

Encouraging Student Interest in Teaching Through a Medical Student Teaching Competition

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Abstract

Problem

Clinician educators have realized the value not only of assigning teaching roles to medical students but also of offering explicit training in how to teach effectively. Despite this interest in the development of medical students' teaching skills, formal teaching instruction and opportunities for practice are lacking.

Approach

To encourage medical student interest in teaching, the authors developed and implemented a medical student teaching competition (MSTC) at Emory University School of Medicine during

the summers of 2014, 2015, and 2016. Each year, eight student finalists were each paired with a physician "teaching coach" and given one month to prepare for the MSTC. During the competition, each finalist delivered an eight-minute presentation to a panel of seven physician and resident judges. The authors describe the development, implementation, and assessment of the MSTC.

Outcomes

Approximately 150 medical students and faculty members attended the MSTC each year. The students in attendance felt that the MSTC made them more

likely to seek out opportunities to learn how to teach effectively and to practice teaching. Additionally, some students are now more interested in learning about a career in academic medicine than they were before the MSTC.

Next Steps

Given the need for more formal initiatives dedicated to improving the teaching skills of doctors-in-training, including medical students, innovative solutions such as the MSTC may enhance a medical school's existing curriculum and encourage student interest in teaching. The MSTC model may be generalizable to other medical schools.

Problem

Although physicians serve as teachers in hospitals, clinics, and medical schools across the United States and Canada, they typically receive little formal training in effective teaching.¹ The Liaison Committee on Medical Education (LCME) and Accreditation Council for Graduate Medical Education both highlight teaching as an essential skill and duty of all physicians.^{2,3} In fact, the LCME requires all medical schools to collaborate with residency programs on "Residents as Teachers" curricula. Additionally, on the centennial of the Flexner Report, the Carnegie Foundation for the Advancement of Teaching issued a report championing a medical education system that provides learners with opportunities to assume the many roles and commitments associated with being a physician, including educator,

advocate, innovator, investigator, and administrator.⁴ The rationale for the development of medical students' teaching skills is outlined in a literature review by Dandavino and colleagues¹:

(1) medical students are future residents and faculty members who will have teaching roles; (2) as teaching is an essential aspect of physician-patient interaction, medical students may become more effective communicators as a result of such training; and (3) medical students with a better understanding of teaching and learning principles may become better learners.

Despite widespread support for teaching doctors-in-training how to be better educators, such teaching-skills training is lacking across the medical education continuum. According to a recent survey of accredited U.S. MD-granting medical schools, while all 99 of the responding institutions offered opportunities for their students to teach (e.g., by acting as a peer tutor, peer mentor, small-group facilitator, teaching assistant in various courses, or contributor to curriculum design), only 43 schools (44%) provided a formal, comprehensive program designed to train their students to teach effectively.⁵ As medical schools implement such teacher training programs, they should

also find ways, in parallel, to encourage student interest in teaching. For that reason—to inspire enthusiasm for teaching—we organized a medical student teaching competition (MSTC). Here, we describe the development, implementation, and initial results of the MSTC at Emory University School of Medicine (EUSOM).

Approach

EUSOM in Atlanta, Georgia, matriculates approximately 140 students per year. Medical students have the opportunity to fill various educational roles (e.g., peer mentor/tutor, presenter, small-group facilitator, patient educator) during their time at EUSOM; however, EUSOM offers no formal training for teaching, nor did the school offer, prior to the MSTC, any large-scale demonstrations of exemplary medical student teaching before an audience of peers and faculty members.

Development of the MSTC

In January 2014, with the support of EUSOM faculty advisors and leaders, a group of six third- and fourth-year EUSOM medical students, including four of us (A.K.D., J.P.H., C.L.S., E.R.), initiated development of the MSTC. For guidance and support we identified a faculty

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advisor (K.D.M.) from the Department of Medicine who is also a member of the department's Academy of Medical Educators (a group whose mission is to "advance and support teaching across the Department of Medicine"⁶). We modeled the MSTC after a similar teaching competition that involves medicine fellows—that is, the J. Willis Hurst Demonstration of Teaching Excellence—which was developed and directed by our faculty advisor (K.D.M.) in partnership with the Department of Medicine. We chose to adapt this competitive event both because of its success at EUSOM and because of the expected accessibility and benefit of such an event to both preclinical and clinical medical students.

