Preparing Fourth-Year Medical Students to Teach During Internship

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Interns are expected to teach medical students, yet there is little formal training in medical school to prepare them for this role. To enhance the teaching skills of our graduating students we initiated a 4-hour "teaching to teach" course as part of the end of the fourth-year curriculum. Course evaluations demonstrate that students strongly support this program (overall ratings 2000 to 2005: mean=4.4 [scale 1 to 5], *n*=224). When 2004 course participants were surveyed during the last month of their internship, 84% "agree" or "strongly agree" with the statement: "The teaching to teach course helped prepare me for my role as a teacher during internship" (2005: mean 4.2 [scale 1 to 5], *n*=45, response rate 60%). A course preparing fourth-year students to teach during internship is both feasible and reproducible, with a minimal commitment of faculty and resident time. Participants identify it as an important addition to their education and as useful during internship.

KEY WORDS: teaching; education; medical student; internship and residency.

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During their first year of residency interns are expected to teach medical students, yet there is little or no formal training in medical school to prepare them for this role. Courses for faculty¹⁻⁴ and for residents⁵⁻¹¹ have been shown to improve clinical teaching skills, but there are few published reports of similar courses for medical students.¹²⁻¹⁵ Existing curricular offerings are elective based,¹²⁻¹⁴ involve only small numbers of students each year, and require substantial time commitments from instructors and students.

To enhance the teaching skills of our graduating students we initiated a "teaching to teach" course at the end of the fourth year to teach the principles and practice of clinical instruction. We sought to design a curriculum that was appropriate for large numbers of participants and required a limited time commitment from students and faculty. Originally a student-initiated elective with faculty support, it is now a part of the required core curriculum at the end of the fourth year. In this paper we expand on our previous brief description of this course,¹⁵ report on our first 6 years of experience, and present the results of a follow-up survey of course participants during their last month of internship.

DESCRIPTION

During the last month of the fourth-year students attend a teaching course which consists of 4 classroom-based 1-hour

sessions presented over 2 afternoons. The course is part of an internship preparation curriculum that includes a review of the basic science and clinical aspects of major medical disorders. The first 2 sessions of the teaching course address: (1) teaching methods which promote understanding and retention in the clinical setting and (2) evaluating students fairly and providing constructive feedback. In the third session a panel of residents addresses student questions and concerns regarding the challenges of teaching as an intern. The fourth session is dedicated to practicing and discussing teaching skills in small groups led by residents recognized as outstanding teachers of medical students. The teaching methods and learning objectives for each session are outlined in Table 1. Laminated "Teaching Cards" are provided at the end of the course, to be carried during internship, as reminders of the major points from each session.

In developing course content we utilized elements of the Stanford Faculty Development Program,¹ the "One Minute Preceptor,"¹⁶ and other programs for improvement of faculty and resident teaching skills.²⁻¹¹ The course emphasizes intern-specific skills. For example, formal didactic teaching receives minimal attention while techniques for giving ongoing formative feedback and for teaching effectively with the time constraints of housestaff duties are emphasized.

EVALUATION

The value and effectiveness of the course, and of each individual session, was evaluated through self-report anonymous questionnaires using Likert scales collected at the end of the fourth session. Students were also asked whether instruction in teaching should be a required part of medical education (2001 to 2004) and when in medical school it would have been most useful to receive instruction in the basics of teaching (2002 and 2004). In addition, we surveyed 2004 course participants in May 2005, 1 year after medical school graduation (during their last month of internship) using an anonymous web-based instrument.

Overall course ratings, number of completed questionnaires, and estimated participant response rates by year are presented in Table 2. Evaluations demonstrate that participating students strongly support this program, with nearly all responding that the experience will be useful as they begin internship. Reported strengths of the sessions include learning from faculty and residents known to be outstanding teachers and receiving practical advice on how to be a more effective teacher. Ninety-seven percent of respondents "agree" or "strongly agree" with the statement, "Formal instruction in teaching should be a required part of medical education" (2001 to 2004: mean 4.6 [scale 1 to 5], *n*=119). Given a choice of when in the curriculum this material should be presented,

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Table 1. Format of the Teaching Course

Teaching Methods	Objectives
<p><i>Session 1: Promoting understanding and retention in the clinical setting</i> Lecture, that includes modeled behavior by the speaker</p>	<p>Understand that teaching in the clinical setting occurs in daily activities and is a series of small incremental transfers of knowledge, attitudes, and skills</p> <p>Clinical teaching happens through identification of "teachable moments" and modeling, rather than didactic presentations</p> <p>Small amounts of information, repetition, and reapplication foster learning</p> <p>The use of questions and techniques like the "One minute preceptor"¹⁸ encourage learners to interact with the material</p>
<p><i>Session 2: Evaluating students fairly and providing constructive feedback</i> Lecture, that includes modeled behavior by the speaker and audience role-play (audience divides into dyads to perform brief role plays of evaluation and feedback scenarios)</p>	<p>Define appropriate educational goals</p> <p>Evaluate learners through observation, questioning, and fostering self-assessment</p> <p>Provide feedback</p> <p>Effective feedback is specific, timely, frequent, both positive and negative, elicits the learner's reaction, and develops an action plan with the learner</p> <p>Effective feedback should be provided throughout the rotation (formative) not just at the end (summative) so that learners have a chance to improve</p>
<p><i>Session 3: Resident panel</i> At the conclusion of the first day of the course, students anonymously submit index cards with questions or concerns regarding the challenges of teaching as an intern that they would like addressed by current residents. The following day, a faculty facilitator poses these questions to a resident panel recognized for their excellence in teaching across multiple specialties. The residents also reply to follow-up questions from the student audience</p>	<p>Address graduating students' most pressing concerns or anticipated challenges with regard to their intern teaching responsibilities</p> <p>Acknowledge that these concerns are valid, common, and that they challenge even the best resident teachers</p> <p>Share techniques used by skilled resident teachers</p>
<p><i>Session 4: Small groups</i> Groups of 6 to 8 students are led by 1 or 2 residents selected by the students for excellence in clinical teaching. The residents provide practical tips and experience, and answer questions, help alleviate anxieties, and share ideas. Clinical scenarios are provided for role-play and group discussion to allow an opportunity to practice new skills (available online through JGIM). At the end of this session, laminated pocket cards are distributed with a summary of important points from each session designed to be carried conveniently during internship (available online through JGIM)</p>	<p>Practice new teaching skills introduced in previous sessions by working through clinical scenarios</p> <p>Demystify the process and decrease anxiety related to their role as intern teacher</p> <p>Provide an opportunity to ask questions and get practical tips from experienced teachers</p>

