November 3, 2014

Research Training and Career Development
NIH Office of Extramural Programs
National Institutes of Health
Bethesda MD

RE: NOT-OD-15-009, Request for Information: Physician-Scientist Specific Grant Program to Facilitate the Transition From Training to Independence
Submitted via http://grants.nih.gov

The Association of American Medical Colleges (AAMC) appreciates the opportunity to comment on the National Institutes of Health (NIH) request for information related to its intention to develop a physician-scientist specific grant program to facilitate the transition from training to independence. The AAMC is a not-for-profit organization representing all 141 U.S. allopathic medical schools, nearly 400 teaching hospitals and health systems, and 90 academic societies. Through these institutions, the AAMC represents 128,000 faculty members, 75,000 medical students, 110,000 resident physicians, and thousands of graduate students and post-doctoral trainees in the biomedical sciences.

The following “considerations” and enumerated comments are from the NIH submission form, to which the Association’s comments have been submitted. The AAMC has also shared this notice widely with research and training leadership at member institutions, and encouraged them to respond as well.

**NIH Consideration 1:** Physician-scientists (MD, DO, DDS/DMD, DVM/VMD, or nurses with research doctoral degrees) may face barriers to research independence different from individuals with research doctoral degrees. For example, following clinical or fellowship training periods, clinicians often obtain a clinical faculty position that denotes independence in clinical responsibilities but not in research. Your feedback may address factors NIH may consider in encouraging the transition to research independence:

**Comment 1a** Modifying the existing Mentored Clinical Scientist Research Career Development Award (PA-14-046) and Mentored Patient-Oriented Research Career Development Award (PA-14-049) to better meet the needs of physician-scientists.

The AAMC believes that the Mentored Clinical Scientist Research Career Development Award (PA-14-046) and Mentored Patient-Oriented Research Career Development Award (PA-14-049) are designed to support post residency research training for physicians without substantial prior research experience or exposure. Our member institutions make substantial commitments in time and resources to the development of physician scientists as demonstrated within these awards and are making efforts to share innovative practices within and across institutions.
Recommendation: The references to “independent research” often obscure the goal of encouraging early career physician scientists’ participation in research teams and cross-disciplinary studies; therefore, the AAMC recommends that the NIH: 1) adapt a word with broader meaning than “independent” to indicate the growth of significant research expertise; 2) encourage the meaningful engagement and recognition of early career physician scientists in collaborative research initiatives; and 3) allow and encourage early career physician scientists who have appropriate experience to serve as co-PIs on NIH research grants along with their more senior mentors. These experiences will positively contribute to shortening the time in mentored training. Especially for the Patient-Oriented Awards, career development should also include the ability to utilize institutional Electronic Health Record (EHR) system, and exposure to work with large databases (“big data”) and large populations.

Comment 1b  Developing institutional training or institutional career development programs to meet the particular needs of physician-scientists.

For physician scientists, a conflict exists between obligations to provide clinical care and service (and which also generate clinical revenue) and the time and expense required to establish a research career.

Recommendation: To promote research and protect junior physician scientists, we suggest that the central oversight of junior physician scientists within an institution might be best accomplished through a joint effort between clinical departments’ leaders and deans in charge of research and faculty affairs. To better meet the need of physician-scientist training, the NIH should consider supporting institutional offices or a coordinating body that will be responsible and oversee a scientific training and provide structured professional and career development training for future physician scientists across the training continuum: from UME to GME to Early career faculty (similar to the offices for Graduate Education and Postdoctoral Affairs).

Comment 1c  Mentoring needs or requirements specific to physician-scientists.

A successful NIH-funded research mentor, and in many cases a mentoring team is key. These individuals do not need to be limited to the physician scientist’s clinical specialty or field – for example, an oncologist (internal medicine subspecialty) could mentor physician scientists in training in the fields of pathology, surgery and many others, as well as medical oncology. A mentoring team should consist of mentors in the trainee’s clinical and research areas.

Recommendation: We suggest that the NIH apply lessons learned from CTSA training programs – the concept of multidisciplinary mentoring has been well developed in that community of academic physician scientists. Recognizing a vital role of mentorship in physician-scientist training, NIH should explore ways to partially support mentoring efforts, coordinating with the newly established National Research Mentoring Network (NRMN).

Comment 1d  Any unique needs of dual-degree holders, e.g. MD/PhD, DDS/PhD, DVM/PhD, in successfully transitioning to research independence.
The AAMC and MD-PhD training program leaders who participate in the Graduate Research, Education and Training (GREAT) Group hypothesize that major leaks in the pipeline of physician scientists occur during residency and entry level faculty positions. (This is notwithstanding the concerns about those scientists who face challenges after the first independent research award.) The hypothesis is based, in part, on data presented to the NIH Physician-Scientist Workforce Working Group (PSW WG) in its deliberations indicated that students in medical school remain consistently interested in research and research careers.* Attrition in the MD-PhD career pipeline occurs primarily during the years in residency, post-doctoral research, and fellowship training. The career development trajectory of dual degree MD-PhD graduates strongly depends on a continuity of research training during residency and clinical fellowship.

**Recommendation:** To evaluate the ways to bridge a research training gap in postdoctoral training, NIH should consider funding a rigorously evaluated pilot study to assess career outcomes of dual degree graduates who completed residency and clinical fellowship in innovative/integrated research residency programs (research residency tracks, PSTPs). Such a pilot might be undertaken through the CTSA consortia.

