

Selection of Research Mentors for K-Funded Scholars

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Introduction

Selecting research mentors for students, fellows, and K scholars is an important process. K scholars in particular represent unique trainees that require a different kind of mentoring compared to students and postdoctoral research fellows. K scholars are usually appointed as assistant professors or assistant scientists and are expected to develop independent research programs as quickly as possible. However they are vulnerable from a number of perspectives including their relative inexperience in engaging in an academic environment. Conducting pilot studies, writing up prior work, and preparing larger scale studies for R awards is a difficult balancing act when trying to initiate new teaching, clinical, and administrative responsibilities.

K scholars need to build their own multidisciplinary research team that often includes students, postdoctoral fellows, and research staff; yet they lack the managerial skills and experience to establish and sustain such teams. Additionally, scholars need to develop a relationship with funding agencies and other research advisors, but lack the contacts and academic network of their senior colleagues. Strong, involved mentors can facilitate almost all of these activities. K scholars need active mentoring that provides scientific expertise and direct oversight as they try to establish independent research programs.

The purpose of this white paper is to provide a framework for the process of selecting mentors for K scholars.

Methods

This paper is one of several white papers written on the various elements of mentoring K scholars in clinical and translational science. These white papers are being written by members of the National Clinical Translational Science Award (CTSA) mentor working group that consists of 20 faculty members across 15 CTSA Institutions. Faculty members of the working group include Ph.D. educators and scientists, senior physician scientists, and academic leaders. The group was established by Dr. Fred Meyer who was the chair of CTSA education Key Function Committee in the fall of 2008 with Dr. Michael Fleming appointed as leader of the group. The white papers were supported by an American Recovery Act supplement awarded to University of Wisconsin-Madison by the National Center for Research Resources. The working group has been collaborating since the fall of 2008 with face-to-face meetings and frequent conference calls. The papers were developed based on discussions in the working group, available literature, a national survey of KL2 directors, and focus groups with K scholars and mentors conducted at the University of Wisconsin, Vanderbilt

University, University of Colorado, and University of North Carolina in Chapel Hill.

The working group elected to divide the various programmatic elements of mentoring into six papers, including: (1) scholar-mentor alignment, (2) mentor selection, (3) mentor support, (4) mentor training, (5) mentor competencies, and (6) mentor evaluation. The series also includes a paper that reports the results of the national KL2 survey¹ and will culminate with a working group consensus summary of effective mentoring practices.

The available literature on mentoring is enormous with thousands of articles and hundreds of books written in the last decade alone. The number of articles relevant to the white papers, however, is less than 200. There are fewer than 20 articles that discuss mentor selection relevant to clinical translational science. There are no empirical papers on mentor selection that report outcomes.

The KL2 mentoring survey was a semistructured telephone interview conducted with KL2 program leaders at 46 of the CTSA funded in the first four cohorts (2006–2009). This was a 100% sample of all CTSA funded at the time the interviews were conducted. The survey specifically asked how mentors were selected and is the only study reported that specifically addresses this question.¹

The focus-group data reported in this paper were obtained from a series of meetings with scholars and mentors at four CTSA sites including the University of Wisconsin in Madison, Vanderbilt University, the University of Colorado Denver, and the University of North Carolina at Chapel Hill. Similar questions were asked for each focus group. The focus groups were taped, transcribed, and entered in a qualitative database. A total of 55 scholars and 44 mentors across the four sites participated.

Results/Discussion

Methods used to select research mentors

The process of mentor selection varies by the level of trainee and institutional culture. In the case of most Ph.D. students and many postdoctoral research trainees, departmental faculty choose the students they want to work with as part of the Ph.D. or postdoctoral fellow application process. Medical students enrolled in Medical Scientist Training Programs are usually accepted into the program without a specified mentor, and rotate through two to three labs during the first 2 years of M.D. training ultimately deciding which laboratory and research mentor they would like to work with on their Ph.D.

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On the other hand, new investigators applying for individual career development K awards are in a different stage of their career. They have a history with previous mentors, have begun to establish a research program, and need mentors who can facilitate their transition to independence. The mentors they need for their K awards need to be more than strong scientists. Primary mentors for K scholars need to help scholars to navigate the complexity of the academic environment, to facilitate the K scholar in developing his or her own research teams to become well known at the National Institutes of Health and in the scientific community, and to create a sustainable, long-term research plan.

