

Mentoring K Scholars: Strategies to Support Research Mentors

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Abstract

The goal of this paper is to present strategies utilized to support K scholar research mentors. K scholars are generally assistant professors who are close to developing independent research programs. Of all the various types of mentees, K scholars offer the greatest challenges, as well as the greatest rewards, for research mentors. To see one's mentee achieve independent PI status and become an established investigator is one of the great joys of being a research mentor. Research mentors for K scholars, however, may not directly benefit from their mentoring relationship, neither in terms of obtaining data to support their research program or laboratory, nor in assistance with grants or scientific papers. There is a pressing need for the research community to address the workload, institutional expectations, and reward system for research mentors. The dearth of research mentors and role models in clinical translational science parallels the decreasing number of physicians choosing careers in clinical research. While there is limited empirical information on the effectiveness of mentor support mechanisms, this white paper concludes that providing mentor support is critical to expanding the available pool of mentors, as well as providing training opportunities for K scholars. Clin Trans Sci 2011; Volume 4: 199–203

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Rationale and Introduction

Mentors working in the area of clinical translational science face increasing challenges for their time, expertise, and energy. Some of these challenges include the continuous writing of grants to support their science and research teams, publishing their work, developing new research ideas and experiments, dealing with human subjects regulations/legal system oversight, managing administrative demands related to supervising research staff, maintaining patient care skills, balancing department/institutional/national leadership demands, teaching trainees to conduct the best science possible, and providing career mentorship to young investigators establishing independent research programs.

Mentoring a K scholar or a new investigator is often seen as a highlight of one's research career. It is an opportunity to give back and share what has been learned. Mentors are often internally motivated to train the next generation of physicians and other scientists. Mentors see this as an opportunity to leave a legacy. They feel pride when one of their former K scholars becomes the chair of a department, directs a clinical division, heads up an institute, or receives a major award such as being elected to the National Academy of Sciences. Such accomplishments can result in increased professional recognition for the mentor.¹ However, mentoring a K scholar can also be perceived as a burden. A mentee has the potential to increase productivity in the laboratory (or working group) but this often requires an "up-front investment" to help the mentee reach his or her full potential. The time and energy required may detract from a research mentor's own research program, personal activities, and family time.

There is a pressing need for the research community to address the workload, institutional expectations, and reward system for research mentors. The dearth of research mentors and role models in clinical translational science parallels the decreasing number of physicians choosing careers in clinical research. What can we do as institutions and leaders of K programs to support research mentors? We hope this paper will provide new insights into how we can support and increase the number of research mentors engaged in clinical translational science.

Methods

The findings of this report were derived from the scientific literature, a national survey of 46 CTSA KL2 directors,² focus groups conducted with 45 research mentors from four institutions, and the mentoring experience of members of the CTSA national mentor working group (see acknowledgments). The working group has been meeting since 2008 to develop a consensus statement on "effective mentoring practices." This paper is one in a series of white papers focused on mentoring new investigators in clinical translational science.

Results

The working group determined that a number of strategies are used to support research mentors for K scholars including: monetary support, access to core laboratories and other CTSA-related services, assistance with grant and manuscript preparation, membership in mentor academies, mentor awards, mentor training, promotion, and peer support.

Monetary support

Three methods of monetary support for mentors were employed across CTSA and the NIH.² The first method provided a *fixed amount* the mentor could use to support a portion of his or her salary or for research. This amount varied from \$5,000 to \$15,000 for each year of the scholar's K award. The NIH roadmap K program funded by NCRR provides up to \$5,000 to research mentors of K12 scholars. The second method supported a *specific portion of a mentor's salary*, most commonly 10%. The monetary support was derived from various departmental and medical school resources. Alternatively, a fixed amount of monetary support came from the NIH K24 mechanism that provided up to 50% salary support (to the NIH max of \$198,000) for mentoring activities. Finally, a third support method provided *travel to professional meetings* that can frequently represent a significant, recurring expense for mentors.

To provide a perspective on financial compensation for mentoring in academic medicine, a recent published survey of selected general internal medicine leaders indicated that approximately 47% (52/111) received specific funding for mentoring,

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with a median supported time of 0.15 full-time equivalents (FTE) for mentoring. Interestingly, funding was significantly more common among clinician investigators compared to nonclinician investigators, and male mentors tended to be funded more often than females. Federal funding provided the majority of compensation (39% of sources), while the department or institution supported funding approximately 14% of the time.³

Despite the relatively common support for mentoring among this general internal medicine cohort, mentors who participated in our K focus groups had varying opinions about monetary support. Some said they were already at 1.0 FTE and supplementing salaries could limit their ability to apply for additional grants. Others commented monetary support was unnecessary and did not influence their commitment to their trainees, as they were primarily motivated by internal factors. However, the overall consensus of most mentors in the focus groups was that salary support is helpful and provides a mentor with protected time to serve in the mentoring capacity. Monetary support for mentoring scholars, especially scholars outside of one's home department, resulted in decreased pressure by departmental chairs to justify this activity. As commented by a mentor who participated in one of our focus groups,

“... I know that every department is different, but in ours, the only thing that's actually counted accurately is clinical revenue. And then that's used to determine salary. And then, if you get a grant, you can buy out some time, but you certainly don't get any credit for mentoring unless you have a grant to be a mentor.”

