Wild DMG[1], Via C,[1] D'souza SAM[1], Woddor N[1], Petraro P[1], Fortin AH VI[2], Gnanaraj J[1], Vance W[3],Nawaz H[1]:

Teaching Residents to Put Patients First: Creation and Evaluation of A Comprehensive Curriculum in Patient-centered Care

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Conflict of interest

Affiliations: [1] Griffin Hospital, 130 Division Street, Derby CT 06418
[2] Yale University School of Medicine, New Haven, CT
[3] Yale University, New Haven, CT

Corresponding author: Please address all questions or comments to Dorothea Wild, dwild@griffinhealth.org

Abstract

Background: Patient-centered care and communication is an essential skill for physicians for successful patient encounters and positive patient outcomes. ACGME guidelines stipulate communication skills as an essential competency for residents. However, many residents, especially international medical graduates, continue to struggle with communication barriers.

Objective: To develop and evaluate a comprehensive curriculum in patient-centered communication for an internal medicine residency program.

Methods: All residents and faculty from a small community teaching hospital in the North-East participated in a three-year multi-dimensional communication training with lectures, experiential learning, exercises, skills practice, and reflection in the areas of linguistics, physician-patient communication, and culturally and linguistically appropriate care. Patient-centered communication improvement was evaluated through a multipronged outcomes assessment including self-assessment, scores on Calgary-Cambridge Scale scores during Objective Structured Clinical Examination (OSCE), changes on the hidden curriculum survey, English Communication Assessment Profile (E-CAP), changes in the physician component of HCHAPS, Maslach Burnout-Inventory, and resident-evaluated faculty communication and patient-centered care skills.

Results: 62 residents and ten faculty members completed the three year curriculum.
Of the six evaluation methods we employed, the OSCE, E-CAP, and faculty skills results demonstrated statistically significant communication skills improvement over the course of the curriculum. The average Calgary-Cambridge Scale scores during OSCE improved from 70% at baseline to 78% at follow-up (p-value <0.001). The average E-CAP score improved from 73% to 77% (p-value <0.001). Of the six teaching domains of faculty skills, learning climate (p<0.001), patient centered care (p=0.01), evaluation (p=0.03), and self-directed learning (p=0.03) significantly improved.

Discussion: Implementing a multi-dimensional curriculum in patient-centered communication successfully led to a modest improvement in patient-centered patient encounters, improved language skills, and better role modeling by faculty.

Introduction

Skilled and patient-centered communication is an ethical imperative for physicians,[i] associated with improved patient outcomes,[ii] and one of the ACGME core competencies.[iii] The residency period is uniquely suitable for longitudinal, extended communication training in which skills can be developed and integrated.[iv] Several multi-modal curricula to improve residents' communication have been developed and tested previously. [v,vi,vii] Such curricula increase patient and resident satisfaction,[viii] as well as improve patient outcomes.[ix] However, these curricula only address residents' direct communication skills. Residents' communication does not occur in a vacuum, and for maximum impact, other dimensions need to be taken into account. For example, organizational variables such as the "hidden curriculum" determine greatly which behaviors residents adopt permanently, and which behaviors they consider acceptable.[x,xi] Also, many residents – and particularly many international medical graduates[xii]- struggle with micro-level communication barriers because of foreign accent, suboptimal information sequencing, and stilted language. Therefore, durable change of residents' communication may be improved by linguistic training, and enhanced by addressing faculty development and role modeling.[xiii] Furthermore, the evaluation of residents' communication should be guided by direct observation, similar to other procedural skills.[xiv] We therefore designed and evaluated a multi-modal, multidimensional comprehensive curriculum of patient-centered care. We integrated a broad range of approaches to improve communication: linguistic, physician-patient communication, culturally and linguistically appropriate care, and introduced direct observation at multiple points of the curriculum.

Aim:

Our aim was to evaluate a) the feasibility of such a multi-modality patient centered communication program, b) its impact on residents' professionalism, self-assessed communication skills, externally assessed communication skills and c) its impact on the hidden curriculum of the organization.

