The Clinician–Educator Track: Training Internal Medicine Residents as Clinician–Educators

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Abstract

Problem

Although resident-as-teacher programs bring postgraduate trainees' teaching skills to a minimum threshold, intensive, longitudinal training is lacking for residents who wish to pursue careers in medical education. The authors describe the development, implementation, and preliminary assessment of the novel track for future clinician–educators that they introduced in the internal medicine residency program at Beth Israel Deaconess Medical Center in 2010.

Approach

Categorical medical interns with a career interest in medical education apply to participate in the clinician–educator track (CET) at the midpoint of their first postgraduate year. CET residents complete a 2.5-year curriculum in which they review foundations of medical education, design and assess new curricula, and evaluate learners and programs. They apply these skills in a variety of clinical settings and receive frequent feedback from faculty and peers. All CET residents design and implement at least one medical education research project.

Outcomes

A comprehensive evaluation plan to assess the impact of the CET on resident teaching skills, scholarly productivity, career selection, and advancement is under way. A preliminary evaluation demonstrates high satisfaction with the track among the first cohort of CET residents, who graduated in 2012. Compared with residents in the traditional resident-as-teacher program, CET residents reported higher gains in their confidence in core medical education skills.

Next Steps

Although these preliminary data are promising, data will be collected over the next several years to explore whether the additional curricular time, faculty time, and costs and potential expansion to other institutions are justified.

Problem

Postgraduate physician trainees serve as the primary teachers for medical students within teaching hospitals, where they provide between one-third and two-thirds of medical student education.[1] Recognizing residents' substantial role in medical student education, the Liaison Committee on Medical Education has called on residency training programs to ensure residents' competence as teachers. Additionally, residents are required to assume progressively more responsibility for educating their fellow residents, as reflected in the Accreditation Council of Graduate Medical Education's developmental milestones.

Resident-as-teacher programs were designed to address the need to develop residents' teaching skills,[2] but they generally function to bring residents to a minimum standard. Heflin and colleagues[3] have described a framework for a more intensive clinician–educator curriculum in an internal medicine residency program, based on principles similar to those of faculty development programs and with an emphasis on cultivating time and opportunities for trainees to become better educators.

For residents who, early in their training, identify interest in a career as a clinician–educator, a residency "track" may be an ideal venue for the comprehensive, longitudinal training necessary to fulfill this professional goal. Residency tracks are "tailored educational experiences" that allow learners to bridge the gap between training and practice, and examples in primary care, research, and global health have been described.[4,5]

To our knowledge, a residency track to train internal medicine residents as clinician–educators has not been reported in the medical education literature. Here, we describe the development and implementation of the clinician–educator track (CET) within the internal medicine residency program at the Beth Israel Deaconess Medical Center (BIDMC). We discuss the resident selection process and curricular structure, and we share preliminary results from our ongoing comprehensive evaluation of the track.

Approach

The CET

Program objectives. The primary aim of the CET is to provide training that enables internal medicine residents with a career interest in medical education to develop the skills necessary to succeed as future clinician–educators. The objectives for track participants are to:

- advance the knowledge and skills for effective clinical teaching;
- learn to design new curricula;
- understand how to evaluate learners and programs;
- develop the skills needed to become a capable administrator, leader, and change agent; and

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- master the skills necessary to investigate educational topics and disseminate scholarly work.

Participants and setting. The CET was introduced at the BIDMC—an urban, 600-bed academic medical center—in 2010. Any of the 48 categorical internal medicine interns who are in good standing can apply to the CET at the midpoint of their first postgraduate year. Each year, we accept up to six residents into the track, which runs for the remainder of their residency (2.5 years). Applicants submit a curriculum vitae; a letter of interest describing their prior educational experiences, interest in teaching and medical education leadership, and future career goals; and a proposal for a scholarly project in medical education. All application materials are reviewed by a selection committee consisting of senior medical educators; this review places the greatest weight on how CET participation will advance applicants' career interests.

Curriculum. Once accepted, residents in the CET (CET residents) participate in a comprehensive, longitudinal curriculum (see Figure 1), led by a senior clinician–educator (C.C.S.). Residents progress through the track with their same-level peers, allowing them to undergo the curriculum in a learning environment that is developmentally appropriate. The principal mode of delivery is small-group sessions, during which CET residents review key principles of medical education, practice clinical teaching skills, design and assess new curricula, evaluate learners and programs, appraise research articles, and investigate topics in medical education. Each session is designed to allow active participation and repetitive practice. CET residents have the opportunity to apply these skills in various settings (e.g., ward rounds, case conferences, student conferences, lectures), where they receive peer and faculty feedback. Several of each CET resident's teaching encounters are video recorded to facilitate feedback and self-reflection.

