HHS Public Access

Author manuscript

Acad Med. Author manuscript; available in PMC 2021 April 26.

Published in final edited form as:

Acad Med. 2016 December ; 91(12): 1598–1600. doi:10.1097/ACM.0000000000001264.

Mentoring Early-Career Faculty Researchers Is Important—But First "Train the Trainer"

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Abstract

It has long been known that mentoring is critical to the success of junior faculty researchers. The controlled intervention study by Libby et al published in this issue of *Academic Medicine* demonstrates that institutional investment in a mentored research career development program for early-career faculty investigators provided significant long-term gains in grant productivity. Academic institutions hoping to replicate this program's success by launching similar mentoring programs for their junior faculty investigators will, however, find that the Achilles' heel lies in the scarcity of skilled research mentors and the relative lack of attention to and recognition of the importance of a supportive institutional climate for mentoring. It is essential, therefore, to begin by developing programs to "train the trainer" as well as programs and policies to support mentors. As a recent trial at 16 Clinical and Translational Science Award institutions demonstrated, competency-based, structured research mentor training can improve mentors' skills.

In this Commentary, the authors offer a comprehensive two-pronged framework for mentor development with elements that address both individual mentoring competencies and the institutional climate for mentoring. The framework depicts the gaps, activities, and outcomes that a mentor development program can address. Activities directed at changing the institutional climate related to mentor development should complement training activities for individual mentors. The authors propose that employing this framework's approach to mentor development will lead to the desired impact: to increase the competence, productivity, and retention of a diverse clinical and translational research workforce.

Mentoring has existed since at least the time of ancient Greece. The word *mentor* itself was inspired by the character of Mentor in Homer's epic poem *Odyssey*: When Odysseus, king

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Other disclosures: The authors declare that they have no competing interests or conflicts of interest.

Ethical approval: Reported as not applicable.

of Ithaca, left to fight in the Trojan War, he entrusted the care of his kingdom and his young son to Mentor. In more modern times, evidence has shown that mentoring is critical to the success of the junior faculty investigators who form the backbone of the research workforce.[1] In this issue of *Academic Medicine*, Libby et al[2] provide further evidence that institutional investment in a mentored research career development program for junior faculty researchers is financially sustainable and enhances participants' grant productivity over multiple years, even after completion of the training. This controlled intervention study confirms the strategic contribution of structured faculty mentoring to the growth of an academic institution's research portfolio.

We anticipate that some academic institutions will hope to replicate this program's success by launching similar mentoring programs for early-career faculty investigators in their local environments. Unfortunately, as scientific communities have found, the Achilles' heel for launching such programs lies in the scarcity of skilled research mentors and the relative lack of attention to and recognition of the importance of a supportive institutional climate for mentoring.[3] It is therefore essential to begin by developing programs to "train the trainer" as well as programs and policies to support mentors.

Typically, research mentors learn how to mentor over time through their own experience, trial and error, and peer observation—and most academic institutions provide little formal structure for them to learn any other way.[4] A recent randomized controlled trial at 16 academic health centers with Clinical and Translational Science Awards demonstrated that competency-based, structured research mentor training can improve mentors' skills.[5] A mentor training program is one component of a supportive mentoring environment but is unlikely to be well subscribed to unless the institutional culture encourages participation. Some academic institutions have a climate that values mentor development to a greater extent than others, as evidenced by the availability of specific programs and policies. Institutions without a robust research climate may not have programs and policies in place to help create a supportive milieu for research mentors. It is possible that institutions can address local gaps that limit research mentor development by offering structured mentor training activities and creating programs and policies that support mentor development, which in turn may help increase the competence, productivity, and retention of junior faculty investigators at the institution and in the clinical and translational research workforce.

There is evidence that faculty, particularly underrepresented minority (URM) faculty, are less likely to be retained in research careers if they lack mentoring—those who lack mentoring may be less productive and less satisfied with their careers.[6] The literature also shows that institutions with structures and policies that support mentor development are more likely to retain a diverse faculty and to increase faculty satisfaction and productivity.[7] Further, it is possible that developing an institutional support network for mentors would enhance individual mentors' overall mentoring self-efficacy: There is not yet a body of literature that demonstrates that community network building improves self-efficacy among mentors or mentees in a structured mentoring program, but research in other disciplines suggests that social networks are helpful for creating support systems.[8]

We propose a two-pronged framework for mentor development that incorporates elements addressing both individual competencies and institutional climate for mentoring. This framework, as shown in Figure 1 and described below, depicts the gaps, activities, and outcomes that a mentor development program can address to attain the desired impact.

