Promoting Mentorship in Translational Research: Should We Hope for Athena or Train Mentor?
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Abstract

Despite consensus that mentorship is a critical determinant of career success, many academic health centers (AHCs) do not provide formal training for their mentors. In part, this problem arises from a lack of evidence-based mentorship training curricula. In this issue of Academic Medicine, Pfund and colleagues from 16 AHCs, including 15 Clinical Translational Science Award institutions report the results of a randomized, controlled trial that addressed this research gap. In their study, mentors randomized to undertake a formal mentoring curriculum reported significant gains in self-assessed competencies. These improvements were corroborated by the most critical and objective observers of mentorship skills: their own mentees.

Evidence-based curricula will not transform research mentorship in isolation. An organization-wide culture of mentorship is necessary to meet the mentorship needs of all research trainees and faculty. The development of a culture of mentorship requires attention to structural issues such as the provision of protected time, physical resources, and targeted funding in addition to evidence-based curricula. Organizations must monitor the implementation of these structures in the day-to-day process of mentorship. Finally, institutions must develop measures to track outcomes for both mentors and mentees, and create incentives to achieve those outcomes. In the current environment of constrained research funding and competing demands from clinical and educational programs, a substantive organizational commitment to mentorship is necessary to ensure that the next generation of mentees achieves success in translational research.


Homer’s Odyssey is best known as the story of the Greek hero Odysseus, a wise and experienced man “skilled in all ways of contending.” The epic begins with a different story, however: the journey of Odysseus’s young son Telemachus in search of his father. As he begins his search, Telemachus receives advice from the goddess Athena in the guise of Mentor, an old and trusted comrade of Odysseus. Although this myth is an iconic demonstration of the value of mentorship, close reading of the story revealed that mentorship is divine rather than human in origin, a gift rather than a teachable skill. In a recent survey, only 45% of research-intensive academic health centers (AHCs) had formal, face-to-face training programs for mentors.1 Thus, many organizations appear to be hoping for Athena rather than training Mentor.

Although well-designed research about the effect of mentorship on career development and outcomes is scarce,2,3 educators in medicine and other fields agree with Homer that mentorship does matter. Despite this consensus, the research literature on strategies to improve mentorship skills mostly consists of expert opinion4,5 and small, uncontrolled case series.6,7 This important field has long been ripe for more rigorous studies.

A Randomized Control Trial of a Mentorship Curriculum (at Last)

A report in the current issue of Academic Medicine relays the results of a multisite randomized, controlled trial of a mentorship training program.8 The study was conducted by a consortium of research educators from 16 AHCs, including 15 with Clinical Translational Science Awards (CTSA) funded by the National Institutes of Health (NIH). The investigators randomized faculty mentors (N = 283) either to receive a previously developed, eight-hour, case-based mentoring curriculum or to continue to rely on their instincts and experience. Only 21% of these mentors reported prior mentorship training. All mentors completed a battery of quantitative and qualitative instruments to assess their mentorship skills at baseline and three months after they finished the curriculum. The investigators also included one mentee for each mentor who, blinded to the intervention status of his or her mentor, completed a set of quantitative and qualitative evaluations for that mentor.

The authors show convincingly that mentorship skills can be taught. Mentors randomized to the intervention group improved in their composite self-assessment scores, three of six specific mentorship domains, and a retrospective assessment of their original skills in comparison with their skills after the intervention. Although composite mentee assessments of their mentors’ skills did not differ between intervention and comparison groups at the three-month follow-up, intervention group mentees noted significant improvements on the retrospective assessment and were significantly more likely to identify...
positive changes in their mentor’s behavior than were mentees in the comparison group. The effect of the intervention was consistent across sites—an important finding given the substantial differences that participating institutions invested in mentorship training and resources at baseline.

By design, the study assessed short-term effects on mentorship skills. Longer follow-up would be necessary to demonstrate the durability of these behavioral changes and any impact on the professional outcomes of mentees. The study is large enough that further subgroup analyses may be informative. The Odyssey itself suggests one such analysis. Throughout the epic, Odysseus’s wife Penelope uses a series of stratagems to successfully hold a houseful of suitors at bay. After Odysseus returns home in disguise, she tricks him into revealing his identity, outfoxing the old fox himself. Although wise Penelope receives guidance from Athena, she has no human mentor. Many women in academic medicine share Penelope’s predicament. Because 40% of the mentors and 58% of mentees in the current study were women, Pfund and colleagues have an opportunity to assess the impact of mentorship, and particularly of gender-concordant mentorship, on the career success of women in translational research.