CET residents also participate in other offerings available to clinical educators, including faculty development workshops and a Harvard Medical School (HMS) continuing medical education (CME) course titled "Principles of Medical Education."

The CET expands residents' teaching experiences beyond those they would normally have during their residency training by providing them with additional opportunities to teach. All CET residents participate in supplemental teaching opportunities and may select from experiences at the residency and/or medical school level, which allows them to tailor their educational training. Sample activities include facilitating preclinical pathophysiology tutorials, teaching physical exam skills to first-year medical students, and precepting other residents' ambulatory clinics. In addition, they serve as peer advisors for one another.

To hone their skills in medical education research, CET residents are required to design and implement at least one project (see List 1 for project examples). They identify research mentors and can participate in the internal medicine residency program's two-week biomedical research course, which is designed and taught by senior researchers in the Department of Medicine.

Logistics. The time-intensive nature of the track requires optimizing schedules to allow the participating residents to attend both CET and regular curricular activities while still meeting clinical requirements. Given that the BIDMC's internal medicine residents alternate between call and noncall rotations in three-week blocks, we assign

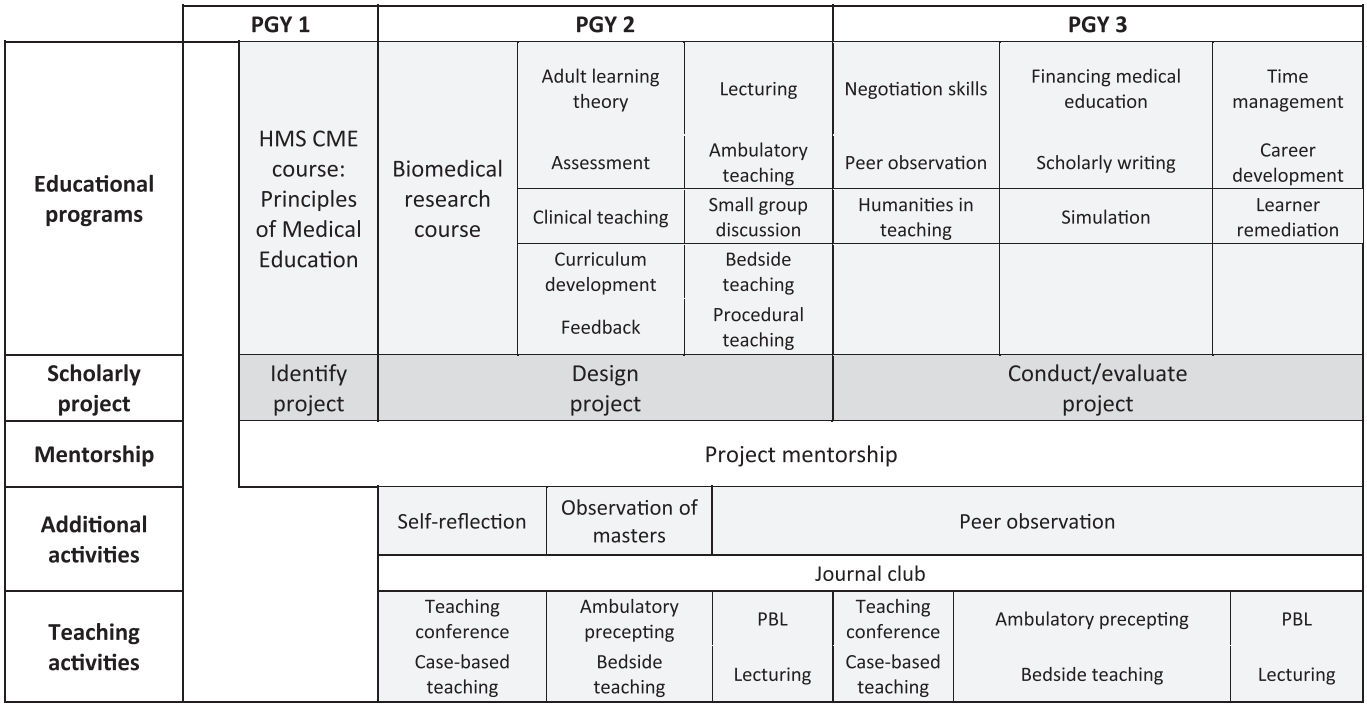

Figure 1 Curricular map for the clinician–educator track, Beth Israel Deaconess Medical Center. This curricular map shows the required components for participation in the clinician–educator track. Blocks represent the curricular content covered and activities that take place during each year of the program. PGY indicates postgraduate year; HMS, Harvard Medical School; CME, continuing medical education; PBL, problem-based learning.

