician for treatment. Some patients encountering clinics did not see a doctor but rather may only have picked up vitamins or had their blood pressure read. Respondents noted that returning patients were 48% of the weekly patient population seeing a physician.

For issues beyond clinics' capacity for treating, most clinics referred patients to the emergency department (50/58, 85%) but many also used a local public health center (24/58, 41%), associated academic medical center (22/58, 38%), public hospital (22/58, 38%), or other locations like another community clinic (15/58, 26%). Student-run clinics frequently established standardized referral processes—using a clinic-associated program (12/58, 21%) or outside program (18/58, 31%)—to help patients obtain chronic, nonmental health care. Slightly fewer had such a process for mental health referrals (22/58, 38%). Most clinics had arrangements for laboratory work, on-site or elsewhere (81%).

Student-run clinics provided a variety of medical services and medications, described in Tables 2 and 3, respectively. A majority of clinics dispensed medications on site (46/58, 79%), and only a few clinics neither prescribed nor supplied medication (4/58, 7%). In the survey's comment section, several programs described charitable partnerships with pharmaceutical companies for obtaining low cost or free medications.

Table 2. Services offered by 58 medical student-run health clinics

Service	Clinics Providing Service, n (%)	Clinics Where Preclinical Medical Students Typically Perform Service, n (%)
Blood pressure	57 (98%)	50 (86%)
Acute care	56 (97%)	41 (71%)
Blood glucose	50 (86%)	35 (60%)
Referral to further health programs	50 (86%)	31 (53%)
Standard patient education	38 (66%)	27 (47%)
Condom distribution	37 (64%)	27 (47%)
Health form completion	37 (64%)	15 (26%)
Multivitamin distribution	32 (55%)	19 (33%)
Social services consult/referral	29 (50%)	13 (22%)
Cholesterol screening	28 (48%)	11 (19%)
Influenza vaccination	28 (48%)	11 (19%)
PPD reading	28 (48%)	10 (17%)
Non-flu vaccination	27 (47%)	12 (21%)
PPD testing	27 (47%)	18 (31%)
HIV testing	20 (34%)	10 (17%)
Dental supply distribution	18 (31%)	12 (21%)
Glaucoma screening	14 (24%)	7 (12%)
Surgical care	13 (24%)	3 (5%)
Sock distribution	13 (22%)	11 (19%)
Eye exam/glasses	12 (21%)	8 (14%)
Handicap parking assistance	7 (12%)	4 (7%)

Table 3. Medications offered by 58 medical student-run health clinics

Medication	Clinics Providing Medication, n (%)
Antibiotics	50 (86%)
Hypertension drugs	49 (84%)
Non-prescription analgesics	49 (84%)
Topical antibiotics, steroids, or creams	48 (84%)
Neurologic drugs	26 (45%)
Oral contraception	23 (40%)
Insulin	21 (36%)
Prescription-only analgesics	13 (20%)
Emergency contraception	5 (9%)
Other prescription drugs	49 (84%)

Education and Volunteerism

A variety of students and nonstudent professionals volunteer at student-run clinics; Table 4 highlights this diversity and volunteer characteristics. Among 59 respondents, the average clinic had 16 (SD±12) student volunteers weekly. One in five clinics involved students from multiple medical schools (11/58, 19%). All clinics had at least one faculty physician on site during operation.

Medical students' participation with these programs declined through progressive years but was still sustained (Table 4). Clinic leaders reported that on average, 39% (SD±25%) of their school's first year students had volunteered with a student-run clinic at least once in the past year, compared to 19% (SD±20%) of fourth years.

What do preclinical students learn at clinic? According to respondents, a majority of preclinical student volunteers first learned how to present a patient to a physician at 81% (47/58) of clinics. Other skills commonly first learned in this setting: testing blood glucose (40/58, 47%), administering injections (27/58, 47%), performing a physical exam (27/58, 47%), testing blood pressure (23/58, 40%), using a stethoscope (21/58, 36%), using a reflex hammer (20/58, 34%), taking a patient history (20/58, 34%), and using an oto-ophthalmo-

Table 4. Volunteerism at medical student-run health clinics

Student Participation*	Clinics
Weekly average volunteers, mean (SD)	16 (±12)
Clinics' student staff, n (%)	
Preclinical medical students	56 (95%)
Clinical medical students	49 (83%)
Health-related graduate students	22 (37%)
Undergraduate students	21 (35%)
Non-health related graduate students	8 (14%)
High school students	3 (5%)
Percentage of students volunteering, by class year, mean (SD)	
1st years:	39 (±25)
2nd years:	36 (±25)
3rd years:	22 (±25)
4th years:	19 (±20)
Clinics' non-student staff, n (%)†	
Faculty physician	58 (100%)
Non-faculty physician	28 (48%)
Nurse	15 (26%)
Social worker	12 (21%)
Pharmacist	7 (12%)
Other professional health worker	11 (19%)

*59 clinics reporting.