* Note: AAMC data presented to the NIH PSW WG July 19, 2013, demonstrates a significant increase in required (from 46% in 2007 to 84% in 2012) and elective courses in Clinical/Translational Research (from 40% in 2007 to 54% in 2012) during medical school training. The AAMC Matriculation Student Questionnaire (MSQ) and the Graduation Questionnaire (GQ) ask medical students about their expectations of being involved in research during their medical career. The matriculation and graduation data suggest that medical students, in general, maintain an interest in being involved in research by the end of the undergraduate medical school experience. We hypothesize, therefore, that major leaks in the pipeline of physician scientists occur during residency and entry level faculty positions.

**NIH Consideration 2:** The career trajectory of physician-scientists (MD, DO, DDS/DMD, DVM/VMD, or nurses with research doctoral degrees) is often different from others with research doctoral degrees. The K99/R00 award (PA-14-042), one NIH career transition award, provides a phased program of mentored training and independent NIH research support. The K99/R00 program is open to all eligible applicants with a clinical or research doctorate (including PhD, MD, DO, DC, ND, DDS, DMD, DVM, ScD, DNS, PharmD or equivalent doctoral degrees); however, relatively few physician-scientists apply. In developing a career transition award suited to physician-scientists, NIH may consider several provisions of the current K99/R00 program, including the following:

**Comment 2a**

The K99/R00 is intended to facilitate a timely transition of outstanding individuals from mentored, postdoctoral research positions to independent, tenure-track or equivalent faculty positions, and to provide independent NIH research support during the transition that will help these individuals launch competitive, independent research careers.

The Mentored Training phase and the Independent phase of the NIH career transition award for physician scientists should allow for flexibility in length of support depending on the extent of prior research exposure/training and clinical commitment demands of certain specialties. For
example, for MD-PhD scientists who already have significant research training, the K part of the award might be shorter with longer time allowed for an independent research.

**Recommendation:** While the AAMC will not comment on specifying the time or limit for percent effort on K awards, we do recommend the consideration of flexibility to meet the needs of the early career physician scientists rather than a one-size-fits-all approach. We also strongly support the NIH PSW WG recommendation for new approaches to streamline the transition to independence of MD- and MD-PhD-trained physician scientists from postdoctoral training to independent investigator status.

**Comment 2b**  *Applicants must have no more than 4 years of postdoctoral research experience at the time of the initial or the subsequent resubmission application.*

We do not have a specific recommendations on timing of the postdoctoral research experience, given the nature and differences of scientific progress in various fields of research. We encourage NIH to permit flexibility depending on prior research experience and clinical specialties.

**Comment 2c**  *The award is intended for individuals who require at least 12, but no more than 24, months of mentored research training and career development before transitioning to the independent award phase of the program.*

The length of time spent in mentored research training is crucial for the development of robust research skills by physician scientists, developing a cutting-edge portfolio of research techniques, learning the use of sophisticated instruments, and developing strategic thinking abilities, and mastering grant writing. The time for mentored training now provided under the K99/R00 is too limited for postdoctoral researchers without prior formal science training (either doctoral or master degree level research training) and does not provide the needed time to fully assimilate all the facets of laboratory science required for a successful scientist.

**Recommendation.** The AAMC suggests extending the K-phase to at least 48 months for those without formal science training establishing clear scientific proficiency milestones/criteria. For those clinicians with prior research doctoral or master level degrees, the 24 month period of mentored research training may be adequate.

**Comment 2d**  *The K99/R00 provides up to 5 years of support in two phases. The initial phase provides support for up to 2 years of mentored postdoctoral research training and career development. The second phase provides up to 3 years of independent research support, which is contingent on satisfactory progress during the mentored phase and an approved, independent, tenure-track (or equivalent) faculty position.*

**Recommendation.** For early career physician scientist faculty to be competitive with their contemporary PhD scientists, when taking into account the expected clinical responsibilities of dual degree faculty, a period of at least 5 years of support should be considered. As indicated in other parts of this document, the mentoring needs for early career faculty would likely require a
mentoring team composed of individuals with differing expertise and points of view. NIH might want to allow some salary support to mentors as part of this type of award.

**Comment 3** Please provide any other comments on this general issue that do not fit into the categories listed above.

In the awards, a substantial part of a physician’s time is to be protected to provide time for investigative studies, but often the salary contained in the awarded grant is under-funded, placing significant constraints on the institution’s ability to support the physician scientist.

**Recommendation:** To enable the institution’s ability to support physician scientists with higher base salaries to participate in the program, we recommend that the salary cap, in most NIH institutes, associated with the K program, be at least returned to prior levels or lifted.

**Other Recommendations:**

1. It seems likely that a number of MD-PhDs will pursue team-oriented clinical and translational science that may not fit within the traditional R01 paradigm. NIH, perhaps through NCATs and other ICs should consider coordinated initiatives to promote the successful career development of these types of investigators. This might best be facilitated through a modified K-type mechanism. The CTSA network might be a good foundation, given that a primary focus of CTSA’s is education, training, and career development.

2. The NIH has been very responsive and active in initiatives to support the biomedical workforce, including physician scientists. The AAMC strongly encourages the NIH to institute specific evaluations and metrics to assess the success of activities in these areas to demonstrate an evidence base for what works and in what context.

The AAMC is again grateful for this opportunity to comment, and we look forward to working with the NIH as it develops new training initiatives. Please contact me or my staff, Irena Tartakovsky, M.D. ([itartakovsky@aamc.org](mailto:itartakovsky@aamc.org)) with questions about these comments.

Sincerely,

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