A Brief Communication Curriculum Improves Resident and Nurse Communication Skills and Patient Satisfaction

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BACKGROUND: Despite the ever-expanding role that the patient experience plays in healthcare, effective strategies proven to increase patient satisfaction ratings remain scarce. At the University of Pittsburgh Medical Center, we identified patient-doctor and patient-nurse communication as an area for intervention to improve suboptimal patient satisfaction among medicine inpatients. We posited that the likely reasons for underperformance in this area were a lack of adequate training in bedside communication skills.

DESIGN: We developed and evaluated a curriculum for medicine residents and nurses focused on clear communication at the bedside. A total of 76 internal medicine residents and 85 medical service nurses participated in 2016. The curriculum utilized didactics, video demonstrations, and role play, and was evaluated using pre- and post-surveys of participants' health literacy knowledge, attitudes, and confidence. Communication skills were evaluated using pre- and post-direct observation at the bedside with a communication skills checklist. Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) scores were compared 3 months before and after the curriculum to assess changes in patient satisfaction.

KEY RESULTS: Knowledge and attitudes improved significantly for both residents and nurses. Residents' and nurses' observed clinical communication skills improved significantly in most domains, and there was moderate increase in communication-specific HCAHPS scores.

CONCLUSION: A small investment of curricular time devoted to clear communication skills improved residents' and medical nurses' knowledge, attitudes, skills, and communication-specific HCAHPS scores. This curriculum, focused on improving bedside communication skills, could be implemented in a variety of settings to improve patient satisfaction and patient experience.

KEY WORDS: medical education; communication skills; health literacy; patient satisfaction; medical education–curriculum development/evaluation.

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INTRODUCTION

In an effort to continue to improve health outcomes for hospitalized patients, healthcare systems are looking to address multifactorial causes including health literacy,[1] patient communication,[2] and patient satisfaction.[3] Patient satisfaction scores in the inpatient setting are elicited using the HCAHPS survey, implemented by the Center for Medicare and Medicaid Services (CMS) in 2006,[4] and are increasingly impacting physician and hospital reimbursement. Although HCAHPS scores comprise 25 questions on patient perspectives from their inpatient care,[5] the doctor- and nursing-specific items are largely based on patient–provider communication. Effective physician–patient communication is imperative for maintaining therapeutic relationships, and patients value physicians who actively listen and provide clear plans of care.[6]

Among many barriers to communication, one particular barrier is health literacy. Only 12% of adults have proficient health literacy[7] and it is known that patients with limited health literacy have trouble understanding written medical information, communicating with healthcare providers, and implementing self-care instructions.[1,8] Additionally, both communication skills and an understanding of poor health literacy are required milestones for resident education[9] and communication skills are tested on the national nursing exam.[10] Though recent studies have shown that system-wide communication skills training for faculty physicians can combat poor health literacy and improve patient satisfaction scores,[11,12] these outcomes have not been studied in the resident and nurse populations.

As part of a division-wide effort to improve the patient experience, we noted that the general medicine service HCAHPS scores for both our doctors' and nurses' communication had room for improvement, particularly on the item, "During this hospital stay, how often did doctors (nurses) explain things in a way you could understand?" Based on

informal observations of bedside interactions during a needs assessment phase, we posited that reasons for this were lack of adequate training in bedside communication skills as well as difficulty recognizing low health literacy among inpatients. Therefore, we designed and implemented a curriculum for internal medicine resident physicians and floor nurses focusing on clear communication, with the aim of improving their knowledge and attitudes toward health literacy, their bedside communication skills with patients, and our inpatient communication-specific patient satisfaction scores.

METHODS

Study Design

A pre-/post-study design was used to assess the effectiveness of the curriculum through surveys, direct observation of bedside rounds and discharges, and communication-specific HCAHPS data.

Setting and Participants

The study took place over a 7-month period from March to September 2016, with the intervention occurring in June, at the University of Pittsburgh Medical Center Presbyterian/Shadyside Hospital(s), a large, academic, urban medical center. All 112 internal medicine and medicine-pediatric postgraduate year 2 (PGY-2), PGY-3, and PGY-4 residents and all 120 nurses who work on the general medicine wards were asked to participate.