Multisite studies of educational strategies, such as the one performed by Pfund et al, require long-term collaboration, methodological sophistication, and substantial resources. Pfund and colleagues’ study is a product of the NIH-supported CTSA initiative, launched in 2005 to improve the infrastructure for clinical/translational science in AHCs. CTSA funding supports innovative educational and training programs within these medical centers and has promoted the development of a national consortium of research educators to share best practices and coordinate evaluations such as this one. Much as clinical/translational research increasingly requires collaboration across multiple performance sites and patient populations, studies of educational interventions, including the implementation of mentoring curricula, will also require multisite evaluation to ensure that the outcomes are not purely dependent on local context.

Creating an Organizational Culture of Mentorship

At the beginning of each academic year, research trainees like Telemachus and Penelope enter academic programs seeking mentorship. If the sites in this study are representative, most of their organizations will lack formal mentorship programs, and most of their mentors will not have been trained. The curriculum evaluated by Pfund and colleagues provides one tool that AHCs can use to help train their research mentors, but transformation of mentorship in academic medicine will require an organization to support mentorship training, take evidence-based curricula to scale, and embed them within a broader culture that consistently reinforces the importance of mentorship and aligns incentives to improve it.

What would an organizational culture of mentorship look like? To envision this culture, we can adapt a venerable model for improving the quality of health care. This model postulates that structural elements built into a system reinforce the day-to-day activities (processes) carried out by individuals within that system in order to produce desired outcomes.

Among the structural elements of a mentorship culture are systems to proactively connect mentors and mentees, a commitment to test or adapt evidence-based curricula to train mentors and mentees, development of standardized evaluation tools to longitudinally assess mentors and mentees alike, and contingency plans to intervene in mentoring relationships that are unsuccessful, exploitive, or neglectful. Even more important, organizational leaders and individual mentors need to allocate time, space, physical resources (such as computing capacity, data, or laboratory resources), and adequate funding to support the mentorship process.

Such structural tools will not improve mentorship outcomes unless they are consistently adopted into the day-to-day process of mentorship. If the Pfund curriculum is to improve the mentorship culture at an organizational level, all research mentors should be trained. This task is potentially difficult, in part because the mentors most in need of training are all too often those least likely to seek it. Mentees themselves can be coached (often by more experienced mentees) to guide their mentors toward mutually satisfying relationships.

Mentor–mentee dyads might set mutual goals that are monitored by an external faculty coach. In the Odyssey, Mentor did not just give Telemachus good advice; he accompanied the young man on his voyage to seek his father. Because all good mentorships are journeys, training programs should monitor and evaluate mentoring relationships continuously—similar to the existing strategies for evaluating clinical or classroom teaching. Systematic assessments of mentorship are surprisingly rare. In my own academic career, I was far more likely to receive a formal evaluation of a one-hour lecture than of mentoring relationships that lasted for years, and information beyond the names of mentees is often absent from promotion dossiers of active mentors.

Finally, outcome measures need to be defined and consistently collected for both mentors and mentees. Metrics that can be routinely incorporated into promotion packets are particularly likely to motivate mentors. A special section for mentorship evaluations in the teaching portfolio is a good starting place. Local and national organizational awards can establish that a faculty member has achieved excellence and a national reputation in mentorship. The usual tally of first-authored and senior-authored publications can easily be modified to include counts of papers coauthored with mentees, and particularly of papers first-authored by those mentees.

Measuring outcomes for mentees requires substantial effort because careers take many years to unfold and relevant outcomes may not occur until after the end of formal training. Common outcome metrics in published studies include retrospective assessments of mentorship impact, the number and rate of publications, grants awarded during and after training, entry and retention in academic careers, time devoted to research, and assumption of leadership roles. Assessing these outcomes requires long-term follow-up through periodic surveys augmented by publication and grant databases.

Systematic training and recognition of mentors can establish a virtuous cycle of organizational change. In evaluating
a primary care research fellowship program, we found that mentees who identified an influential mentor during training were substantially more likely (73% versus 36%) to become mentors themselves, often in areas other than research. If mentorship is in fact transmissible, a cohort of superior mentors may rapidly promote a culture of mentorship across all the domains of academic medicine and all levels of the academic hierarchy. Although no epic poet tells the further adventures of Telemachus, we can be optimistic that he became a Mentor in his own right.

The study by Pfund and colleagues uses rigorous methods to demonstrate that research mentorship is a teachable craft as well as an art. AHCs should disseminate such evidence-based mentorship curricula as part of a larger strategy to develop an organizational culture of mentorship. Although we can never guarantee that Athena will be present in a mentoring relationship, we can at least ensure that Mentor has been trained.

References