Although faculty compensation as described by this mentor is frequently linked tightly to clinical revenue and grant support, a dissertation from the University of Oklahoma based on information from 422 respondents of 1,200 faculty and 120 administrators at six Midwestern medical schools suggests that compensation strategies seem to be changing in recent years. Evidence from these medical schools indicates the way that faculty members are most likely to be compensated takes into account not just patient care and research, but other components of professional activity in the determination of compensation, including teaching and service.⁴

Therefore, we believe that salary support for K mentoring could be a useful means of mentor support, and could also contribute to retention of qualified, dedicated mentors. Salary support as an incentive is in keeping with observations of Straus and colleagues,⁵ who analyzed 25 qualitative and quantitative studies in order to elucidate the factors that influence choosing a career in academic medicine. Of seven studies containing data regarding *disincentives* to an academic medicine career, five studies surveyed current faculty members, who were presumably in an academic post. Ultimately, the most frequently cited disincentive to choose academic medicine as a career was lower financial rewards.

Access to infrastructure or discounts on core facilities needed to conduct clinical translational research

Many of the 55 currently funded CTSA offer membership to core institute infrastructure. Membership offers discounts to laboratory facilities and access to other resources such as clinical research units, assistance with regulatory requirements and research methodologists. While the survey of KL2 directors did not reveal any specific membership advantages for research mentors of K

scholars² this may be a missed opportunity. One comment from a focus group participant indicated the expense of working with a K scholar,

“I think for people who have labs, every person who's in your lab is a substantial cost; not a minor cost. It's not like, 'You're gonna cost me \$300 a month.' They're gonna cost you at least \$1,000 a month when they walk in your laboratory.”

Prioritizing CTSA resources to faculty who are mentoring the education and training of clinical-translational researchers could be a logical way to ensure that an acceptable “return on investment” for providing scarce CTSA resources is achieved, while at the same time defraying the cost to the mentor in time and effort.

Another interesting infrastructure concept that would be reasonable to support for clinical translational mentors included financial education. Some focus group participants regarded the mentor-mentee relationship and its associated grant (KL2, K23, or K08) like a small business, and felt inadequately trained to operate in this paradigm. In the words of a focus group participant,

“I think nobody is prepared for becoming a basically a small or large business operator when they become a scientist. We try to start teaching people managing their own budgets ...and move them all the way up as they get bigger. A lot of us don't even have adequate training to teach them how to do it. The business offices tend to be so busy that they can give you just a micro slice of their time and answer questions. They can't give you the over-arching training that really teaches you how to do it. I think this is something that there is a huge need to start training people when they get their Ks,.... not to expect the mentor to do it... I've just seen so many people fall flat on their face; have no idea how much money they have and really end up in a bad position because they've not learned how to manage their money.”

Others expressed their frustration in the oftentimes arcane procedures to track expenses and budgets,

“There's sort of a larger question, in our institution, about infrastructure to support grants. The accounting tools that the university has are coal fire and archaic and it's really difficult to get reports. Many of us have cobbled together systems that can provide feedback to investigators so they know what to encumber, they know when they're gonna run out of money, they know where they stand.”

Providing a clear, succinct grant management approach to mentors within clinical translational science—who often have complex funding portfolios—would help to free the mentor's time to serve in the mentoring role, as well as decrease anxiety and concern over budget shortfalls and surprises.

Mentor academies

A number of CTSA institutions have developed *mentoring academies*. Academies focused on supporting teaching efforts in medical schools developed in the late 1990s, in response to increasing pressures on academic physicians to maximize clinical and research time. Interestingly, they emerged at a time when the

need for reform in medical education was being addressed. Some of the first such academies were found at University of California–San Francisco and Harvard University. By 2003, academies could be found in most regions of the United States. The goals of the earliest academies were to provide support to accomplished teaching faculty who were seen to have the greatest impact on the school's educational mission,⁶ and to provide increased recognition for teaching faculty.⁷

“Medical educator academies” are formal organizations with designated leadership, composed of distinguished educator faculty and designed to enhance the educational mission of their institutions.⁸ One published description of a teaching academy defines it as “a formal organization of academic teaching faculty who have been formally (or specifically) recognized for excellence in their contributions to the education mission of the medical school, and who serve specific functions on behalf of the institution...a functioning organization, not simply a group of recognized faculty.”⁷ Based on two separate published surveys of medical schools, one published in 2005,⁷ and one more recently in 2010,⁹ the number of academies of medical educators is growing nationwide; some academies have been developed on campuses with CTSA.