Curriculum Development and Implementation

The curriculum, available online,[13] was developed by a multidisciplinary group of communication experts and clinician educators and was based on key principles from the health literacy and patient experiences literature.[14–16] The curriculum began with a brief PowerPoint didactic focused on clear health communication skills including the "teach-back method,"[17–19] avoiding medical jargon, giving only 1 to 3 key points at a time,[15] and utilizing the phrase, "what questions do you have?" when eliciting questions from patients.[20,21] Professionally produced video demonstrations of bedside rounding and discharge communication each included a "bad" version and a "better" version. Each "better" video demonstrated key health literacy communication techniques.

The curriculum for the residents was delivered in a 2-h workshop. After the didactic presentation, residents broke into small groups, facilitated by a faculty member, to view and discuss the videos. A debrief included discussing what skills they observed, what could have gone better, and what went well as well as role-playing skills in the video. The workshop was given on two consecutive weeks to accommodate schedules but the facilitators were the same for both workshops.

The curriculum for the medicine service nurses was delivered by a single nurse educator in a 1-h workshop format, due to job-related time constraints. The didactic presentation was identical to the residents', but the nurses' workshop included 2 videos, depicting the discharge process, as well as a facilitated group discussion. There were 10 identical sessions offered over a 1-month period to accommodate work schedules. All participants, residents, and nurses received the curriculum once.

Curriculum Evaluation

Resident and Nurse Knowledge, Attitudes, and Confidence. We evaluated the change in attitudes, knowledge, and confidence in both residents and nurses by administering surveys just before and immediately after the workshops. Knowledge was measured as total number correct out of 7 on a multiple-choice question quiz that was developed based on health literacy best practices.[1,7,21] The attitude-related items pertaining to the importance of communication and patient satisfaction were measured using a 5-point Likert type scale where 1 = not important and 5 = very important. Confidence in the ability to translate medical information into nonmedical terms was also measured with a Likert-type scale where 1 = not at all confident and 5 = very confident.

Resident and Nurse Communication Skills. Standardized checklists were developed by the authors using previously published quantifiable health communication techniques,[16,22,23] and scored the performance of residents' and nurses' communication skills in real time. Face and content validity were determined by a group of clinicians and nursing educators, as well as local communication experts. Skills assessed include those listed in Table 2. The total time for each encounter was also recorded. Data was collected and managed using REDCap electronic data capture tools hosted at the University of Pittsburgh.[24]

Eight chief residents and five volunteer nurse observers were trained to perform the study observations. To ensure grading consistency, each observer scored a series of 6 prerecorded bedside encounters using the standardized checklist and met to discuss discrepancies with each other and the study investigators until consensus was reached. As the chief residents changed in June 2016, the process was repeated with the new group. The new group's scoring was similar to that of the previous group of chiefs, and thus, a formal assessment of inter-group reliability was not performed.

To assess resident communication skills, chief residents observed resident-led morning bedside rounds across 5 units at 2 hospitals for 3 months before and 3 months after curricular implementation. As it is expected to have chief residents observe rounds, it was not seen as unusual to the residents and thus the concern for a "Hawthorne effect"[25] was minimal. Each senior resident was observed for two rounding sessions per month, which were selected at random based on observer availability. At our institution, the senior resident leads bedside

rounds and is tasked with communicating medical information to the patient. The assignment of the residents to specific inpatient teams is arbitrary, as are patient room assignments. Patient encounters were excluded from the study if the patient was unable to communicate with the team (and did not have a family member present to communicate for them), or if the patient was not in the room at the time of rounds. Since the decision about which resident is on the inpatient medicine service at a given time is also random, the same residents were not necessarily observed in both the pre- and post-periods. Nurse raters observed 30 discharges per unit on 5 medicine nursing units across 2 hospitals for 3 months pre- and 3 months post curriculum. Nurse assignments to specific units are relatively stable, resulting in many of the same nurses being observed in both the pre- and post-periods.