The literature review conducted for this communication, a national survey of KL2 program leaders, and focus groups with scholars and mentors revealed a variety of methods currently in use to identify mentors for K scholars. The national survey found that CTSA KL2 programs expected the K scholar to identify and recruit his or her mentor(s) prior to the application process with limited formal guidance from CTSA leaders. However some CSAs provided formalized assistance to the K scholar by the program leadership, particularly in the selection of secondary or topical mentors. Other institutions provided names of qualified mentors from a “mentor academy” or equivalent institutional group to K scholars to aid them in their mentor search. One institution (Scripps) required that a chair or dean recommend individuals to serve as K-scholar mentors for a specified time period. Two of the 46 sites surveyed assigned mentors to rising K scholars.

The superiority of mentor selection by K scholars compared to assigned mentorship is unclear.² Sambunjak’s meta-analysis, although not specifically focused on selection of K scholars’ mentors, did not suggest superiority of either self-selection or assignment of mentors in terms of either career success or independence of the mentee.³ Their review suggested that selection of mentors by the mentee may offer a better opportunity for a genuine, meaningful academic relationship. With this strategy, the mentor and K scholar have each committed to the research relationship from its inception. Further, it promotes autonomy and responsibility for the relationship by the K scholar, and allows flexibility for the choice of mentor that best suits the scholar’s perceived research needs.

Scholars within our K focus groups acknowledged that direction and introductions to potential mentors by senior faculty members familiar with the environment of an institution were extremely valuable in providing direction to choice of mentors. The K scholars reported that senior faculty members provided critical information on potential mentors both inside the scholar’s home department, and when appropriate, outside the department. Importantly, focus-group members believed that such advice could be obtained either with or without a formalized “mentoring committee.”

In our K-scholar focus groups, lack of compatibility in assigned mentor–mentee pairings was perceived as a definite limitation by scholars. Some centers required scholars to select mentors from a specific pool, regardless of scientific compatibility. Although this was viewed as not necessarily helpful in terms of scholar scientific development, listed individuals in the pool were perceived as good overall career mentors, who “very clearly knew what they were

doing when it comes to career development of young investigators.” In other centers, although mentor assignments were typically made in the best interest of the scholar by either a senior individual or committee, they were also affected primarily by who was available to mentor at the time of the K application.

Selection of mentors before, during, and after a K award

Proceedings from K focus groups suggest that mentors may be selected (at least in the K scholar’s estimation) years before the formal relationship has been established in conjunction with the K award. For example, a K scholar might choose a fellowship program based on a specific faculty member. Such preselection demonstrates the K scholar’s commitment to a research career, and autonomy in selecting a mentor who has proven expertise. Alternatively, with physician K scholars, prior clinical interactions during portions of a postdoctoral fellowship may function to introduce future mentors, thereby laying the groundwork to establish a later research relationship.

Persistence and perseverance in the K scholar’s seeking the best possible mentor or mentors is important, particularly in building a strong multidisciplinary team that will support the oftentimes broad mentoring needs of the average K scholar. The concept of “speed mentoring”—bringing together a group of mentees with a group of experienced mentors, and encouraging brief, one-on-one interactions in a designated venue has been examined as a potential method to provide introductions to determine if “chemistry” exists between mentees and mentors.⁴ As a method of introduction and forming a network with potential mentors, speed mentoring has a potential role that deserves further investigation.

Mentor selection for K scholars across the 46 surveyed CTSA sites had typically occurred at the time of the application, particularly the identification of the individual designated as “primary mentor.” Most review committees rely heavily on the K applicant’s choice of their primary mentor. There is the assumption that a strong senior mentor, who provides a strong letter of support, will increase the K awardees’ chance of success and the development of an independent research program. Selection of a primary mentor postaward is uncommon. Changing mentors and adding new mentors is another element of mentor selection that occurs over time.

Mentee characteristics

In a meta-analysis of qualitative research examining the role of mentee in the academic medicine mentor–mentee relationship, active participation of the mentee in the relationship was positively associated with career success.⁵ Prior investigations have stressed that mentees who are proactive, willing to learn, and are selective in accepting advice from their mentors achieved more tangible success over time. One focus-group K scholar reported the value of meeting with numerous faculty who had experience in his chosen field of research. He met with multiple Principal Investigators and the personnel in their laboratories, and attended their laboratory meetings. Another focus-group participant reported setting up meetings with potential mentors while on recruitment visits to a new university, and establishing relationships with promising mentors at that time.