The 2010 survey indicates 36 such academies in the United States met the definition of a “teaching academy”. Features of these included a nominations process for membership that varied from self-nomination to nomination by a dean or other academy member. Most commonly, selection of members was determined by an internal peer review committee. Criteria important for membership selection included quality of teaching, educational leadership activities, and educational research efforts. About half of these academies granted lifetime membership to their members, while the other half required membership renewal. Of the 25 that required renewal, 12 *included mentoring of faculty and/or students as a criterion for extending membership beyond the initial phase*. The majority of members (75%) were responsible for teaching residents, fellows, graduate students, and postdoctoral research fellows.

Individual benefits of membership in a teaching academy were divided broadly into nonmonetary and monetary rewards. Nonmonetary benefits reported by members included school-wide recognition (92% of academies), networking/collaborating opportunities (78% of academies), participation in faculty development activities (50% of academies), weight in promotion/advancement decisions (50% of academies), and mentoring (39% of academies). Providing a means for faculty development and mentoring were characteristics more typical of newer academy programs. This perhaps signifies a departure from honors and recognition of the individual teacher toward providing a product to support and enhance skills as a teacher and mentor. Monetary rewards were provided by 78% of academies, but this was rarely devoted to protected time to be used for mentoring (8.3%). Additionally, monetary benefits provided via these academies appear to be declining in recent years.⁹

Challenges in establishing mentor academies among CTSA have included creating a format that will fit the needs of a majority of mentors, particularly given the diverse clinical responsibilities and travel schedules of the average clinical-translational mentor. Although mentors typically believe that mechanisms of mentor support are important and relevant, they are oftentimes unwilling to dedicate time to this endeavor. In the words of one CTSA director who participated in one of the KL-2 director surveys,

“We struggled to find a format that really worked for mentors.”

Another potential concern for formal mentoring academies is their cost in terms of resources and time spent in role preparation, support, agreeing on processes, conduct, monitoring of performance, and evaluation of effectiveness. Consistent leadership of the academy has been a challenge at some CTSA sites.² These features may limit the sustainability of a formalized academy at a given institution.¹⁰ In terms of monetary support, to provide some reference for cost, approximately 20% of teaching academies in the 2010 Searle survey had an annual budget of over \$100,000. Forty-four percent had an annual budget of \$25,000 or less. The majority of institutions had funding itemized in the school's budget. A dedicated endowment was uncommon.

Certainly, further efforts to establish CTSA mentoring academies to support and educate clinical translational mentors are worthwhile; however, their exact design and methods to support such endeavors long term will require on-going investigation. The templates provided by numerous teaching academies as well as the few true mentoring academies in the United States will hopefully inform the design of programs with lasting value to mentors.

Mentor and faculty development training programs

There are a number of institutions developing mentor training programs focused on research mentors who work in the area of clinical translational science. The Mentor Development Program (MDP) at UCSF is one such program.^{11,12} The MDP was an offshoot of the UCSF Faculty Mentoring Program established in 2006, and was designed to improve availability and quantity of mentoring for UCSF faculty. For this program, a curriculum was developed consisting of 10 case-based seminars held during monthly half-day meetings over a 5-month period. The seminars were selected to enhance two types of support that were identified as important in mentoring: *instrumental* and *psychosocial* support.¹² The former type of support (instrumental) provides practical and informational guidance (contributing to the “mentor's toolbox”), while the latter provides emotional, role modeling, and empathizing types of support. For example, seminars focused on concepts including “balancing work and life,” “understanding academic advancement policies,” “understanding economic and fiscal realities for successful academic careers,” and “understanding intramural and extramural grants,” all of which might be perceived as supportive for the mentor.

Seminars were conducted by program directors, senior research faculty members, and external/internal experts at UCSF. Importantly, networking time with other mentors-in-training and senior mentors was included in the program. Much like teaching academies, a formalized application and selection process was utilized to choose participants in the program, and enrollment was limited to 15 individuals concurrently. Most participating mentors were at the midcareer level or early senior faculty level. Assessment tools to evaluate the program pre- and postattendance indicated that the program had a significant benefit not just for the mentors' skills sets, but also positively impacted interaction with others, including senior faculty, and aided the mentors in goal setting. Certainly, additional CTSA-supported programs such as this could serve to build a culture of support for mentors in clinical translational research.