List 1

Sample Scholarly Projects Designed and Implemented by Residents in the First Two Cohorts of the Clinician–Educator Track, Beth Israel Deaconess Medical Center

Educational innovations

- Creation and assessment of a new tool to enhance formative feedback in ambulatory care
- Point-of-care learning in nephrology: The development of short computer-based clinical nephrology modules
- Development of objective structured teaching examinations for procedural instruction
- Standardization of elective curriculum: Development of subspecialty-based, interactive, online educational modules

Quality improvement

- Reduced cardiovascular admissions from the emergency department: A coordination of care model
- Multi-disciplinary education to prevent delirium through the Hospital Elder Life Program

Educational research

- Enhanced knowledge retention during large group teaching: A review of the literature
- Correlation of fourth-year medical school courses and success during internship
- Procedural credentialing in general internal medicine: A survey of division chiefs to determine national procedural credentialing practices

all participating second-year residents to the same sequence of blocks and all participating third-year residents to the alternate block schedule. This arrangement allows each cohort to meet for two sessions in every other block during a noncall rotation. Each CET session is two hours long and replaces part of an afternoon clinical elective. In addition, during noncall blocks, CET residents can schedule supplemental teaching activities.

The scheduling constraints, coupled with our desire to maintain a small-group learning experience, have limited the number of residents we can accept into the track each year. The number of applications has increased over time and now consistently surpasses the number of available slots, growing from 4 in the track's first year (2010) to 10 in its third year (2013).

Recognizing that the CET is an additive component of our residency program, we monitor residents to ensure that track participation does not distract from their training. Good academic standing is a prerequisite for selection, and achievement of developmental milestones is a requirement for continuation in the CET.

Faculty support for curricular development and teaching is the largest expense related to the track. The only other major expense is course tuition for the HMS CME course ($500 per participant).

Program evaluation

We have developed a comprehensive evaluation plan that is in progress. To determine whether the CET program achieves its goals and objectives, we plan to compare data from self-assessments as well as faculty, peer, and student evaluations of the teaching skills of CET residents with residents of the same postgraduate year who are participating in our traditional resident-as-teacher curriculum and have also requested and participated in a teaching elective rotation (control group residents).

All internal medicine residents, including the CET and control group residents, attend a limited number of sessions on core medical education topics such as effective clinical teaching and feedback. All residents also receive faculty feedback on their teaching during work rounds, as well as during the small-group teaching sessions that are expected of all residents. Control group residents spend an additional two weeks in a dedicated teaching elective rotation. During this rotation, these third-year residents review core articles in medical education and have the opportunity to lead several teaching and precepting sessions with faculty feedback.

Both CET and control group residents complete an annual self-assessment form that measures their confidence with various aspects of teaching. In addition, CET residents complete a course evaluation form at the end of the track. Both forms are distributed and collected through New Innovations (www.new-innov.com), a confidential online assessment tool. Here, we report the preliminary data from the CET and control residents' self-assessment of teaching skill and data from end-of-course evaluations.

This project was reviewed and approved by the Committee on Clinical Investigations at BIDMC.

Outcomes

The first cohort of CET residents (n = 4) completed the track in June 2012. Although this number of residents is too small to draw definitive conclusions, quantitative results from end-of-course evaluations indicate a high level of satisfaction in terms of the track's overall value, impact on career, and impact on skills (averaging 3.8–4.0 on a 4-point scale, where 4 = outstanding value). Comparison of self-assessment data from the end of residents' first and third postgraduate years showed that the first cohort of CET residents had consistently higher gains in their confidence in core medical education skills than did the control group residents (n = 11; Figure 2).

Qualitative data from the end-of-course evaluations by the first cohort of CET residents indicate that the track had a significant impact on their fellowship and job application process, as illustrated in the following comments:

> I feel [the CET] bolstered my fellowship application in giving me a clear career plan/focus and gave me opportunities to be a good teacher—and be recognized for it.