Marked qualitative and quantitative differences exist in the mentoring needs of K scholars across CTSA sites nationwide, including within the sites themselves. These differences can be quite challenging to KL2 program directors in ensuring that mentoring needs are being met appropriately for all K scholars. For example, CTSA's KL2 scholars at the University of Colorado, supervised by one of the authors of this paper (E.B.), range from basic scientists with extensive prior experience in managing a laboratory, clinical scientists working on multisite research projects, and neophytes just beginning careers in biomedical research.

K scholars conducting laboratory-based ("wet laboratory") science will frequently benefit from built-in mentoring groups consisting of the laboratory's principal investigator (who is often the primary mentor for the K scholar) and others already employed within the lab (e.g., postdoctoral students, medical students, laboratory managers). These latter individuals will frequently provide day-to-day advice on the technical aspects of the research project. However, for the K scholar, who is just beginning a career in patient-oriented research, the cohort of helpful individuals outside of the primary mentor can be a bit looser geographically (in a so-called "dry lab"), and therefore more difficult to identify and utilize for day-to-day operational mentoring.

It is imperative that scholars involved in this latter type of project make time to meet with not just the primary mentor, but also establish focused time to receive mentoring from these other individuals, who may be in different departments and schools and sometimes at other universities, but who are integral to the conduct of clinical research. Such focused time might include meetings with research assistants to ensure proper subject enrollment and retention into studies, statisticians to ensure the quality of the study design and data analysis, and regulatory experts to ensure that human subjects protections are in place. Frequently, these individuals are not housed in a single place, but rather are located across an institution, leading to challenges in consistent mentoring and communication. Identifying topical mentors and meeting with them regularly to ensure education and mentoring for the K scholar in the day-to-day aspects of human subjects' research are critical to ensuring the progress and success of K scholars "learning the ropes" in clinical and translational research.

Importance of the institutional, school, department mentoring culture

The amount of, intensity, and type of mentoring necessary to ensure success of a KL2 scholar is unknown. Certainly, for K scholars with extensive prior laboratory experience and multiple publications, a "passive" mentoring strategy, where the scholar is left to his or her own devices, engaging the mentor on an ad hoc basis may be acceptable, and potentially adequate. However, for more junior K scholars, an "active" mentoring strategy where communication occurs informally multiple times per week, in addition to more formal face-to-face meetings two to three times a month, could be more appropriate.

The amount of mentoring a KL2 scholar perceives that he or she needs to be successful in a research career is an important consideration in mentor selection, as not all mentors will be able to provide equal amounts of time and support. Scholars and

potential mentors should be honest about the amount and type of interactions they will require/tolerate so that both careers can flourish.

Among CTSA sites with KL2 scholars, marked variation exists in the faculty's perception of the scholars' needs, as well as the required level of involvement by their mentors. These observations partially reflect the institutional culture of a given CTSA. At some institutions, the need for a mentor is regarded as a sign of weakness.⁶ Further, the culture at some institutions undervalues the importance of mentoring and will not support the time or effort commensurate with providing it. To promote an accepted culture of mentoring for K scholars, it is common among the CTSA's surveyed to provide a modest monetary compensation to KL2 mentors for their time to allay the perception of penalizing these committed individuals for time spent mentoring and not in other activities perceived as more "productive" (e.g., grant writing, administration).

Additionally, oversight by KL2 directors, as well as department or divisional chairs should not be overlooked as a source for additional mentoring support to offload the tasks from the primary mentor. Such individuals can provide the scholar with recognition and acknowledgment for the mentee's research endeavors, and aid in networking or other aspects of career advancement.

One other option for mentoring that could be useful at programs where a small number of senior faculty are available to mentor K scholars is the implementation of a peer mentoring program, where regular mentoring opportunities with other like-minded junior people (e.g., groups of KL2 scholars) can serve an important role. Peer mentoring has been utilized successfully in the academic setting^{7,8} with groups of junior people who have as little as 1–5 years of faculty experience. The structure may be dictated by the needs or style of the group, but a core curriculum, peer support at group meetings, and effort toward a publishable or presentable group project, can supplement one-on-one mentoring that a K scholar receives from his/her more senior mentors.