Another mentor training program currently being tested among 16 universities, is based on the training program called “Entering Mentoring.”¹³ This competency-based, case-based, 8-hour curriculum is designed to improve communication, to better align mentee and mentor expectations, to provide methods for evaluation and feedback, and to promote mentee academic development. The results of this trial will be available in the fall of 2011.

Promotion issues

Recognition and support of mentoring efforts by one’s home institution can provide a catalyst to encourage mentoring by faculty members in clinical translational research. It may also ensure that mentors spend more than requisite time in mentoring.¹ In the words of one focus group mentor,

“It might be that it’s as simple as an individual is lucky enough to have a K scholar and that their chair gets this formal notice that’s saying this individual is now a mentor of a K scholar. This is an extraordinarily important thing to the institution and empower[s] the chairs. Something, I think, is important to recognize that it’s a very time consuming job.”

Including time and effort spent in mentoring toward promotion or tenure has been posed as a concrete incentive that might support mentoring activities, particularly mentors at the Assistant or Associate Professor level. Based on discussions with other CTSA sites, mentoring activity for a K scholar (or other mentees) would typically be included in a promotions dossier as teaching-related activity; however, mentoring only in this context (without other teaching) would likely be insufficient to impress a promotions committee as “teaching excellence.” In reviewing promotions matrices from two specific CTSA sites (University of Colorado, Emory University), “mentoring” is mentioned specifically as a teaching activity; however, this was not found to be the case at other CTSA sites (University of Wisconsin-Madison, University of Texas-Southwestern). As CTSA sites increase in number and become more widespread, mentoring activity as part of the promotions process needs to be addressed systematically. Furthermore, consideration regarding what weight clinical translational mentoring plays in tenure decisions for more senior faculty, if at all, should be subjected to thoughtful dialogue.

Peer support groups

Most mentoring literature focuses on the junior mentor as naïve to the ways of the research world—an individual who will with time acquire knowledge from his or her senior, more experienced colleagues, and later impart it to his/her own mentees. However, believing that acquiring mentoring support only in situations where this power differential exists is not perfect.¹⁴ Literature from medical educators suggests that peer mentoring is feasible, and perhaps preferable, to typical junior-senior dyadic mentoring, in that it represents a nonhierarchical process where insights, experiences, ideas, guidance, problem solving, and support can be shared¹⁵ without the influence of power differentials, dominance, dependency, or transference more typical of junior-senior mentoring relationships.¹⁴ A growing movement toward peer mentoring may prove to be a useful way to provide mentor support, and the need for such a venue was expressed by mentor participants in our focus groups,

“...so you wonder about rather than sort of a two day workshop where you go and say, “Here’s the things you do,” ...there may be some things where there is a resource round table or sort of “mentors for mentors” or something where you can get problem solving – because it’s hard to sort of impart that skill set ...it’s so experiential in some individuals.”

The Brody School of Medicine, East Carolina University designed, implemented, and evaluated a peer modeling system in an academic environment.¹⁴ The project was supported by the US DHHS, who designated Brody as a National Center of Leadership in Academic Medicine. The program focused on assistant professors who had the assurance of protected time to complete the program by their chairpersons. The program was 80 hours total in length, consisting of an initial 3-day session, and then full-day programs once a month for 6 months (entire program = 8 months). It was held in a setting outside of the medical school. The primary aim of the program was to support the academic career goals of the participants.

Sessions included: fostering awareness of career goals, personal values, strengths, and priorities; facilitation of participants becoming part of a collaborative and collegial team; and promoting awareness of gender/power issues in relation to career goals. A program attendance of 89% was observed at the program’s completion. In its evaluations, participants rated the academic development portion of the program 1.86 on a 5-point Likert scale where 1 = excellent and 5 = poor. Three primary factors identified as contributing to the program’s effectiveness were the provision of a safe, supportive learning environment that fostered interpersonal communication, the dedication of regularly scheduled time for program participation and reflection, and a program setting physically separate from the work environment.

Qualitatively, the program was perceived as an excellent opportunity to identify personal core values, to apply concrete steps for career planning and priority setting, to meet and interact with diverse peer colleagues from a variety of disciplines. Peer mentoring has the potential to facilitate retention of faculty in academic medicine through its effects on the sense of community and collegiality it engendered. Along with mentoring academies, peer groups of likeminded clinical translational mentors could provide a tangible method for support of these individuals.

Conclusion and Recommendations

Support for research mentors is an important area that requires new ideas and new initiatives to expand the number of healthcare professionals and scientists working in the area of clinical translational science. Research mentors need to be able to maintain their own research programs, participate in teaching, leadership activities and, sometimes, patient care, as well as train the next generation. This is no easy task. The strategies presented in this paper represent the current state of the art and provide a platform on which to build and test support programs for mentors of KL2 scholars.

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