Patient Satisfaction. HCAHPS data were collected from patients discharged from our medicine services over a 6-month period. In our hospital system, all of patients who are discharged to home receive a survey. For our primary patient-level outcome, we compared the percentage of "top-box" scores on 6 communication-specific items between 3 months pre- and 3 months post-curriculum. As a secondary outcome, we also compared "top-box" scores in the same time periods for 2 additional items that relate to patients' understanding of their medical care after leaving the hospital. "Top-box" refers to the answer choice "Always" in response to questions regarding frequency. The same HCAHPS data were also collected from surgical services staffed by surgical residents and surgical nurses (who did not participate in the curriculum) during the same period to serve as a comparison group.

Statistical Analysis. Knowledge, attitudes, and confidence of the medicine residents and nurses from matched pre- and post-surveys were analyzed using a Wilcoxon signed-rank test since the data were skewed. We used chi-squared tests, and Fisher's exact tests when we had limited responses, to determine the difference between the pre- and post-communication skills checklist scores, which were unmatched. Chi-squared tests were also used to analyze the HCAHPS pre- and post-data. All statistical analyses were performed using Stata 15 (StataCorp LLC, College Station, TX). The study was approved by the University of Pittsburgh's Quality Improvement (QI) Committee and was exempt from review by the University of Pittsburgh Institutional Review Board.

RESULTS

A total of 76 out of 112 medicine residents (participation rate 68%) and 85 out of 120 medical nurses (participation rate 71%) attended a workshop. Seventy-two (96%) residents and 85 (100%) nurses who attended completed both pre- and post-surveys.

Demographics

The mean age of resident participants was 29 and 60% were females. A total of 73% indicated they had prior instruction in bedside communication skills. The mean age of nurses was 33 and 89% were women. A total of 60% had been a nurse for 1 to 3 years; 14% had been nurses for > 15 years. A total of 48% of nurses reported previous instruction in bedside communication.

Knowledge and Attitudes

Knowledge scores and attitudes improved significantly for both groups ($P < 0.001$). While confidence in the ability to translate medical information into nonmedical terms improved among nurses ($P < 0.0001$), it did not change among residents ($P = 0.575$) (Table 1).

Table 1 Resident and Nurse Attitudes, Confidence, and Knowledge from Pre- and Post-Curriculum Surveys ($n = 72$ Residents, $n = 85$ Nurses)

	Residents			Nurses		
	Pre	Post	*P* value	Pre	Post	*P* value
Importance*						
Translating medical information into nonmedical terms for patient care	4.6	4.8	0.0001	4.7	4.9	< 0.0001
Translating medical information into nonmedical terms for patient satisfaction	4.5	4.8	< 0.0001	4.7	4.9	< 0.0001
Asking "What questions do you have"	4.8	4.9	< 0.0001	4.8	4.9	< 0.0001
Asking bedside nurse to add to presentation	4.4	4.6	0.0009	–	–	–
Introducing yourself and team by name and role	4.1	4.6	< 0.0001	–	–	–
Using the "teach-back" method to confirm understanding	–	–	–	4.4	4.8	< 0.0001
Reviewing changes to medications at discharge	–	–	–	4.7	4.9	< 0.0001
Confidence†	4.3	4.3	0.575	3.9	4.6	< 0.0001
Knowledge‡	71%	86%	< 0.001	56%	83%	< 0.001

**Importance rated 1 = not at all important to 5 = very important on a 5-point Likert-type scale*

†Confidence rated by the question, "How confident are you in your ability to translate medical information into nonmedical terms?" Rating 1 = not at all confident to 5 = very confident on a 5-point Likert-type scale

‡Knowledge score is mean correct on a 7-question quiz assessing the fundamentals of health literacy

Communication Skills

Resident communication skills were measured by comparing 205 pre- and 168 post-training observations of bedside rounds using the standardized checklist over a 6-month period (Table 2). Nurse communication skills were measured by comparing 150 pre- and 152 post-training observations of discharges. Most skills improved significantly. The time of the bedside encounters before and after the curriculum were similar: for residents, encounters averaged 9.6 min pre and 8.4 min post; and for nurses, encounters averaged 7.8 min pre and 8.7 min post.