Methods

Setting and Participants

The Griffin Hospital residency programs are hosted by Griffin Hospital, a 140 bed, academic community hospital in southern CT. The residency programs are an internal medicine program (12 residents), a preliminary year program (9 residents), and a combined internal medicine/preventive medicine program (12 residents). The teaching program admits approximately 4,000 patients/year, of which 12.5% are Medicaid, self-pay, or uninsured. The IRB at our institution reviewed this study and considered it exempt. This curriculum was supported through a primary care training grant from HRSA.

Program Description

Beginning in 2010, we restructured our curriculum to include educational activities focusing on clear speaking, content and structure of patient-centered communication, culturally and linguistically appropriate care, and professionalism. An overview of the curricular content, methods, time spent, and evaluation method is given in Table 1.

The curriculum was implemented from 2010-2012, and funded by a training grant of the Health Resources and Service Administration. Each educational domain was taught through curricular activities with an experiential component (direct observation of patient interactions, skills exercise or review of videotaped patient encounters), mostly workshops or lectures. The clear speaking program begins with a comprehensive baseline skills assessment that provides each participant with metrics and a detailed analysis of his/her spoken language competencies. The program then boosts participants' skills through a workshop series

addressing *communication strategy* (arranging ideas, simplifying complex information, cohesiveness, barriers to understanding); *vocal image* (thought groups, intonation and emphasis, speed control); *adjusting language intensity* (responding to ideas, framing positions, diplomacy, explaining bad news); *choosing the right words* (using a doctor's essential words, setting an appropriate tone, changing words for patients and colleagues); *accent improvement* (use of rhythm, word stress patterns, vowel and consonant accuracy). The curricular content on patient-centered communication followed a previously published format. (FORTIN REF: Fortin AH, VI, Dwamena F, Frankel R, Smith RC. Smith's Evidence-Based Interviewing: An Evidence-Based Method. Third ed. New York: McGraw-Hill; 2012 (this is a repeat from before!)).

Culturally and linguistically appropriate care was taught through monthly lecture series as well as a 4-day rotation that was integrated into a 2-week quality improvement rotation. This rotation featured web-based teaching of a standard health literacy curriculum.[xv] In addition, the rotation supervisor reviewed video-taped patient encounters with resident to identify personal strengths and weaknesses and areas for improvement in engaging patients with low health literacy.

Residents also assessed the reading level of a patient education form, and rewrote the form to a more appropriate level. Residents presented the rewritten form at the hospital's Patient-centered Care Improvement Committee at the end of the rotation. Monthly reflective sessions for residents were performed by a pastoral care expert, who invited residents to reflect on ethical dilemmas and their personal experiences with difficult patients or colleagues.

In addition to direct resident teaching, and because of the importance of role-modeling, we also developed and implement a faculty development program. This program involved weekly meetings of the teaching faculty to improve morale and team cohesion. In addition, we arranged for monthly sessions with an outside facilitator to cover practicing and teaching patient-centered care.

Program Evaluation

Each component had at least one evaluation instrument. All statistical analyses were performed with SAS 9.2 (SAS Institute Inc., Cary, NC).

English Communication Assessment Profile

Linguistic ability was measured with the English Communication Assessment Profile (E-CAP®). This score is based on a sample of each residents' communication that is evaulated with a hybrid rating system employing both speech analysis software and trained rater evaluation. Each test, in which the residents' responses were recorded through a web-based testing platform, presents a selection of 15 questions requiring a variety of communication tasks, from simple descriptions to scenarios needing complex responses.[xvi] Responses are compared to standard benchmarks in more than seventy-five separate areas for indicators of communication competency. The E-CAP® measures language ability, communication strategy, organization of information, diplomacy, and other factors essential for effective patient interaction. A score of 70 is viewed as the minimum threshold for effectiveness. Changes in E-CAP® score results were assessed at the beginning and end of the one year training program and were analyzed with a paired t-test.

