

Resident as Teacher:

The Mount Sinai Experience and a Review of the Literature

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Abstract

Residents play a pivotal role in the education of medical students and junior house staff but are rarely provided with the tools to help them teach effectively. Residents value their roles as teachers and desire training programs in teaching skills. Teaching skills courses for residents have been shown to improve residents' self-confidence and self-assessed use of effective teaching behaviors. They have also been shown to improve residents' evaluations by students.

The Institute for Medical Education at the Mount Sinai School of Medicine has developed a successful, multidisciplinary curriculum to improve the teaching and leadership skills of all of our residents at the Mount Sinai Hospital and its affiliate institutions. The Resident Teaching Development Program (RTDP) has already been implemented in the departments of Medicine, Surgery, Pediatrics, Psychiatry, and Obstetrics and Gynecology. This adaptable, seven-hour curriculum has been well received by residents and faculty.

We are currently evaluating the effects of the program on residents' confidence and use of learned skills. And we are working to expand this program to every department and to create innovative means of measuring resident competency in teaching and its ultimate effect on student learning.

Key Words: Teaching, internship, residency, teaching/methods, medical education, curriculum.

Introduction

TEACHING IS AN INTEGRAL ROLE of the practicing physician regardless of career path or specialty. Teaching responsibilities begin early in medical education, but the most dramatic shift from learner to teacher occurs during the transition from internship to residency. Many studies have shown that residents are often the primary teachers of medical students and junior house staff (1–4) and spend as much as 20–25% of their time teaching (3). Residents also commonly teach entire teams of learners at different levels of training and in varied settings. The required skills are difficult to master, even for seasoned teachers. Until recently, most residents were expected to fulfill their teaching responsibilities with little formal instruction despite their critical roles as educators (5, 6).

The purpose of this article is twofold: To review the importance of teaching skills curricula for residents, often referred to as Resident-as-Teacher (RAT) programs, their emergence over time, and their current status in graduate medical education. And to describe the Resident Teaching Development Program (RTDP), an actively expanding, multi-disciplinary curriculum for all residents at the Mount Sinai School of Medicine and its affiliate hospitals.

The Evolution of Resident-as-Teacher Programs

Resident-as-teacher programs began to emerge in the 1960s and 1970s, but were quite rare until the 1990s (7, 8). Medical educators began to develop resident teaching skills curricula, in part, in response to trainee claims of a significant void in residency training (5). Multiple studies conducted in various specialties confirm that in spite of intense time pressures, residents enjoy teaching and consider it one of their important roles (9–12). Many residents agree that teaching improves their clinical knowledge and skills and encourages their efforts at self-directed learning (9, 11, 12). The same studies reported that residents' attitudes towards teaching and their levels of confidence af-

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affected their self-rated and/or student-rated teaching effectiveness. Educational literature routinely demonstrates that residents would prefer to spend even more time teaching than they already do (10, 11, 13, 14), but feel hindered by multiple factors. Commonly reported barriers to teaching are lack of time, poor confidence in their teaching skills and clinical knowledge, and insufficient training in effective teaching methods (13, 14). In a 1995 study, Yedidia et al. (13) provided powerful examples of internal medicine residents' conflicts about teaching, through a qualitative study that assessed residents' attitudes towards their teaching and leadership roles. Residents expressed difficulties in teaching, supervising and nurturing students and junior house staff during a time when they themselves had the same needs, often felt inadequate, and needed to prioritize teaching with caring for acutely ill patients. Given these possible barriers to effective teaching, it is not surprising that residents rated themselves better as clinicians than as teachers in a study from 2000 (10).

Despite their significant teaching roles, several studies have demonstrated gaps in residents' teaching skills (11, 15, 16). Greenberg et al. (11) reported in 1984 that early data from videotapes showed residents using mostly lecture-style teaching, with little emphasis on teaching problem-solving skills. Morrison and Hafler (15) cited similar data in a 2000 review, which reported that residents rarely used feedback and they questioned learners, demonstrated techniques and procedures, and referenced literature only minimally (16).

Medical accreditation agencies now formally support the need for training in teaching skills in residency programs. The American Council for Graduate Medical Education (ACGME) (17) agrees that teaching is a key part of resident training and has included the teaching of students and other health care professionals as part of the core competency, practice based learning and improvement (PBL). Most resident teaching skills courses actually address multiple competency requirements beyond PBL. The Liaison Committee on Medical Education (LCME) also requires teaching competency for residents and mandates that residents who teach medical students must be "prepared for their roles as teachers and evaluators of medical students" (18).

Many residency program directors have responded to the need for teaching skills instruction. According to a 2001 survey (6) of residency program directors and graduate medical education leaders, approximately 55% of residency programs now offer formal teaching skills training to their residents. The survey by Morrison et al. (6) identi-

fies the percentage of programs offering teaching skills instruction by specialty: medicine-pediatrics (88%), pediatrics (80%), internal medicine (65%), psychiatry (62%), family practice (52%), obstetrics & gynecology (38%) and surgery (31%). This is in contrast to a 1993 survey (5) of internal medicine residency programs, which reported that only 20% of the programs had teaching skills curricula.