HCAHPS Scores

There was a total of 200 pre- and 222 post-HCAHPS surveys collected from discharged patients from the resident-run medicine units during the study period. This represents a 23% response rate which is similar to the national average.[26] The percentage of all "top-box" scores on doctor- and nurse-related communication items increased in the post-curricular period (Table 3). During the same time periods, comparison HCAHPS scores from the resident-run surgical units improved on only 1 of 8 items; for the remaining 7 items, scores either remained stable or worsened (Fig. 1).

Table 3 HCAHPS Scores for Specific Items from Pre- ($N = 200$) and Post-Curricular ($N = 222$) HCAHPS Surveys from Medicine Floor Patients at Discharge Before and After the Curriculum

HCAHPS item	Pre*	Post*
Doctors explained things in a way you could understand	63	70
Doctors listened carefully to you	66	77
Doctors treated you with courtesy/respect	80	84
Overall communication with doctors	70	77
Nurses explained things in a way you could understand	59	73
Nurses listened carefully to you	60	72
Nurses treated you with courtesy/respect	74	80
Overall communication with nurses	65	75
When I left the hospital, I had a good understanding of the things I was responsible for in managing my health.	39^	51^
When I left the hospital, I clearly understood the purpose for taking each of my medications.	49^	58^

HCAHPS Hospital Consumer Assessment of Healthcare Providers and Systems
**Pre- and post-percentages are "top-box" scores, which correlate to the answer choice, "Always," on the HCAHPS survey (the other answer choices are "Sometimes," "Usually," and "Never")*
^Pre- and post-percentages are "top-box" scores, which correlate to the answer choice "Strongly Agree," on the HCAHPS survey (the other answer choices are "Agree," Disagree," and "Strongly disagree")

DISCUSSION

Our study demonstrates that a single brief curricular intervention focusing on clear communication and health literacy techniques can improve providers' knowledge, attitudes, and communication skills, and can increase patient satisfaction scores. This is the first study to our knowledge to demonstrate objective improvement in both communication skills and a positive impact on HCAHPS scores after communication skills training for both nurses and physicians. Notably, the length of bedside encounters was similar for pre- and post-observations, lessening the concern that clear communication and ensuring patient understanding add time at the bedside.

Knowledge, attitudes, and communication skills improved significantly for residents. The residents' confidence did not change significantly, though it started much higher than the nurses'. It is likely that despite the increased reporting of prior training, the residents noted confidence out of proportion to competence, as evidenced by suboptimal performance on the pre-curriculum direct observation. This disproportional reporting is consistent with a well-known phenomenon, the Dunning-Kruger effect,[27,28] and underscores the need for both high-yield curricula and reinforcement of skills throughout training. The overall attitudinal changes, though significant, were small, but were likely related to the ceiling effect of Likert-type scales. Residents' communication skills improved on 3 of the 4 main items observed. Residents did not improve in asking the nurses to contribute to bedside rounds. At our institution, interprofessional rounds consisting of the team of physicians, the bedside nurse, and the case manager are an expectation, though patient care needs can prevent this from occurring. Although observation data indicates nurses were present for rounds 62% of the time, we did not collect data on the reasons why nurses were not asked for updates.

The nurses' knowledge, attitudes, and confidence all increased significantly after participation in the curriculum.