OSCE

We evaluated actual communication behavior of residents and faculty with Objective Structured Clinical Examinations (OSCE's). OSCE's were held twice per year with two to three communication stations per OSCE. To benchmark OSCE performance, we asked each

faculty member to participate in the OSCE before it was offered to residents. Residents had two minutes to read the scenario. Then, they interacted with a standardized patient and were video-taped for six minutes. At the end of the station, the patient spoke for one minute into the camera giving feedback for the resident. Each OSCE was later played back for the resident with a faculty member present. These OSCE's were rated by two independent raters according to a modified Calgary-Cambridge rating score.[xvii] Our modified Calgary-Cambridge rating score assigns between zero to two points for 21 observable behaviors. The OSCE score for each resident was calculated by dividing the percentage of points achieved over the total points possible and expressed as a percentage. Scores of residents over the three-year curriculum were analyzed with a mixed effects regression model. We used the following metrics as independent variables: residents' PGY-level, gender, residency program, medical school location (International medical graduate vs. US medical graduate), and timing of the OSCE (fall vs. spring). Since some residents had done more OSCEs than others (due to scheduling constraints), we also controlled for how many OSCEs a resident had completed. The final model included the variables year (the variable of interest), the timing of the OSCE, PGY-level, and how many OSCEs a resident had completed. The resulting score was the dependent variable. In addition to evaluating patient-centered communication, four of the OSCE sessions conducted focused on health literacy (one in 2009, one in 2010, and two in 2011).

HCAHPS

Patient assessments were taken from the Hospital Consumer Assessment of Health Providers and Systems (HCAHPS).[xviii] Scores were retrieved for all patients on the medical units from the hospital's database because it was not feasible to include only patients admitted to the teaching service. However, in our institution, less than 5% of medical admissions are non-teaching. HCHAPS scores were compared for the academic years of 2009-2010, 2010-2011, 2011-2012, and 2012-2013 using ANOVA analysis.

Maslach Burnout Inventory

Residents' degree of professional efficacy, exhaustion, and cynicism was assessed by using the Maslach Burnout Inventory (MBI).[xix] The MBI contains 16 questions that are divided into three subscales. The questions explore personal feelings or attitudes, and participants choose the frequency at which they experience these feelings using a 7-point scale. [xx] Before and after scores on the Maslach Burnout Inventory were compared using t-test.

Hidden Curriculum

To evaluate organizational culture, we used a validated hidden curriculum survey,[xxi] which assesses the degree to which "normal" everyday encounters were patient-centered. We used a modified version of the Communication, Curriculum, and Culture (C^3) Instrument to explore role modeling, students' experiences, and support for students' patient-centered behaviors by faculty, advanced residents, and interns. Before and after scores for each group were measured by t-test.

Faculty Development

Faculty teaching skills were assessed through resident surveys. The survey contained 6 teaching domains; learning climate, communication of goals, patient centered care, evaluation, feedback, and self-directed learning. Residents were asked to evaluate faculty on a Likert scale of 1-5 (1='strongly agree' being most positive to 5='strongly disagree' being most negative.) An average score was calculated for each objective per faculty member in 2010 and again in 2013. Changes in average objective score between 2010 and 2013 were analyzed using t-test.

Results
Results of our analysis are summarized in Table 2.

E-CAP
A total of 31 residents completed baseline and follow-up E-CAP tests in 2011 (response rate=100%). Only incoming residents (15) completed the program in 2012 (response rate=94%). The average E-CAP score improved significantly from 73.4% at baseline to 77.4% at follow-up (p-value of <0.001.) (see table 2).

OSCE
Each year, an OSCE was completed at intern orientation, in the fall and again in the spring of each academic year, with the first OSCE completed in December 2009 and the latest OSCE completed in December of 2012, for a total of 11 OSCE sessions. A total of 61 residents participated in at least one OSCE (response rate 98%), 42 participated in two, 14 participated in 3, 7 participated in 4, and 1 person completed 6 OSCEs during their time in the program. The residents' average score for 2009 was 70.1%, for 2010 it was 72.7%, for 2011 it was 78.6% and for 2012 it was 77.6% (p-value of <0.001.) (see figure 1).

For the subset of health literacy OSCE's, the residents' scores improved over the three years. In 2009, 12 residents participated with an average score of 62.7%. In 2010, 12 residents participated with an average score of 68.5%. In 2011, 21 residents participated with an average score of 71.6% (p-value of 0.08) (see figure 2).

HCAHPS
Average hospital HCAHPS score fluctuated throughout the three years of the program without any discernible trend. (p=0.1) See Table 2.