85% chose the end of the fourth year (2002 and 2004; $n=77$). When 2004 course participants were surveyed during the last month of their internship, 84% "agree" or strongly agree" with the statement: "The teaching to teach course helped prepare me for my role as a teacher during internship" (2005: mean 4.2 [scale 1 to 5], $n=45$, response rate 60%).

Table 2. Overall Course Ratings (2000 to 2005)

	Completed Questionnaires	Mean Rating	Response Rate (%)*
Elective			
Year 1	22	4.4	49
Year 2	23	4.3	51
Year 3	21	4.4	47
Required			
Year 1	23	4.0	31
Year 2	60	4.6	80
Year 3	75	4.3	100
All years	224	4.4	62

*Response rate based on participation of approximately 45 students in elective years and approximately 75 students in required years. Scale: 1 to 5. 1 = Poor; 2 = Fair; 3 = Good; 4 = Very Good; 5 = Excellent.

DISCUSSION

There are few prior reports of courses designed to prepare students for their teaching responsibilities as interns. Previous instructional formats have been limited to 1- or 2-week electives¹²⁻¹⁴ or a half-day workshop.¹³ These courses have been well received, but are available to few students each year and require substantial commitment of student and faculty resources. Our course differs in that it was designed for a larger audience, utilizes a shorter format, requires less time commitment from students and faculty, makes use of both faculty and residents as teachers, and has been incorporated into the required fourth-year curriculum. We also report on a greater number of course participants over 6 years of experience and present data from a follow-up survey during internship.

We modeled our topic selection on similar courses for faculty and residents¹⁻¹¹ based on a theoretical educational framework.¹⁷ To assure relevance, we explicitly emphasized small group and individual clinical teaching and evaluation and feedback rather than formal didactic teaching, since this is the experience that students will have as interns (need theory). We scheduled the course for the last month of the fourth

year assuming that the material would be most useful and students would be highly motivated so close to the start of their internship (motive acquisition theory/"just in time" learning). To encourage active learning we alternated didactic presentations with interactive resident panel discussions, speaker modeling, role-play, and small groups to sustain interest and allow the students to interact with the material (adult learning theory). We used residents recognized as outstanding teachers as panel members and small group leaders because they are close in training to fourth-year students, have been role models during medical school, and are persons with whom students can easily relate and strive to emulate (social learning theory). We propose that the acquisition of teaching skills, analogous to the growth of clinical skills, should begin in medical school and continue throughout residency.

Our study has limitations. We have demonstrated that fourth-year students rate the course highly and that course participants, now interns, still perceive the course as being useful in preparing them for their teaching responsibilities. However, we do not have objective measures that their teaching skills have improved. A validated exercise before and after the course, such as the objective structured teaching examination (OSTE) developed for residents,¹⁸ could provide measures of changes in clinical teaching skills attributable to the course. Alternatively, students could be randomly assigned to receive specific teaching training in addition to the normal curriculum followed by comparison of teaching evaluations or ratings of videotaped review of teaching sessions during internship. Documented improvement in teaching skills for faculty¹⁻⁴ and residents⁵⁻¹¹ following both short-^{2,4-8,10} and long-term^{1,11} interventions suggests that similar results might be expected with medical students. Second, not all students attended the course and of those who did, not all responded to the evaluation questionnaires. Students not attending the course and those not completing the evaluation forms may have different opinions from those who did. Nonetheless, for the past 3 years approximately half the graduating class participated in the teaching course, similar to or greater than the number attending other components of the end-of-fourth-year curriculum. The consistency of course ratings over 6 years, despite varying participant response rates, and the persistence of high ratings 11 months into internship, suggests that our results are representative and sustained. Finally, our report is from 1 institution. The logistics of our curriculum may be different from that at other schools. For example, not all schools gather their students together at the end of the fourth year, and recruiting residents to teach may be more difficult at other institutions.

A "teaching to teach" course provides a forum for articulating and practicing teaching skills with students as they pre-

pare for internship. Such a course, either as an elective or a required part of the curriculum, is both feasible and reproducible, with a limited commitment of faculty and resident time. Participating students perceive this course to be an important addition to their medical school education and useful during internship.

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Supplementary Material

The following Supplementary material is available for this article online at www.blackwell-synergy.com

Appendixes 1 and 2: Preparing fourth-year medical students to teach during internship.