



MEDICAL EDUCATION

IMPLEMENTING A PROJECT-BASED, LONGITUDINAL MEDICAL EDUCATION TRACK TO TRAIN FUTURE ACADEMIC CLINICIAN-EDUCATORS

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There is increasing demand in academic medicine for physicians trained in medical education, and being an effective teacher is essential for physicians. However, a clinician-educator (CE) is distinct from a clinician-teacher, as educators oversee and design curricula, demonstrate leadership in educational initiatives, and engage in education scholarship. While many residency programs emphasize resident-as-teacher training, few offer CE training. Here we review literature on CE training in graduate medical education and describe the clinician-educator track (CET) in the Department of Medicine at the Icahn School of Medicine at Mount Sinai. We hope by sharing our experiences and challenges, others will implement their own CETs.

High faculty attrition and resident disinterest in academic medicine portend a future shortage of academic physicians.¹ In response, several residency programs involved residents in education training to develop scholars and leaders in medical education.² At the faculty level, CE promotion pathways are increasingly prevalent. Several programs have published on CETs, including:

- **University of Chicago: GME-wide CET started in 2014 including candidates from all residency programs, involving live interactive meetings, journal clubs, and conferences; web-based modules with discussion groups; and mentorship. All participants present a project poster.**³
- **Beth Israel Deaconess: Started in 2010 and limited to medicine residents. Begins in PGY1 year with seminars, enhanced teaching opportunities, and a longitudinal scholarly project.**⁴

- **Stanford: Started in 2010 in family medicine. Includes online modules, small group seminars, and a longitudinal scholarly project.**⁵

Our Medical Education Track is two years for PGY2 and -3 residents. It launched in 2015, open to all interested residents from the Mount Sinai Hospital Medicine residency program, and two cohorts have graduated. In 2016, we expanded to include Medicine programs at sister hospitals (Mount Sinai St. Luke's/Mount Sinai West and Mount Sinai Beth Israel) and Pediatrics residents at Mount Sinai, with PGY1 residents applying in the spring. We currently accept six residents from each Medicine program and two from Pediatrics, though these quotas are flexible.

The track is project based: all must design and implement an education project and submit worksheets every six months. The track involves seminars approximately six weeks apart. Several are dedicated to workshops where participants discuss projects and exchange ideas. PGY2 year is focused on curriculum design, and includes modules on educational theory, one's philosophy of education, needs assessment, goals/objectives, teaching strategies/methods, and educational scholarship. Our goal is that participants have well-defined projects by the end of PGY2 that can be implemented during PGY3. PGY3 curricular content focuses on advanced teaching skills, including microteaching along with workshops on ambulatory teaching, remediation, clinical reasoning, feedback, bedside teaching, and small group teaching.

A two-week Medical Education Elective was piloted

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in 2017-18 for select PGY3 participants to provide an opportunity to teach across a variety of settings and formats over two weeks, with observation and regular feedback by faculty. Numerous additional teaching opportunities are available to track members regardless of elective participation, including medical student small group and physical diagnosis teaching.

Faculty members are drawn primarily from departments of Medicine, Pediatrics, Geriatrics, and Medical Education. All volunteer their time and have substantial experience and/or leadership roles in medical education. Residents are asked to identify a project mentor, who is often (but not always) one of the core track faculty.

Evening sessions allow most to attend and they are recorded so those with conflicts can stay current. Food is provided at seminars. Free cloud storage services are used to share information, articles, slides, and resources.

The track has been evaluated continuously with written evaluations completed for all modules, with overall session scores at least 4.5/5.0. We have high perceived resident satisfaction, and participants have enthusiastically encouraged interns to apply. In our pilot year, 9 PGY1 applied with steady increase in subsequent years to 31 for 2018-20. Other data include abstracts submitted to the Department of Medicine and institutional Medical Education Research Day (six most recently, in-

cluding one award-winning abstract), institutional teaching awards for participants (multiple), external medical education conference attendance (multiple participants accepted to the Harvard Macy Post-Graduate Medical Education course in addition to education-focused meetings), and publications (several manuscripts currently in preparation).

There have been challenges. Every year, we receive more applicants than spots. It has been difficult to balance admitting anyone interested and keeping the group small, which we believe enhances the discussions and project workshops. Some participants report difficulty identifying an appropriate mentor outside of track leadership, and we have observed some select mentors with content expertise around their project, but little medical education expertise. Some have addressed this problem by using two mentors: one to assist in developing content, often faculty in the subspecialty of career interest, and one for guidance in improving the project's educational quality, often one of the track leaders. This has worked when the resident is proactive but has been difficult for less engaged residents.

In the coming year, we hope to address these challenges by further expanding. Leadership will also expand, and residents with projects in similar areas will be grouped into pods sharing an advisor. We hope the system will allow earlier mentor identification, as each participant will have more direct contact with track leaders. We also hope to facilitate peer mentorship, by asking PGY3 residents to mentor PGY2s. As we now have Chief Residents who completed the track, we have also involved them in teaching and mentoring participants.

While evening sessions have allowed most residents to attend most modules, the lack of dedicated weeks assigned to the track has challenged

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Reflections from recent participants in the Medical Education Track at the Icahn School of Medicine at Mount Sinai:

“As an aspiring academic physician, I applied for the Medical Education Track at the Icahn School of Medicine Mount Sinai to further expand my knowledge in the fundamentals of medical education and curriculum development. My project focus was on developing and implementing a standardized internal medicine lecture curriculum that would cover the major topics included in the American Board of Internal Medicine. Participating in the track not only provided a framework to accomplish my scholarly project but also gave me the confidence to teach effectively as a resident during clinical rounds. Additionally, it boosted my curriculum vitae with scholarly accomplishments and was a principal topic of discussion during my fellowship interviews. I genuinely believe that participating in the track made me a unique and more competitive candidate, and provided the necessary tools to become an outstanding clinician educator.”

—Alvaro Ramos-Rodriguez, MD

“I did not know the difference between being a teacher and being an educator before being accepted to the Medical Education Track. I learned a lot about curriculum development, including how to accurately perform needs assessment, set up goals/objectives, and implement evaluations. I was able to launch a curriculum for medicine residents in my program, where they could learn about peer review via Mortality conferences. The medical education track helped me to map out what needs to happen in order to design the curriculum. Another strength of this track was having residents from different programs within the healthcare system. I was able to learn about the curricula of other programs and get feedback from various viewpoints, which helped me build a more effective project.”

—Misa Hyakutake, MD



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us to engage residents between sessions, as they often have competing priorities, including clinical work and research. While the current model allows participants to progress their project at their own pace, it requires self-directed and motivated learners. Nonetheless, we value preserving the ability of our participants to do clinical subspecialty rotations and pursue additional training and research during elective time. Furthermore, a model where elective blocks were dedicated to the track would severely limit the number of participants, as only a small number of residents can be on elective at one time.

Overall, the medical education track at our institution has been pop-

ular, and has resulted in projects that have enhanced our training program and graduated physicians who are well poised to become future leaders in medical education. We hope that programs such as this will become more widespread for the benefit of future medical trainees.

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