MBI
The MBI survey showed no significant change from the beginning of the program to the end in all three domains, professional efficacy, exhaustion, and cynicism. Exhaustion and cynicism was high at baseline and remained high throughout the program. Professional efficacy remained at moderate levels throughout the program. See Table 2.

Faculty Teaching Skills
In 2010, a total of 17 residents (response rate=57%) evaluated 10 faculty members using the Faculty Teaching Skills Survey. In 2013, 28 residents (response rate=85%) evaluated 9 faculty members using the same survey. Of the 6 teaching domains, learning climate (p<0.001), patient centered care (p=0.01), evaluation (p=0.03), and self-directed learning (p=0.03) improved significantly (see table 2).

Hidden Curriculum
The baseline hidden curriculum survey was administered in 2010 and a follow-up survey in 2013. In 2010, 22 residents completed the survey (response rate=71%) and the average score was 59.6%. In 2013, 20 residents completed the survey (response rate=60.6%) and the average score was 62.2%. While the average score improved from baseline to follow-up, the improvement was not statistically significant (see table 2).

Informal evaluation by residents
Residents evaluated some components of the curriculum much more positively than others. They seemed to value training especially highly if it was individualized to their

communication, like the linguistics training and the feedback from the standardized patients. The health literacy rotation was well received. Residents were able to complete the web-based curricula on their own time schedule, and revised multiple patient education materials based on an assessment of reading level and patient feedback. Residents particularly valued presenting their revised pathways at hospital committees to a wider audience.

Discussion

We developed and implemented a multi-dimensional three-year curriculum on patient centered communication to enhance patient-centered care. Out of the five program evaluation measures, OSCE, E-CAP, and Faculty Skills Survey indicated statistically significant improvement. Our approach shared methods with previously published curricula of patient-centered communication, which include experiential learning, skill-based learning, and fostering of learner self-reflection.[xxii]   However, our curricula included enhanced communication training in linguistics and clear speaking. We are not aware of any other curricula integrating linguistic feedback to residents.

The residents' appreciation of feedback directly from the standardized patient was surprising to us, although the appreciation of giving narrative feedback to students in OSCEs has been described.[xxiii] Contrary to our expectations, residents' self-assessed professionalism on the Maslach-Burnout Inventory did not improve. This may have been due to our small sample size. Alternatively, residents' may have become more self-critical about their own professionalism over the course of the program, as residents became more sensitized to their own communication behavior. Similar changes have been described for faculty development self-assessments. [xxiv,xxv]

We believe our study had several strengths. We combined multiple domains of communication with multiple outcome measures that were based on actual communication behavior, and implemented a curriculum spanning three years. We used standardized evaluation methods and included the perspective of patients, residents, and faculty. We also assessed and addressed the hidden curriculum at our institution. However, our study should also be interpreted in light of its weaknesses. As many other curricular studies, we had no control group and used a before and after assessment of changes. We were not able to obtain feedback from patients specific to each resident, since HCHAPS scores from hospitalized patients assess all physicians' communication. Further research about the impact of this curriculum on patient outcomes, and how lasting the change is, are necessary.

Challenges/Lessons learned

Overall, we were able to implement the curriculum as planned. We faced some logistic challenges to ensure participation of most residents with the OSCE's, since we had to account for night shift rotations and vacations. The logistics of securing patient tapes and patient assessments of residents were particularly challenging. We had planned to collect both at our residents' clinic, but were not able to collect a sufficient number of surveys. Therefore, we had to use the hospital patients' data, which did not allow us to formulate patient ratings for each individual resident

In conclusion, our study shows that implementing a longitudinal, multi-dimensional curriculum is feasible and associated with modest improvement in residents' actual communication skills. We hope our curriculum can serve as a model for integrating skills-based learning and assessment of observable behavior into other residency programs.