Beginning six months before the competition, we met monthly to develop and implement the MSTC. We held the first event on July 31, 2014. Similarly in 2015, six third- and fourth-year medical students (A.K.D., J.P.H., C.L.S., V.L., Y.D., E.R.) created a medical education interest group and organized the second MSTC (held on August 5, 2015). The third MSTC was held on August 1, 2016. For all three years, we had one main objective for this event, which was a component of a comprehensive effort at EUSOM: to encourage student interest in teaching during medical school by demonstrating examples, identifying exemplars, and rewarding excellence.

Given that the MSTC complements EUSOM's formal initiatives to improve the teaching skills of doctors-in-training, including medical students, we believe the MSTC is relevant to other medical schools with similar goals and can be implemented elsewhere.

Structure and implementation of the MSTC

Preliminary selection round. Three months before the MSTC, we recruited applicants by e-mailing all EUSOM students, including dual-degree students. We placed no restrictions on what student contestants could teach. All contestants enjoyed complete independence to design their teaching session as they wished and to seek guidance from mentors.

Seven weeks before the final competition, each contestant delivered a three-minute preview of his or her planned eight-minute teaching session to the medical students who had organized the MSTC in

a given year. We judged the applicants in the preliminary selection round against a standardized judging scoring sheet (List 1) adapted from one used by the J. Willis Hurst Demonstration of Teaching Excellence. The eight students with the highest overall scores advanced to the next and final round of the MSTC.

Academic physicians as teaching coaches. We involved academic physicians in all stages of the event (as advisors to us, teaching coaches, judges, and audience members) in order to surround all medical students, particularly those participating in the contest, with faculty members who share an interest in teaching excellence.

The eight finalists were given one month to prepare for the MSTC. We paired each finalist with a physician who, serving as a teaching coach, provided feedback and helped the student improve his or her presentation. The selected teaching coaches had previously won awards for their dedication to medical student teaching, and many had also served as clerkship course directors and/or residency and fellowship program directors. These teaching coaches were ineligible to serve as competition judges.

Teaching competition. We publicized the event widely to medical students and faculty members alike through various channels: our Web site,⁷ e-mail, social media, a short promotional video of the eight finalists, and a digital flier delivered to the medical school community.

Each year, we held the competition one evening in a large lecture hall in the medical school that seats roughly

160 people. The timing (6:00–8:00 PM) enabled clinicians and medical students to attend after completing their clinical duties. Attendance at the event was voluntary. A pizza dinner and refreshments were available before and during the event for all in attendance. We also broadcasted the 2015 and 2016 events online using the live video streaming application Periscope (Twitter, San Francisco, California). Each presentation lasted eight minutes. The subjects of the teaching sessions were creative and diverse, clinical and nonclinical (Table 1). Questions were not allowed from either the judges or the audience because of time limitations. One of us (J.P.H.) monitored the time, displaying two-minute and one-minute warnings, then a stop sign, to each finalist.

We selected five faculty members of various specialties who had been awarded for their dedication to medical student teaching to judge the final presentations. We also selected two resident physician judges. We provided each judge with a suggested scoring sheet (List 1) to use as a guide in evaluating and ranking the finalists. Although not validated, the scoring sheet included qualitative metrics deemed to be beneficial in effective presentations for the J. Willis Hurst Demonstration of Teaching Excellence. After the conclusion of the last presentation, the judges were allotted time to make any final adjustments to their rank order list. Judges were not allowed to deliberate together because we wanted to reduce the possibility of common pitfalls associated with group decision making (e.g., popularity bias, individual influence).⁸ The finalist with

List 1

Judging Scoring Sheet^a

1. The speaker clearly conveyed teaching points and objectives.
2. The speaker delivered a well-organized presentation, covered the teaching points, and transitioned smoothly between sections.
3. The speaker clearly explained new or challenging concepts.
4. The speaker utilized novel or creative teaching approaches.
5. The speaker effectively used audio-visual aids.
6. The speaker's voice conveyed enthusiasm, confidence, and mastery.
7. The speaker's body language (posture and eye contact) and movement conveyed enthusiasm, confidence, and mastery.