This large-scale response to the need for training in teaching skills has resulted in a variety of programs for residents. Some programs are multidisciplinary and overseen by the office of Graduate Medical Education (GME) of an institution, while most are designed and implemented by individual departments (6). Programs have widely variable formats, ranging from brief, hour-long workshops to full-day retreats and even elective rotations (15). If one combines data from all residency programs that offer RAT courses, residents now receive a mean of 11.5 total hours of teaching skills instruction during their training (6). The most commonly used formats for these course include lectures and workshops.

Do Resident-as-Teacher Programs Work?

A recent review by Wamsley et al. (19) on the effectiveness of resident-as-teacher programs reports that teaching courses improve confidence in teaching and self-reported use of teaching behaviors. Resident-as-teacher programs are also linked to improved student evaluations of residents' teaching effectiveness (19). Some studies using Objective Structured Teaching Examinations (OSTEs) show more objective improvement of teaching skills.

There have been several studies evaluating resident teaching skills courses. One challenge to evaluating the effectiveness of such courses is that the formats are often extremely variable. Another is that many programs are taught using small group formats and, therefore, are not powered to measure significant changes in self-reported or learner-evaluated teaching effectiveness. Finally, measuring outcomes can be a complex matter. The goal of most resident teaching skills courses is to improve the teaching skills of the residents who attend. However, the true endpoint is enhanced learning of students and junior house staff and, ultimately, improved patient care by those learners. Measuring these outcomes can be quite challenging, and there are many confounding factors that make analysis of the data difficult.

Therefore, many studies of the outcomes of resident-as-teacher programs have used resident self-assessments of improvement in confidence

and skill acquisition. Most of these studies show a positive effect on residents' self-ratings of their teaching skills after the interventions (19–21). Although confidence in teaching skills is not evidence of effective teaching skill, Greenberg et al. (11) linked increased resident confidence in teaching to their perceptions that they could communicate ideas more effectively and feel more comfortable when confronted with profound decisions. Those residents also felt that they received more positive, unsolicited feedback and were more willing to provide feedback.

Other studies have targeted student evaluations of residents as the outcome measure of their teaching courses. Litzelman et al. (22) added medical student evaluations of residents to self-reported pre- and post-assessments of teaching after a weekend teaching skills retreat. They demonstrated improved evaluation of skills in 3 out of 7 domains of teaching and improved self-evaluation in all 7 domains. Spickard et al. (23) and Wipf et al. (24) both demonstrated improved learner evaluations in controlled studies after 3- and 6-hour interventions, respectively.

Educators are now striving to demonstrate direct effects of curricular interventions and obtain more objective evidence of competency. These goals have driven the development of more objective measures of improvement in residents' teaching skills, such as the Objective Structured Teaching Examinations (OSTEs). OSTEs are comprised of multiple skills stations using "standardized students," where residents are evaluated on specific teaching skills by a trained evaluator. An early randomized, controlled trial (25) showed little difference between intervention and control groups. However, more recent studies have reported encouraging data. Morrison et al. (26), in a randomized, controlled study, demonstrated a 22.3% improvement in mean overall OSTE scores of residents compared to pre-test scores, while the control group showed no change. OSTEs have potential to be reliable and valid measures of residents' competence as teachers (27, 28). They represent progress in the goal of measuring direct outcomes of teaching skills courses for residents and faculty.

Some studies have evaluated the effects of teaching courses over time, and most show some decline according to residents' self-assessment or based on more objective analysis (20). These results support the need for "refresher courses" or further training, but data on longitudinal training is lacking. Further research is also needed to determine the most effective content, format, and length of resident teaching courses (19).

The Resident Teaching Development Program at Mount Sinai Hospital

In 2001, The Institute for Medical Education (IME) at the Mount Sinai School of Medicine created the Resident Teaching Development Program (RTDP). This seven-hour, multidisciplinary course was one of the first faculty development programs created by the IME to address of the critical role of residents as medical educators in our institution. The goal of the teaching program is to develop the teaching and leadership skills of all residents who teach medical students at the Mount Sinai School of Medicine, for the purpose of improving the quality of clinical teaching at the Mount Sinai Hospital (MSH) and its affiliates.

To design the program, we reviewed existing literature on teaching skills instruction, examined what other institutions were doing, consulted with educators, and conducted a needs assessment survey. Although the data from resident-as-teacher (RAT) course outcomes provides few hints as to ideal content and format of courses, educational theory and faculty development literature cited features of successful teaching skills programs. For example, adult learning theory, as described by Knowles and others (29), guided much of our course development. Therefore, we structured our course to include active learning and opportunities for practice (e.g., review of videos, role playing, brainstorming), integration of the residents' own experiences, feedback on their use of teaching behaviors, and problem-solving activities (Table 1). Self-directed learning is also encouraged by requiring residents to self-assess and create individualized teaching goals for themselves.