> I believe that being a part of the CET made me a much more competitive applicant for fellowship. It set me apart from other applicants.

Overall, the residents expressed satisfaction with their CET experiences, calling the track "the best choice I made at BIDMC" and an "an invaluable educational experience."

These preliminary data indicate that the CET has been very well received and suggest that participants experience significant gains in their ability to contribute to the educational mission of academic medicine.

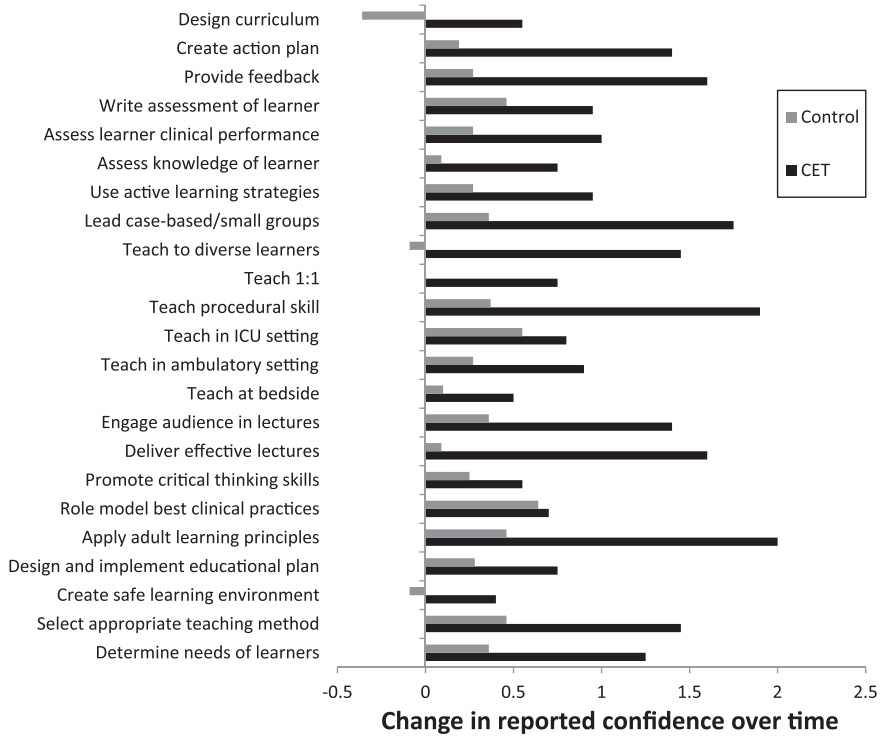

Figure 2 Changes in self-assessed confidence in core medical education skills from the end of the first postgraduate year (2010) to the end of the third postgraduate year (2012) among residents in the first clinician–educator track cohort (CET; n = 4) and residents in the traditional resident-as-teacher program (control; n = 11), Beth Israel Deaconess Medical Center. Residents reported confidence using a five-point scale.

Next Steps

Offering a clinician–educator track within an internal medicine residency program can address the needs of residents who anticipate careers as medical educators and desire to gain teaching skills that they can apply during their training. However, before our track can be expanded and widely accepted by stakeholders (i.e., program directors and department chairs) at other institutions, more data are required to justify the additional curricular time, faculty time, and costs. The data we will collect over the next several years will yield a larger sample size with which to assess more definitively the impact of the CET on residents' teaching skills and career selection, as well as on graduates' career advancement and scholarly productivity.

To determine whether CET residents apply what they have learned from their experiences in the track, their teaching sessions in various settings are observed and assessed by faculty. In addition, all residents' teaching abilities are assessed by faculty as part of their clinical evaluations after each rotation. CET and control group residents' teaching skills are also judged by medical students and resident peers, who are the direct beneficiaries of their teaching; these assessments take the form of questions about teaching quality embedded within standard evaluations of the residents completed by medical students and peers. We plan to use data from these faculty, peer, and student assessments in our comprehensive evaluation of the CET.

In addition, we have received grant funding to investigate whether the acquisition of teaching skills translates into better clinical skills, in support of the concept that training in medical education adds value to clinical training. If, indeed, this investigation demonstrates a broader benefit, expansion of medical education training beyond just those individuals with an expressed career interest may be justified.

If further data demonstrate benefit, we believe that, despite the modest logistical barriers, this track can be effectively replicated in other internal medicine residency programs to address the needs of residents who aspire to careers as clinician–educators.

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