Selection based specific mentor criteria and characteristics

The mentoring literature contains extensive suggestions regarding potential criteria desirable in medical research mentors. These criteria may be adapted and utilized to help in the mentor selection process, thereby providing a starting point to describe the ideal "K mentor." Basic mentoring qualities of value to the K scholar often include three primary criteria: demonstrated knowledge and interest in the scholar's specific area of research, proficiency in the skills needed by the K scholar, and experience with the institution, department, or program to socialize the scholar to its norms, values, and procedures.²

The focus groups conducted as part of the writing of the white papers (see methods section for a discussion of the focus groups methods) suggest that expertise in the content of the K scholar's research is of paramount importance to KL2 trainees in the focus groups. However, scholars should be aware that the content expertise of their primary mentor will likely wane over time as the scholar becomes more independent. The following is a statement made by one of the scholars during one of the eight focus groups.

“I had a long term association with one of my primary mentors, and we both know his skill sets and his expertise would benefit one portion of my project, but we also knew we’d kind of go beyond his skill set.”

The major qualities believed to be important in a research mentor by our K-scholar focus groups are highlighted in the *Table 1*. A typical K mentor will have had a previous R01 (or equivalent) funding, and currently have resources available to assist the scholar in beginning a research career. Scholars who participated in the focus groups consistently expressed a need for assistance with grant and manuscript preparation (both in content as well as editing), regular allocation of the mentor’s time, prompt feedback with problems/questions raised by the scholar, the ability and willingness to collaborate, and assistance in networking.

A record of collaboration, as evidenced by coauthorship in the mentor’s publication list, may be viewed as a positive reflection of the mentor’s ability to work successfully with others. Middle authorship, in addition to publications with first or senior authorship, provides evidence that the mentor can collaborate without controlling all aspects of the research he or she conducts, and is secure in his or her position as a senior investigator. The prospective mentor’s publication list can also provide an idea to prospective K scholars regarding the breadth of potential collaborators that could be available to the mentee.

Mentoring research conducted in industry found that personality characteristics of a mentee may affect his or her likelihood of receiving mentoring.⁹ Matching of personality characteristics has not been formally evaluated in establishing the mentor–mentee relationship in the setting of K-type research; however, differences in personality characteristics between mentors and K scholars will impact working relationships. Our K-scholar focus groups cited the importance of assessing the prospective mentor’s personality type in promoting independence and productivity.

“But there are certain personalities that no matter how hard you work, you’re just not going to be able to be as productive [as] with other personalities. Whether it’s sense of humor, whether it’s the way if you’re very detail oriented, or [whether you need] more or less autonomy.”

Importantly, “good chemistry” between the scholar and mentor may be absent in situations where the dyad is assigned within the academic medicine setting.¹⁰ Personality differences might reasonably be anticipated in mentor–mentee pairs of different genders. Notably, issues with boundary setting between different gendered mentor–mentee pairs as well as perceived difficulties in understanding personal experiences between different gendered mentors have been reported in the academic setting,¹⁰ although these issues have not been explicitly examined in the K-award setting. Studies of mentoring in academic medicine, however, have revealed nothing to suggest that same-sex mentoring is superior,³ while others suggest that having a mentor of same gender or racial background may not be as important if the relationship is sound.¹¹

Mentor Qualities

Resources/ideas
Editorial support with prompt feedback
Time
Collaboration
Networking skills
Accessibility and open communication
Positive environment
Commitment to the mentee
Foster independence
Advocate
Career guidance
Senior status
Role model

Table 1. K scholars should ascertain whether prospective mentors possess certain qualities and skills that will facilitate a successful research career. All these qualities and skills are rarely found in a single individual, and oftentimes teams of mentors are necessary, with each individual mentor playing a discrete role for the K mentee.

Mentors of KL2 scholars should be strong communicators. The mentor needs to be clear about his or her role with the mentee, and confident enough to set boundaries on the relationship in terms of its limits and duration. The limits of the mentor–mentee relationship should be clearly defined and agreed upon prior to the start of the relationship to prevent later misunderstandings.¹²

Prior mentoring experience of prospective mentors is perceived as important to K scholars. Further, to demonstrate their ability to take on the role of K mentor, they should have a history of successfully mentoring other trainees at the level of K scholar to independence. One notable issue with a mentor’s prior experience raised by members of the K focus group was how important familiarity with promotions’ requirements and structures in the academic setting may be in determining promotions’ success. This was particularly evident when mentors from a different department or career path as their K scholar were unaware of promotion requirements for the scholar, yet still were held responsible for ensuring that the scholar is on-track in terms of promotion.