TABLE 1

Resident-as-Teacher Curriculum Design: Features of Successful Teaching Skills Programs

Provide opportunities for active learning
Draw upon residents' own experiences
Allow for practice of new teaching skills and provide feedback
Encourage self-assessment and goal setting
When teaching theory, apply it to real scenarios
Choose content that is relevant to the residents' needs
Consider a small group discussion format to promote active learning and build relationships
Design a curriculum of reasonable depth and breadth for residents' time constraints
Build in time to discuss problems of confidence and conflicting roles
Focus on problem areas specific to residents: effective use of questioning, giving feedback, teaching problem-solving skills

We also turned to faculty development literature about teaching skills instruction, which has documented successful outcomes. Skeff et al. (30) suggest that successful faculty development programs clearly address the needs of the participants, use a systematic approach, consider the workplace of the teacher, integrate curriculum that emphasizes theory and practice, build relationships between program faculty and participants and among participants, use knowledgeable program faculty, and integrate all of this into the higher institutional organization. We accomplished these goals by using the results of the needs assessment survey to guide content choices deemed relevant by the residents (e.g., giving feedback). We also combined learning theory, its practical applications and time for practice into the design of the course. Using a small group format encourages relationship building, discussion, and active learning. In addition, the course is taught either by trained educators or by physicians who have attended faculty development sessions specifically geared to teaching the course. Many RAT courses are taught by faculty in individual departments who are dedicated teachers but may or may not have had formal training. Lastly, with support from both the IME and the medical school, we created a core curriculum for all residents, which provided standardization of teaching. We believe this centralization of the curriculum to be key to the success of the program. The more common, autonomous, department-based approach to curriculum development makes it difficult to standardize and evaluate the outcomes of the courses.

Resident-as-teacher literature helped to guide curriculum development as well. We know from studies mentioned above that residents lack confidence in their clinical knowledge and teaching skills, feel conflicted about their primary responsibilities and are under extreme time pressures. Therefore, we created a fairly compact yet comprehensive curriculum that can be taught in one full day or multiple shorter sessions. During the course, we spend time discussing solutions to residents' lack of confidence and conflicted roles. We also include specific instruction on asking questions, giving feedback, and teaching problem-solving skills, all of which are cited as deficient in resident teaching.

We then met with program directors and chief residents to make the curriculum adaptable to each specialty. The course has subsequently been modified further based on feedback and evaluation data, and now includes three modules: Setting Goals and Expectations, Teaching Theory and Techniques, and Feedback. Thus far, the RTDP has already

been implemented in the departments of Medicine, Surgery, Pediatrics, Psychiatry, and Obstetrics and Gynecology at Mount Sinai Hospital and in various departments at its affiliate hospitals. Only 35% of all programs with resident-as-teacher courses have a multi-specialty curriculum, and the RTDP is one of the few programs nationwide to cater to such a wide range of specialty residencies (6; Table 2).

The effectiveness of the RTDP was initially evaluated using pre- and post-course questionnaires to assess residents' self-evaluated confidence and usage of specific skills, and a course evaluation. Preliminary results are encouraging; however, complete data is forthcoming. We are currently planning to develop OSTEs to objectively evaluate residents' competence as teachers.

Soon after implementation of the RTDP, there was a surge in interest from program directors and faculty in other MSH and affiliate departments who were not yet participating. There are approximately 60 departments that train residents at MSH and more than 12 affiliate hospitals. We had a limited number of faculty, resources, and time to teach the curriculum in this many departments. To do so, we created a dissemination program entitled "Teach the Teacher." This 2-day course teaches faculty the content and structure of the RTDP so that they can implement and sustain the course in their own departments. This program was piloted in February 2004 with 13 faculty from 7 specialties, and in 6 affiliate hospitals. We plan to continue Teach the Teacher yearly and build a cadre of educators in the Mount Sinai community who are dedicated to improving residents' teaching skills.

Future Plans

As the importance of teaching instruction for residents and faculty continues to gain recognition, resident-as-teacher courses will probably be given more time in the curriculum of residency programs. Many more resources are now available to faculty

TABLE 2
Unique Aspects of the Resident Teaching Development Program (RTDP) at Mount Sinai Hospital

Has a flexible format: can be taught in one day or multiple seminars
Was designed by physicians with educational training
Core curriculum provides for standardization of teaching
Curriculum is adaptable to any specialty and has been successfully implemented in all major departments
Each specialty department contributed case examples, role plays and issues specific to their fields
Has been disseminated widely using a faculty development "Teach the Teacher" program

and program directors to learn how to teach RAT courses for their own residents. Research will help us provide residents with the most effective content and teaching formats. As hospital stays shorten, residents have even less time to teach. In this setting, teaching skills instruction may become even more valuable for residents, but we need to learn the most efficient and effective means of helping residents teach (31). For example, we need to understand which teaching techniques work best for residents, what degree of training is necessary (single interventions vs. longitudinal training programs), and how to effectively motivate residents to teach despite their time pressures and intense work environment (32). Educational research should also help elucidate the most direct and standardized means of evaluating these programs, so that we can document competency in this critical skill.

Residents dedicate a great deal of time to teaching students and colleagues, and they should be supported in this endeavor. Residents want guidance and training for both their acquisition of knowledge and their teaching activities. We should provide them with the best guidance and training possible.

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