Gaps in the Knowledge Base and in Practice

In the "Gaps" column of the proposed framework, we identify critical gaps in the knowledge base, and in practice, regarding which mentor development activities are feasible and effective in improving the skills of individual research mentors and the institutional climate for mentor development. There is a need for activities to address a shortage of competent research mentors and the inadequate scholarly productivity of junior faculty mentees, as well as for activities to address the *perception* of a limited benefit of faculty mentoring generally and of faculty mentor development specifically. Academic institutions, particularly of medium and small size, often lack clear programs and policies for research mentor development and recognition, including those related to promotion/tenure, awards, and retention of faculty mentors. For example, mentor success (based on predetermined criteria) could be rewarded by incentives in annual compensation or by non-monetary awards of recognition given by the university administration. Even when the mentoring process is valued highly at an institution, institutional leaders often fail to acknowledge the value of mentor development through investment in mentoring incentives. Given the importance of increasing the diversity of the academic research workforce, another important gap that must be addressed by individual mentors, institutional leaders, and mentor development programs is the need to encourage mentors to use approaches that meet the specific needs of URM faculty, who face unconscious bias, diversity pressures, isolation, and racism.[9]

Development of Programs and Policies

In the "Activities" column, we propose a set of mentor development programs and policies that could be implemented for individuals and for institutions. Activities that may help develop individual faculty research mentors include structured, competency-based, online, and face-to-face training modules and programs. The competencies addressed (see Figure 1 for examples) may be similar to those discussed by Pfund et al in recent studies.[5,10] In addition, training in tailored approaches to mentoring URM faculty is warranted to address specific gaps related to their experience.

At the University of New Mexico Health Sciences Center, we have developed an online Faculty Mentor Development Program, which is available without charge to both internal and external faculty (see https://ctsc.health.unm.edu/apps/brep/). This program is the product of three years of discussion and input from a specially constituted working group that comprised midcareer and senior faculty researchers at the University of New Mexico School of Medicine, College of Nursing, and College of Pharmacy. It is composed of eight competency-based training modules, with competencies similar to those discussed by Pfund et al.[5,10]

Activities directed at changing an institution's climate for research mentor development should complement training activities for individual mentors. Such initiatives include institutional programs to identify, train, and match mentors with mentees; programs to develop mentor support networks; policies that advocate mentor development; promotion/tenure policies that mandate mentoring; and mentor awards and other types of acknowledgment by institutional leadership, including recognition on Web sites or in social media.

Evaluation and Impact

Because of the limited literature on the effectiveness of interventions to develop mentors, all mentor development programs should be subjected to rigorous evaluation. In the "Outcomes" column of the proposed framework, we provide a set of indicators that may be used to measure the effectiveness of a mentor development program. Individual mentor outcomes evaluated should include change in mentoring competency (using a reliable and valid instrument such as the Mentoring Competency Assessment scale[10]), change in scholarly productivity of faculty mentees, change in perceived benefit of mentoring junior faculty, and change in perceived value of mentor development among faculty. Outcomes evaluated should also extend to institutional programs and policies, including change in number of mentors and of successful mentor-mentee relationships, change in mentor and mentee support networks, change in policies advocating mentor training, change in promotion/tenure criteria and retention of faculty mentors, change in mentor recognition and rewards, and change in perception of value placed on mentor development by institutional leaders. Currently, however, reliable and valid instruments to study these outcomes are limited. Further, the definition of a "successful" mentoring relationship depends on the career stage and needs of participants (both the mentor and mentee), so measurement of this outcome is necessarily complex.

In the "Impact" column, we propose that employing the two-pronged approach to mentor development described in this framework will lead to the desired impact: to increase the competence, productivity, and retention of a diverse clinical and translational research workforce. We advocate for rigorous evaluation so that leaders at every academic institution can be confident that implementing a well-proven framework will help them to achieve a similar impact at their own institution.

