Commentary: **Making Clinical Research a Robust Career Path**

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Abstract

This commentary relates to three articles in this issue of *Academic Medicine,* which address the vision of the National Institutes of Health (NIH) for clinical and translational research. Those articles encompass the first successful Clinical and Translational Science Award applicants' stated aims for their programs, the success of a Harvard training program, and the case for exposing medical students to research experiences. The positive recommendations each makes are timely and give the author an opportunity to draw attention to related NIH education and outreach programs. Meeting the NIH's mission "to extend healthy life and reduce the burdens of illness and disability" will need a coordinated approach to ensure that health care workers are aware of the importance of research—and that clinical researchers see a secure, research-related career structure in academic health centers.

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Three articles in this month's *Academic Medicine* give me an opportunity to reflect on the new resources that the National Institutes of Health (NIH) has provided for clinical research since the implementation of the Roadmap for Medical Research, together with the hazards of this career choice. The timing is opportune: The NIH's principal endeavor in promoting an academic home for the clinical researcher, the Clinical and Translational Award (CTSA) program, had its second birthday in September of last year (the first awards were made in September of 2006). The year 2008 saw the program past its halfway mark, with 38 awards made of the projected 60 that are the goal for the year 2012. The program has an estimated cost of $500 million per year, and

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detailed assessments of the outcomes of these investments will continue in the years that follow Dr. Zerhouni's departure from the NIH. Heller and de Melo-Martín[1] do us great service in reviewing the first round of grants that are accessible through a link on the CTSA program's Web site (www.ctsaweb.org). They direct their attention principally to the feasibility of the vision expressed in the introduction to the first Request for Applications. Their comment that "in general, institutions developed detailed programs to address research workforce and research operations barriers but had limited to no solutions for organizational silos" usefully illustrates the constraints under which academic health centers (AHCs) have operated in our increasingly competitive and cost-conscious health care market. The organizational silos that the authors identify are the familiar, specialty-dependent departments of medical schools. The explanation for their persistence in the first round of CTSA applications likely derives from the service-based revenue streams that continue to be linked closely to specialties, specialty boards, and their required training experiences. Freeing clinical researchers from the traditional departmental structure will require the success of alternative models for faculty structure—and here some experimentation will be needed. The CTSA program provides for Key Function committees on which each awardee site is represented and where the outcome of these and other experiments can be shared. Benefitting from the experience of others has, to date, been one of the CTSA program's

greatest successes. An Education/Career Development committee, for example, is identifying core competencies for clinical researchers while the community engagement committee has recently held a series of regional workshops to promote interchange with the Centers for Disease Control's "Prevention Research Centers." It is through the dissemination and adoption of best practices, the CTSA program should evolve to meet new challenges.

In a companion article, Goldhamer and colleagues[2] use program members' NIH grant funding, publications, and career paths—all relatively traditional metrics—to evaluate the Program in Clinical Effectiveness (PCE) at Harvard's School of Public Health. The enormous effort they must have expended in contacting almost 1,500 past graduates is rewarded by a sufficient number of responses to make statistically significant associations between NIH funding, early publication, and a trainee age under 40. Personally, I am encouraged by their report that 38% of program graduates were able to obtain protected research time at some point. This is a useful index of institutional commitment to the training of clinical researchers. At the time of follow-up, 34% described themselves as being clinician–investigators, and 39% saw themselves as physician–teachers. This high number of physician–teachers surely argues for the end of the triple-threat model in which faculty undertook to excel in research, clinical care, and teaching. Across the country, our promotion and tenure committees have

had to develop new paradigms for evaluating and rewarding research and teaching career structures. The point is important in the context of a third article in this issue, in which Teo[3] recommends that students should be exposed "to the concept and examples of clinical research as part of their educational curriculum." Teo is a resident physician in the Department of Psychiatry at the University of California–San Francisco (UCSF) and a veteran of critiques of medical education[4] who bases eight recommendations for promoting clinical research careers on a detailed analysis of the history of clinical research in the United States. He cites both the Harvard PCE and the UCSF's Summer Clinical Research Workshop to comment that research training opportunities should be available before medical graduation—a view that the NIH fully supports.

Indeed, the NIH's Office of Science Education (OSE) develops and sponsors science education projects that serve elementary, secondary, and college students and teachers and the public. The OSE works closely with an extramural program, Science Education Partnership Awards (SEPA), that is administered by the same NIH Center (the National Center for Research Resources) that also has responsibility for the CTSAs. SEPA's science education programs reach as far back as middle school, some using converted buses to bring contemporary

laboratory facilities to high schools. I would like to see the nation's high schools equipped to allow Teo's recommendation for research awareness to be implemented long before medical school enrollment. Realizing this goal will require much better communication between the nation's AHCs and the public. This is an area which the NIH can be encouraged to take a lead. The OSE, SEPA, and the community engagement component of the CTSA program each use different avenues to reach the public, but they have the common goal of bringing the excitement of original research to the public.

Teo's final recommendation, that policy makers should be made more aware of "the link between better clinical research training and better health for the population," takes me back to the need for a secure career structure for clinical researchers. The CTSA program is the boldest move the NIH has made to encourage AHCs to create an organizational structure (be it a center, department, or institute) in which faculty can be promoted and, where appropriate, achieve tenure. The first steps were to create a pipeline to research training through the "T" training programs—that the NIH provides as predoctoral and postdoctoral research training opportunities for individuals interested in pursuing research careers in biomedical, behavioral, and clinical

research (http://grants.nih.gov/training/T_Table.htm)—and to offer continued support through an institutionally mentored scholar program. It is important that the clinical research graduates of these programs have parity with their basic science colleagues and that, together, they strive to evaluate basic advances for their clinical implications. If we are to satisfy the public demand for better health, we will need to prevent the most common causes of morbidity (cardiovascular disease, hypertension, and obesity) and offer remedies for those increasingly common killers—cancer of the lung, colon, breast, and pancreas. Policy makers are fully aware of the investments they make in the NIH, and I believe that their confidence is justified.

References

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