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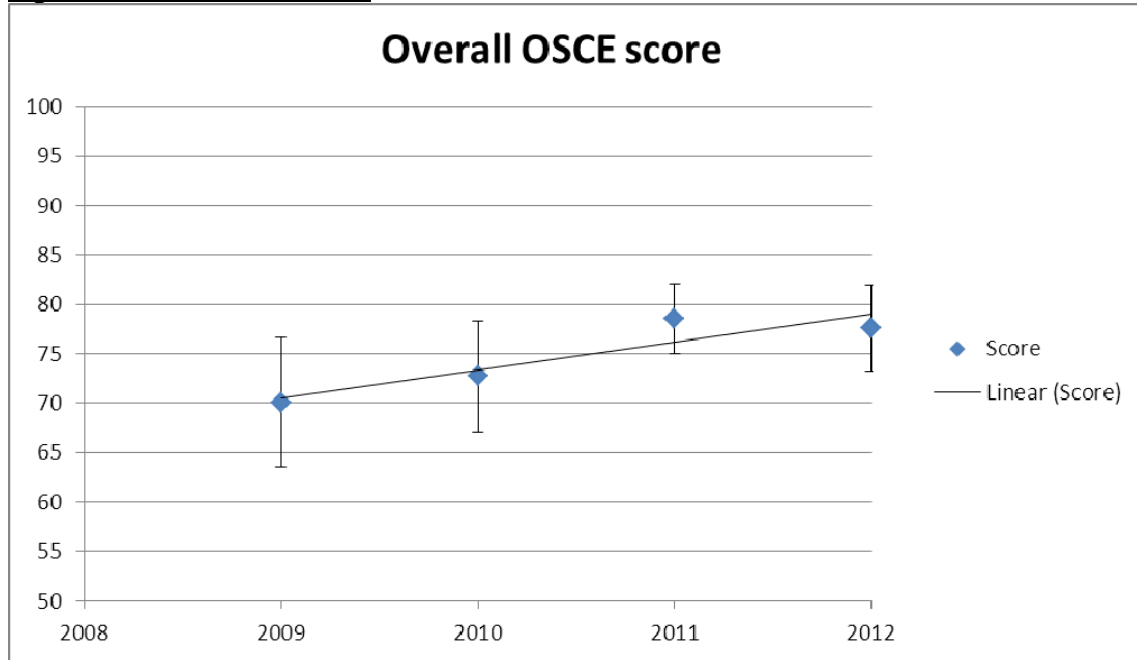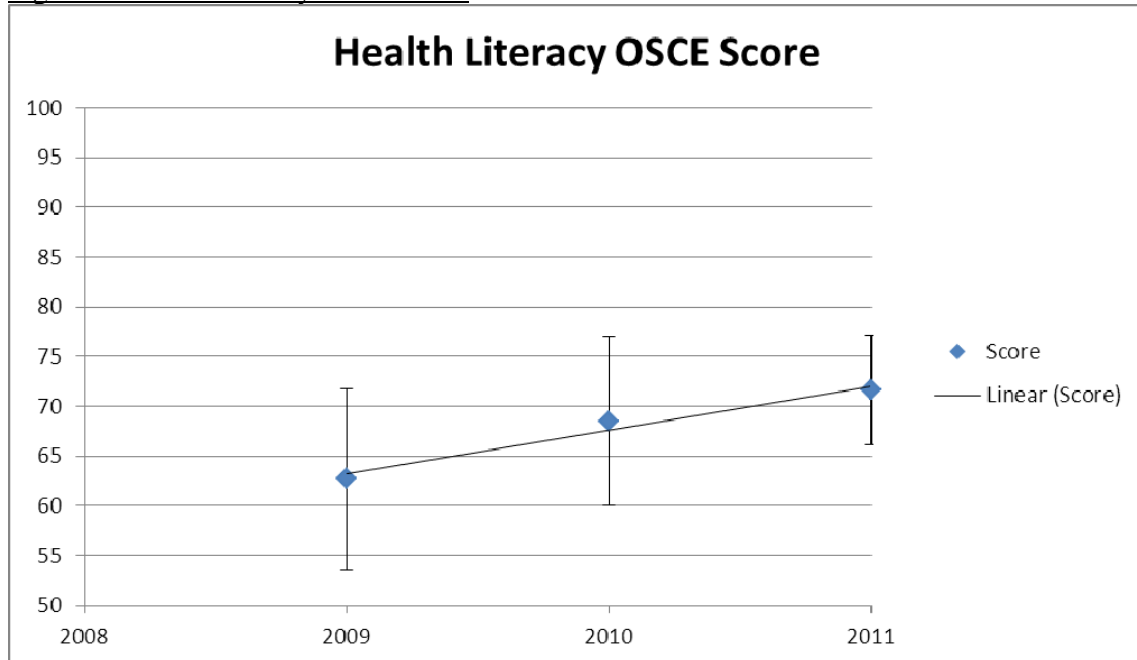
Figure 1: Overall OSCE score