Education of mentors in the necessary criteria for promotion and tenure for trainees outside of their home departments can help ensure the ultimate career success of the mentee. One other notable variation in culture appreciated by the KL2 focus group was the importance of mentoring of physician scientist K scholars by other physician scientists. Such mentoring may be perceived by the K scholar as being associated with increased understanding of the clinical requirements with this type of job description. It was felt that physician scientist mentors for clinician K scholars could better understand the oftentimes overwhelming demands of clinical work in that career path, in contrast to a Ph.D. researcher without such obligations and the ongoing mental, physical, and emotional demands of patient care.

Successful mentors should have strong teaching skills that will enable them not only to educate their mentees in the successful conduct of research, but will also enable them to be sensitive to

deficits in the mentee's skill set, and to remediate these as much as possible. Of course, teaching research skills requires a definite time commitment, and mentors should have the time available to aid the mentee in building his or her skills set. Mentors who are excellent teachers and researchers, even those with the best intentions, may fail to foster the career of potentially outstanding mentees without adequate time for this education to occur. This is particularly true when one "outstanding" mentor takes on multiple mentees simultaneously. K scholars in our focus groups were acutely aware of the need for time of the mentor:

"Just because someone is very senior and very successful and has a zillion papers does not mean that equals a good mentor...they may be a brilliant person, but they may not either have the time or the energy or really even the interest it takes to mentor someone well."

With the advent of CTAs, mentor training programs tailored to fit the needs of clinical and translational researchers are becoming more widespread and accepted across the US. These programs are variable in terms of content and duration, but typically focus on developing mentors' skills sets for the many hats they will have to wear, including advisor/counselor, friend, agent, teacher/helper, coach, and manager/leader.¹³ None of our surveyed CTAs required completion of such a program as a prerequisite for becoming a K-scholar mentor. One established mentoring training program has been operative at the University of California-San Francisco since 2006. Its explicit design is to train midcareer investigators in mentoring individuals involved in clinical/translational research.¹⁴ Although the optimal mentor training for individuals who will aid the career of K scholars has yet to be established, an on-going trial of mentor training for those involved in clinical/translational research will hopefully establish norms and requirements for these individuals (Fleming, personal communication).

As with planning any major life event, or purchasing an expensive item, ascertaining the experience of one's peers can be an invaluable source of information. Therefore, it is not surprising that obtaining references from a prospective mentor's previous mentees was also mentioned by one focus group K-scholar participant as a useful method to evaluate prospective mentors for these attributes.

Changing a primary mentor

KL2 scholars need to be honest with themselves about what they want to achieve in their careers; both short (1–5 years), and longer (>5 years) term. A honest appraisal of career goals and how they will mesh with other academic, as well as personal goals over the duration of one's life is difficult, but necessary to promote mental health and well-being, and to prevent burnout. The success of a given KL2 scholar is dependent to some extent on the quality of the mentoring he or she receives; therefore, institutional and program oversight are important to ensure that mentors do not exploit this relationship.²

Inexperienced scholars can be paired to a research mentor with the best intentions, after having performed due diligence in

selecting this individual, only to find months or even years into the relationship that career goals are not being met, or are further away. Given the scholar's junior status, he or she might not even be aware that this is happening. Warning signs for mentees could include: (1) avoiding meeting with your primary mentor, (2) hesitating to contact the mentor with difficult questions, (3) feeling like you and your mentor are going in different directions, and (4) getting the sense that your mentor is not listening. In these situations, ending the relationship, or seeking new advice and mentoring can prove to be extremely difficult and uncomfortable. This is certainly true in situations where the relationship has become one of animosity, but also true in situations where the relationship is successful on a personal level, but broken on a professional level.