Table 2 Specific Communication Skills Performed by Resident Physicians During Bedside Rounds Before ($N = 205$ Observations) and After ($N = 168$ Observations), and by Bedside Nurses During the Discharge Process Before ($N = 150$) and After ($N = 152$) the Implementation of the Curriculum

Communication skill	Residents			Nurses		
	Pre*	Post*	*P* value	Pre*	Post*	*P* value
The presenter and his/her title was introduced to the patient	49	67	0.001	–	–	–
The medical information was conveyed to the patient in plain non-medical language	89	96	0.02	99	99	1.00
The provider used the phrase "what questions do you have?"	16	59	.0001	6	36	< 0.0001
Nurse was asked for updates or contributed voluntarily	48	49	0.84	–	–	–
Used the "teach-back" method	–	–	–	4	22	< 0.0001
Nurse explained indication for new meds	–	–	–	44	50	0.24
Ensured complete patient understanding	–	–	–	27	64	< 0.0001

**Pre- and post-numbers represent percentage of time the skill was done throughout all observations*

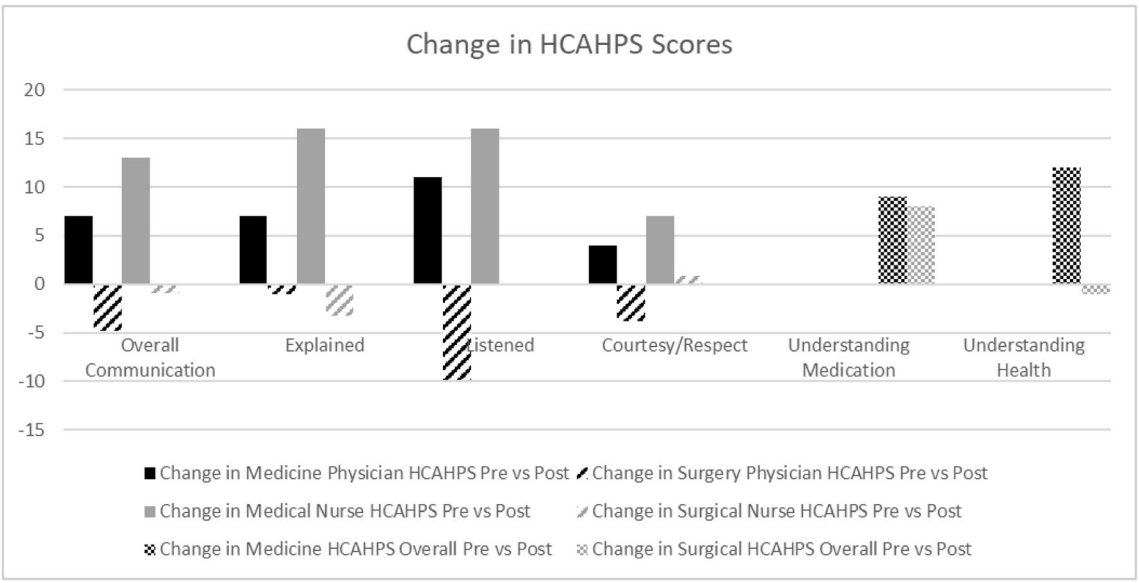

Figure 1 Percentage change in pre-intervention time period vs post-intervention time period "top-box" HCAHPS scores in physician and nurse communication (corresponding to answer choice of "Always") from patients discharged from medical (intervention participants) and surgical (non-participants) wards. "Overall communication" represents the average of the top-box HCAHPS scores for the doctor- and nurse-specific communication HCAHPS questions. "Explained" represents the HCAHPS item, "Your doctor/nurse explained things to you in a way you could understand." "Listened" represents the HCAHPS item, "Your doctor/nurse listened carefully to you." "Courtesy and Respect" represents the HCAHPS item, "Your doctor/nurse treated you with courtesy and respect." "Understanding Medication" represents the HCAHPS item, "When I left the hospital, I clearly understood the purpose for taking each of my medications." "Understanding Health" represents the HCAHPS item, "When I left the hospital, I had a good understanding of the things I was responsible for in managing my health."

Nurse communication skills improved significantly in 3 of 5 domains. The item, "the nurses used plain medical language," remained high at 99% for both pre- and post-curricular encounters, but nurses did not improve significantly in their likelihood of reporting the indication for new medications at the time of discharge, performing this skill only half the time. This observation was consistent with patient satisfaction scores on the item "When I left the hospital, I clearly understood the purpose for taking each of my medications." This identifies a need for additional training of both nurses and physicians that focuses specifically on the importance of discussing medication indications with their patients prior to discharge.