Figure 2: Health Literacy OSCE score

Tables

Table 1: Curricular activity and evaluation method

Domain	Perspective on communication	Curricular activity	Time investment	Taught by	Evaluation
Clear speaking	Linguistic	Communication clarity training by linguist (web-based individual assessment, lectures; home exercises with individual feedback)	3 hour-sessions every 3 months	Specialized linguist	Before and after E-CAP®
Content and Strategy of Patient-Centered Communication	Physician-patient communication	Lectures, review of videotapes of resident-patient interactions Integration of communication training in work-rounds	1.5 hour interactive seminar every month	Expert Faculty	OSCE: at least 2/year HCHAPS
Culturally and linguistically appropriate care	Cultural competency and health literacy	Lecture series Health literacy rotation Web-based curriculum	Grand rounds lectures every 2 months, 4 day rotation integrated into a 2 week QI rotation	Grand round speakers, faculty	OSCE: at least 2/year
Professionalism (individual and in the organization)	Organizational psychology	Reflective sessions for residents	Monthly seminar	Pastoral care expert	Hidden-curriculum survey; Maslach Burnout inventory
Train the trainer	Teaching environment	Faculty development sessions in teaching patient-centered communication	Weekly meetings, monthly facilitated faculty development session	Weekly meetings self-facilitated, monthly meetings with outside expert	Faculty OSCE: at least 2/year Faculty assessment by residents

Table 1: Curricular Components and Evaluation of the Comprehensive Curriculum. ECAP®: English Communication Assessment Profile; HCAHPS: Hospital Consumers Assessment of Healthcare Providers and Systems; OSCE: Objective Structured Clinical Examination; for description of surveys please see main body of text.

Table 2: Resident test scores

	Baseline score			Follow-up score			
Test	**Mean**	**SD**	**95% CI**	**Mean**	**SD**	**95% CI**	**p-value**
Overall OSCE	**0.70**	**0.16**	**0.64-0.77**	**0.78**	**0.13**	**0.73-0.82**	**<0.001**
HCAHPS	74.6	3.5	71.9-77.2	72.2	5.71	66.2-78.2	0.10
E-CAP	**73.4**	**7.18**	**71.2-75.6**	**77.4**	**5.5**	**75.5-79.2**	**<0.001**
Faculty skills*							
learning climate	**2.07**	**0.74**	**1.86-2.28**	**1.61**	**0.21**	**1.55-1.67**	**<0.001**
communication of goals	2.15	0.71	1.65-2.66	1.67	0.19	1.52-1.81	0.06
patient centered care	**2.08**	**0.73**	**1.74-2.42**	**1.63**	**0.14**	**1.56-1.70**	**0.01**
evaluation	**2.14**	**0.62**	**1.69-2.58**	**1.62**	**0.14**	**1.51-1.73**	**0.03**
feedback	2.27	0.75	1.73-2.80	1.72	0.15	1.60-1.83	0.05
self-directed learning	**2.26**	**0.75**	**1.73-2.80**	**1.66**	**0.2**	**1.51-1.81**	**0.03**
MBI*							
cynicism	2.4	1.55	1.60-3.20	1.77	1.37	1.02-2.53	0.24
exhaustion	2.59	1.47	1.83-3.34	2.67	1.72	1.71-3.62	0.89
professionalism	5.13	1.1	4.56-5.69	4.64	1.68	3.71-5.58	0.34
Health literacy OSCE	0.63	0.14	0.54-0.72	0.72	0.12	0.66-0.77	0.08
Hidden Curriculum	0.60	0.36	0.44-0.76	0.62	0.37	045-0.80	0.89

*1=most positive value, 5=most negative