From a K-scholar perspective, there are different approaches that might be explored. For an earlier-stage K scholar, seeking the advice and assistance of the KL2 program director or department head is the first step, as these individuals are invested in the scholar's ultimate success as productive faculty members. The KL2 program director or department head is likely in a better position than the more junior scholar to be able to mediate the mentor-mentee relationship in order to devise a solution that will be acceptable to all parties. Additionally, the K scholar should have given some thought to who might be a more suitable mentor for his or her research needs, and whether that person has the qualities to be a new primary mentor. Providing this information to the KL2 program director or department chair can help the scholar and director negotiate if this new mentor could be a suitable replacement.

From a KL2 program director's perspective, changing primary mentors for early stage KL2 scholars, who often feel vulnerable, can be challenging. Meeting one-on-one with the primary mentor and giving specific feedback sooner rather than later is almost always the best strategy. Avoiding having this conversation with the mentor, with the hope that the problems will somehow work out, is not an effective strategy. It generally compounds the problem and makes things harder on the scholar. Having a three-way meeting with the scholar and the mentor, following the initial one-on-one meeting, is also important so things can move forward. Confidentiality and minimizing the paper/e-mail trail is also important for both the scholar and the mentor so both feel protected from having their reputations damaged. The scholar needs to be able to learn how to engage in these "tough conversations," but in the context of feeling safe and protected by the KL2 leadership and his or her direct supervisor (most often their chair).

For a later-stage K scholar who has potentially established his or her own network of collaborators, a dramatic break with the primary mentor might not be necessary to ultimately achieve success. In fact, lack of support by the primary mentor after a certain period of mentorship might be perceived as an inevitable milestone on the road to independence. Given the complexity of clinical and translational research, it is not uncommon for investigators to have a broad set of collaborators with varying expertise, and over time as the scholar's basic skills evolve, a single-point person becomes less necessary. Depending on the temporal focus of the scholar (e.g., needing to submit first R01, vs. needing to learn new laboratory technique), different mentors may be necessary. However, an individual (or individuals) external to

the research, who serve primarily as career advisors, should still be retained to maintain focus on the trajectory of the scholar's career.

Conclusion and Recommendations

Mentor selection for K scholars developing careers in clinical translational science is not easy. An occasional scholar will have an established mentor with whom they have successfully worked with for a number of years. However, most K applicants have to scramble to find someone with the characteristics they need to help them with their research and career expectations. The mentor not only needs to be a good scientist and teacher but also someone with an established and sustainable extramural (National Institutes of Health, Agency for Healthcare Research and Quality, Centers for Disease Control, Veterans' Administration, Industry, Foundations, or other federal agencies supported) research program. This paper presents a number of important observations that need to be considered by program leaders, department chairs, research deans, as well as K scholars.

The paper also establishes the need for more empirical research on the process and ongoing assessment of mentor selection. The CTSAs offer an ideal laboratory in which to test some of the methods presented in this paper. There need to be studies on personality matching, the importance of teaching skills, and mentors who can support yet let K scholars become independent. Establishing minimal criteria for mentors is another area that needs empirical data.

With the advent of CTSAs and KL2 awards, the importance in selecting appropriate mentors for new scholars has become more widely appreciated. Here we offer some recommendations for K scholars, their mentors, and program directors based on available data that we hope will facilitate this process.

(1) Recommendations for mentees:

- Qualified K mentors meet identifiable criteria including recognized expertise in their fields, prior independent extramural funding, a success record in mentoring junior faculty members, and available time to mentor.
- In selection of a K mentor, K scholars need to be honest with themselves about the long- and short-term career goals, and take the extra time to interview/assess potential mentors to ensure that chosen mentors will facilitate the achievement of these goals.
- Mentoring needs can differ based on the type of research being conducted by the K scholar as well as the mentee's prior experience. Although a primary mentor is invaluable in leading the mentee at the beginning of the research career, content-specific mentors and career advisors should be sought to complement the mentor skill set needed by the mentee.

This is valuable insurance both to keep the K scholar on track, and in case the primary mentor–mentee relationship fails.

(2) Recommendations for KL2 program directors:

- Developing specific criteria for the K mentor can be useful both for scholars to use in the mentor selection process, and to exclude less-qualified faculty from mentoring until the criteria can be met. Both will help ensure quality pairings and mentor success in the long run.
- Consider requiring mentor training as a part of the qualifications for K-scholar mentoring. Such training could provide a good basic tool kit for these individuals, and may also promote a culture of quality mentoring at institutions.
- Ensure that mentees have appropriate scientific content and career mentorship, and appreciate the common experience that this may not be satisfied in the same individual.

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