^aThe students and faculty member from Emory University School of Medicine who developed the medical student teaching competition (MSTC) adapted this scoring sheet based on the scoring sheet used for another event. They provided each of the seven judges—five faculty members and two residents—with the scoring sheet to use as a guide in evaluating and ranking the MSTC finalists, but they did not require its use. The MSTC organizers suggested that the judges assign a score for each item following a Likert scale where 1 = strongly disagree and 5 = strongly agree.

Table 1

Presentation Topic, Student Year, and Teaching Coach Affiliation for the 2014, 2015, and 2016 Emory University School of Medicine Medical Student Teaching Competition Finalists

Year	Presentation topic	Student year	Department/division affiliation of teaching coach
2014	Workup for Acidemia	M2	General Medicine and Geriatrics
	Design in Healthcare Provision	M2	Infectious Diseases
	Etiologies and Treatments of Inflammatory Bowel Disease	M4	Digestive Diseases
	Pulseless Electrical Activity	M3	General Medicine and Geriatrics
	Fingernails as a Window to Human Health	M3	General Medicine and Geriatrics
	Quality Improvement and the Value Imperative	M2	General Medicine and Geriatrics
	An Approach to Anaphylaxis	M3	General Medicine and Geriatrics
	Ophthalmic Emergencies	M3	General Medicine and Geriatrics
2015	Calling a Consult and the 5 Cs	M4	Rheumatology
	The Art of Urgent HAART Therapy in HIV Patients	M4	Infectious Diseases
	Gout, Gonorrhea, or Osteoarthritis?: Diagnosing Mono-arthritis	M3	General Medicine and Geriatrics
	Early Goal-Directed Therapy for Sepsis	M4	Pulmonary, Allergy, Critical Care and Sleep Medicine
	MRI and You Can Too: An Introduction to Magnetic Resonance Imaging and Its Clinical Use	G1	Radiology and Imaging Sciences
	Pimping Ain't Easy: The Role in Medical Education	M4	Neurology
	Cardiac Tamponade	M2	General Medicine and Geriatrics
	A Tale of Two Gradys: The Legacy of Segregation in Atlanta Healthcare	M2	General Medicine and Geriatrics
2016	Venomous Snake Bites in North America	M2	Emergency Medicine
	The Lord of the Pupils	M4	Ophthalmology
	ADH Disorders: When Water Goes Rogue	M2	General Medicine and Geriatrics
	Know Thy Cell	G3	Transplant Surgery
	How to Maneuver a Murmur	M4	Cardiology
	Congenital Long QT Syndrome	M2	General Medicine and Geriatrics
	Everyone's Got to Vent!	M3	General Medicine and Geriatrics
	Hyponatremia (over)Simplified: A Laboratory Diagnosis	M4	General Medicine and Geriatrics

Abbreviations: M indicates medical student year; G, an MD/PhD student currently in graduate school; HAART, highly active antiretroviral therapy; MRI, magnetic resonance imaging; and ADH, antidiuretic hormone.

the best composite score was named the winner, awarded a cash prize of \$100, and commemorated by having his or her name inscribed on an MSTC winners' plaque displayed in the EUSOM building. We did not announce the ranking of the other seven finalists because we considered all eight finalists to be excellent student teachers; we felt rank ordering them was unnecessary. The finalists did not receive formal feedback from the judges after the event because of time limitations, but they knew they could follow up with their teaching coaches for feedback and further mentorship.

The MSTC required minimal financial resources. Our annual budget was \$890, which covered the costs of dinner, winners' plaque, prize money, and printing of programs and judging scoring sheets.

Survey. As we began planning the MSTC in 2015, we hoped to evaluate the success of the MSTC through an anonymous survey of medical students in the audience (Table 2). After receiving an exempt review from the Emory University institutional review board, we created a questionnaire using Google Forms (Google, Mountain View, California). At the conclusion of the presentations, we requested that students follow the projected URL and complete the one-time survey via their phones, tablets, or laptops before the winner was announced. The questionnaire asked students to rate agreement or disagreement with various statements using a five-point Likert scale.

Outcomes

Twenty-seven students in 2014, 20 students in 2015, and 35 students in

2016 submitted applications to be considered as contestants in the MSTC. Approximately 150 medical students and faculty members attended the MSTC in 2014, 2015, and 2016. Additionally, 35 people streamed the MSTC online in 2015. Of the 130 students in attendance at the MSTC in 2015, 60 (46%) submitted the survey. Among the survey participants, 3 (5%) were first-year medical students, 25 (42%) were second-year medical students, 13 (22%) were third-year medical students, and 19 (32%) were fourth-year medical students. We believe we were able to attract a large audience because our diverse marketing strategies allowed us to build excitement over the weeks leading up to the MSTC.