†58 clinics reporting.

scope (14/58, 24%). Asked to quantify who performs teaching at their program, 58 clinic leaders reported that most teaching was done by other students—on average, 33% by clinical medical students, 22% by preclinical students—and less by the attending physician (37%).

Clinic leaders described why students volunteer at their clinic. We dichotomized a 5-point Likert scale into “always” or “often a reason” for students to volunteer, versus “sometimes,” “rarely,” or “never a reason.” Respondents indicated that volunteers “always” or “often” sought to serve the poor (58/58, 100%), enjoy themselves (57/58, 98%), spend time with patients (56/58, 97%), and learn clinical skills (52/58, 90%). At fewer clinics were students interested in enhancing their resumes (13/58, 22%), spending time with friends (12/58, 21%), or responding to peer pressure (1/58, 2%). Earning class credit (9/58, 16%) or community service credit (7/58, 12%) were considered less popular reasons to volunteer, but 55% (32/58) of clinics indicated that students could receive such credit for participation.

DISCUSSION

Student-run health clinics are widespread among U.S. medical schools. This study provides the first census and description of these clinics, whose operation now involves thousands of students, tens of thousands of patients, and hundreds of thousands of dollars annually. Respondents reported nearly 37,000 annual patient visits at the student-run clinics described here. These clinics provide free access to a variety of services—including blood pressure screening, vaccinations, HIV testing, medications, laboratory work, and even minor surgical care—and provide low cost acute care and chronic case management.

In several ways, student-run clinics stand to play a unique role among safety net providers. Student-run clinics possess great operating flexibility—as demonstrated by a variety of nontraditional clinical sites including churches, homeless shelters, and mobile vans—potentially improving access to care for marginalized patient populations. For medical schools, student-run clinics represent an appealing academic–community partnership: clinics bridge the school with local community agencies, students have unique educational experiences, and patients receive low cost medical services. By operating in different, nontraditional settings, student-run clinics may appeal to patients in a way other providers do not. One school shared the story of their own clinic growing so large that it was later subsumed by their medical system, and we identified three clinics treating more than 50 patients a week. But even small clinics deliver valuable care and provide vital treatment options for patients.

Some have questioned the quality of care delivered by these clinics, given their limited resources, restricted operating times, and high turnover of students and physicians relative to traditional, professional clinics.²² The effectiveness of care likely depends on the individual clinic, and assessing patient outcomes lies beyond our methodology. Quality assessment here is more important in light of the high proportion of student-run clinic patients reported to consistently and repeatedly access care there. Our findings suggest that most student-run clinics do have the infrastructure to address many chronic and acute complaints, including hypertension, diabetes, and common infections. Most clinics also offer

laboratory services and a spectrum of medications, provisions (e.g., condoms), and referral services. Even as the verdict on quality of care is pending, student-run clinics provide free health care to highly vulnerable persons whose few sources of care are often overwhelmed by demand.

Clinic leaders described widespread involvement with these programs among medical students who volunteer for a variety of reasons. Most often taught by their peers, students learn many new skills in this setting, including taking patient histories and making presentations; indeed, the opportunity to learn such skills may motivate many students to volunteer. This study cannot assess the quality of clinical education in this setting or the adequacy of faculty oversight of teaching at these programs. Regardless, these extracurricular programs are clearly a common and potentially influential venue for students' acquisition of clinical skills and attitudes. Further study in this regard is warranted.

There are limitations to this study. While we provided a strict definition of student-run health clinics, the interpretation of that definition was left to study participants. It appears to us that this definition was strict yet not burdensome; we did not find a program considering itself to be a student-run health clinic that did not meet our inclusion criteria. Also, we achieved a good response rate (76%) from schools but had difficulty eliciting information from multiple clinics at the same school. Because survey respondents remained anonymous, we could not pursue further contact information for those clinics, and it appears our invitations were not always forwarded as requested, risking possible sample bias. Consequently and certainly, our study underestimates the frequency and patient volume of student-run clinics nationwide. Most respondents were medical student coordinators, whose perspective on their clinic's operation is subject to bias or inaccurate reporting. There are no other data on student-run clinics to which we can compare these reported findings, but we believe our methodology provides an accurate initial assessment of student-run clinic services and volume. Finally, our study excludes osteopathic medical schools and schools in U.S. territories.

Our findings demonstrate student-run clinics to be both significant educational programs and also an important health care service for many patients nationwide. Building on this work, future investigation should further elucidate these roles of medical student-run health clinics.

Acknowledgments: We would like to thank Erin Engelstad and Jon Morris MD, at PennMed's Office of Student Affairs for their helpfulness in contacting schools. More information about our research can be found online at <http://www.med.upenn.edu/studentrunclinics>.

Potential Financial Conflicts of Interest: None disclosed.

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