Patient satisfaction scores increased to a greater extent on the nurse-specific HCAHPS items than on the doctor-specific items. Because the majority of nurses whom the patients encountered during their stay were trained by our curriculum, the HCAHPS scores for the nursing communication items are likely a direct representation of the skills demonstrated by our study participants. In contrast, patients see multiple doctors during their inpatient stay, including consultants who were not trained by the curriculum, making the physician-specific HCAHPS more difficult to directly tie to our curriculum. Previous studies[29,30] have struggled to show clear HCAHPS improvement with communication training, lending credence to the difficulty in improving this outcome. Overall, the increase in the scores is likely "clinically" significant from the patient experience perspective: as noted previously, the national average for increase in all HCAHPS scores was 3.1% in 2012.[12]

Further evidence of the impact this curriculum had on patient satisfaction was demonstrated by comparing medicine unit data to surgical unit data from the same time period. Medicine unit scores all increased, while surgery scores remained stable or decreased, with the exception of scores for the item "When I left the hospital, I clearly understood the purpose for taking each of my medications" which increased for both medicine and surgical units. From this, we conclude that the increase in medicine HCAHPS scores is likely to be related to our intervention than to an institutional change. When comparing top-box scores from medicine services to those from surgical services, we used the difference in top-box score, rather than the raw percentages because industry data and literature show that surgical units universally have higher overall patient satisfaction scores than medicine units.[31–33]

There are strengths of our study worth outlining, including the use of direct observation of communication skills, as this is a stronger indicator of assimilation of the curriculum and is a more relevant outcome than self-reported attitudes and knowledge alone.[27] Additionally, the large number of observations ($N = 675$) covering 5 units at 2 different hospitals makes it much more likely that the intervention itself was the reason for the improvements seen, rather than any unmeasured unit-specific or hospital-wide intervention. The surgical HCAHPS data also adds strength to that argument. There is also little concern that the improvement in skills is an effect of maturation as the post-intervention session began in July, when all PGY-2 residents are assuming the role of senior resident for the first time. Another strength of our study was its use of

HCAHPS scores to measure patient satisfaction with their doctors and nurses, since it is a validated and widely used metric. This outcome measure, as well as the low cost and time associated with our curriculum, significantly contributes to the applicability of our study.

There are limitations to this study. First, it was completed at a single large academic medical center. Second, our institution is unique in that senior residents rather than attending physicians lead bedside rounds on the general medicine services. Whether the intervention would result in similarly robust outcomes if aimed at attending physicians, who may have more established communication habits, is unknown. Third, while care was taken to minimize subjectivity in the design and execution of direct observation checklists, there may have been bias among raters given that they could not be blinded to the time period during which they were rating (i.e., pre- vs post-curriculum) since they were performing evaluations in real time. Fourth, the residents and chief residents were not the same for the pre- and post-observation period, due to the timing of the study. Finally, our surveys and evaluation checklists were not previously validated, though they did build from others' work.

Our results demonstrate a significant improvement in medicine residents' and medical nurses' knowledge, attitudes, and communication skills, as well as a notable increase in patient satisfaction scores after implementation of a brief training session focused on clear communication skills at the bedside. Future studies, including those focused on more experienced physicians and with greater attention toward sustainability of the intervention, can assess the longer term and full-scale impact of this training. This low-resource curriculum centered on health literacy and the patient experience could also be targeted at almost any healthcare provider, and thus has the potential to impact the patient experience in both inpatient and outpatient settings in a myriad of medical subspecialties.

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Compliance with Ethical Standards:

The study was approved by the University of Pittsburgh's Quality Improvement (QI) Committee and was exempt from review by the University of Pittsburgh Institutional Review Board.

Conflict of Interest: *The authors declare that they do not have a conflict of interest.*

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