In Sum

Providing mentoring in a structured program increases professional success for junior faculty investigators and is a cost-effective strategy for academic institutions.[2] To replicate the research mentoring program for early-career faculty described by Libby et al,[2] academic institutions will need to simultaneously develop, sustain, and evaluate a structured two-pronged approach for mentor development, incorporating elements that address both individual competencies and the institutional climate for mentoring. Funding agencies that support research and training, such as the U.S. National Institute of General Medical Sciences, should encourage such changes and help devise strategies to rigorously evaluate them. The outcomes may help government agencies, foundations, professional

organizations, and the international research community increase the competence, productivity, and retention of a diverse clinical and translational research workforce.

Funding/Support:

This project was supported (in part or in full) by the National Center for Advancing Translational Sciences of the National Institutes of Health (NIH) through grant number UL1 TR001449. The content is solely the responsibility of the authors and does not necessarily represent the official views of the NIH.

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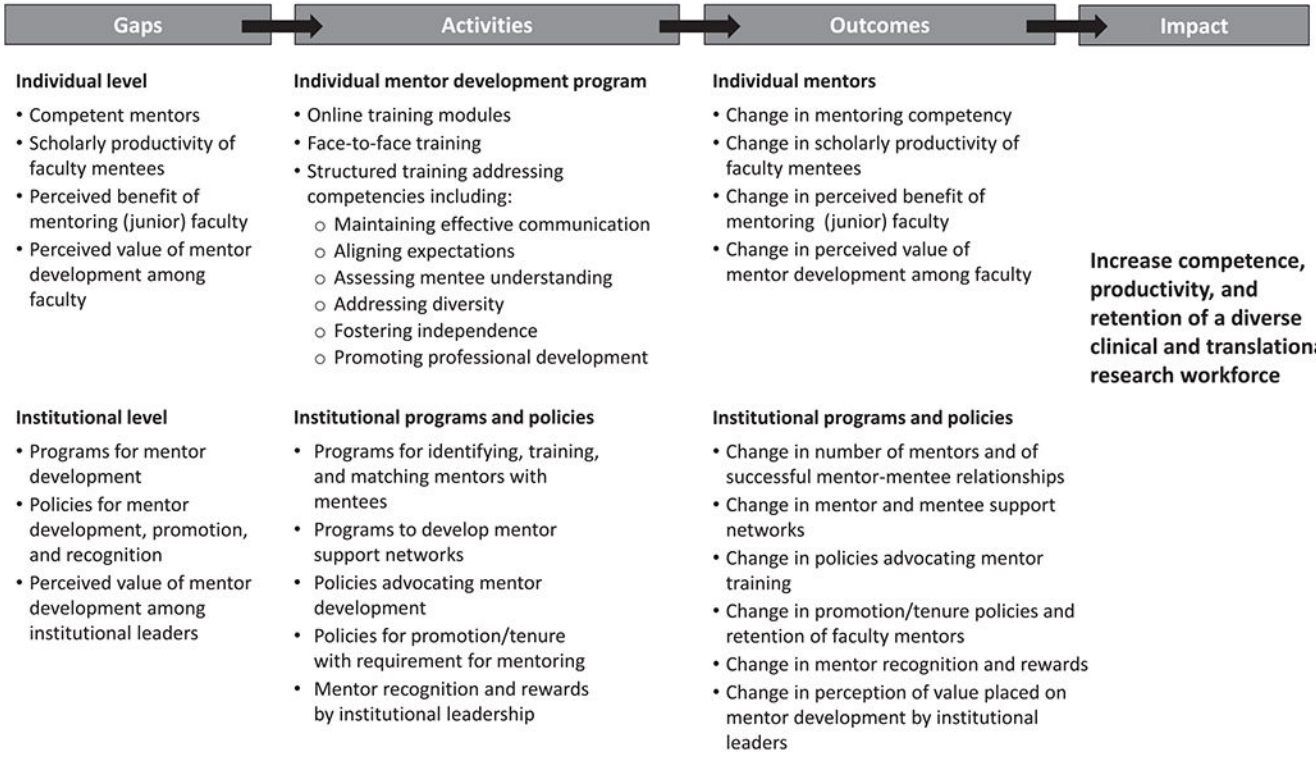

Figure 1.

Proposed two-pronged framework for mentor development with elements addressing both individual mentor competencies and institutional climate for mentoring.