Students' reactions to the MSTC were favorable (Table 2). After attending the event, students reported being more

Table 2

Survey Responses From Students in Attendance at the 2015 Emory University School of Medicine MSTC^a

Questionnaire item	N (% of 60)	Mean	Median	Range	SD
I am satisfied with the frequency of peer-to-peer teaching in medical school.	59 (98.3)	3.0	3	1–5	0.9
I am satisfied with the quality of peer-to-peer teaching in medical school.	60 (100)	3.6	4	2–5	0.9
The medical school preclinical curriculum prepares me to teach others.	60 (100)	2.8	3	1–5	0.9
The medical school clinical curriculum prepares me to teach others.	40 (66.7)	3.4	3	2–5	0.8
After having attended the MSTC, I am more interested in seeking out opportunities to teach others, including peers and community members, about medicine.	60 (100)	4.3	4	3–5	0.7
After having attended the MSTC, I am more likely to seek opportunities to learn about effective teaching techniques.	60 (100)	4.3	4	2–5	0.8
After having attended the MSTC, I am better able to identify characteristics of effective teaching.	60 (100)	4.3	4	3–5	0.6
After having attended the MSTC, I am interested in learning more about a career in academic medicine.	60 (100)	3.8	4	2–5	1.0

Abbreviations: MSTC indicates medical student teaching competition; SD, standard deviation.

^aThe survey asked medical students to rate agreement or disagreement with each of the eight statements using a Likert scale where 1 = strongly disagree and 5 = strongly agree.

interested in seeking out opportunities both to teach (mean = 4.3) and to learn how to teach effectively (mean = 4.3). Students also noted that they were better able to identify characteristics of effective teaching (mean = 4.3) after attending the event. Our survey data also suggested that the MSTC increased student interest in learning about careers in academic medicine (mean = 3.8).

We believe that several factors contributed to the success of the MSTC, including both student leadership in all aspects of the event from development to implementation and synergy with EUSOM's formal initiatives to improve teaching skills of doctors-in-training. Additionally, the support of various deans at EUSOM and physicians from the Department of Medicine, including our faculty advisor (K.D.M.), was crucial to the event's success.

However, we note several limitations related to how we measured the success of our event. The response rate to our audience survey was less than 50%, so the data may not be representative of all students in the audience. Some attendees may not have had an electronic device easily accessible or not enough time and motivation to complete the survey. Finally, students who attended the MSTC may have been more interested in teaching than the average medical student.

Next Steps

As measured both by the number of medical students and faculty members who attended the MSTC and by the results from the survey, we believe the MSTC was associated with a positive change in students' attitudes towards teaching and careers in academic medicine. Although our current study demonstrated that the MSTC encouraged student interest in teaching at a single institution, this event has not yet been implemented at other institutions. Further analysis will be required once this event has been implemented in other settings and institutions.

If the MSTC and its positive effects prove reproducible at other institutions, the competition and even the medical student teaching coach partnership model could be implemented at medical schools that seek to encourage interest among medical students in developing and honing teaching skills. Also, the MSTC could easily complement other formal, comprehensive programs designed to train students to teach effectively. For further study, the MSTC and exit polling should be reproduced at other academic institutions. Additional surveying would be necessary to study the event's effect both on students' perceptions of medical education and on faculty members' perceptions of their roles as mentors and judges. A future study should include both pre- and post-event surveys of contestants and attendees. The ideal

study would be longitudinal, following the finalists, to assess their perceptions of and engagement in medical education activities across the medical education continuum, and to determine if they are more likely to pursue careers in academic medicine.

The MSTC is part of a larger movement at EUSOM to emphasize the importance of excellent teaching by medical students, residents, fellows, and faculty members and to provide doctors-in-training with opportunities to improve their teaching skills. Future goals for our group include coordinating instruction for all medical students about the basic principles of education, adult learning theory, and effective teaching; providing opportunities for more students to practice teaching with a teaching coach; and integrating opportunities for students to teach short lectures to their peers on topics aligned with the preclinical and clinical medical school curricula.

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