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Physician-Scientist to Research-Engaged Physician—What Is in a Name?

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Physicians engaged in research represent the promise of a better future—more effective treatments, better strategies for diagnosis and prevention, and long sought-after cures. Driven by curiosity, physician-scientists take observations from the clinical setting, infuse their current understanding of biology and medicine, and seek to address the most important unanswered questions in biomedical science. Although the physician-scientist model can be traced back at least to Ancient Greece, the advent of molecular biology in the mid-20th century enabled generations of curious physicians to focus on understanding the molecular pathways that govern pathophysiology and human disease. These individuals ran basic science laboratories and secured National Institutes of Health (NIH) grants to support their experiments and their salaries—a paradigm that became synonymous with the modern physician-scientist. Based on this paradigm, data on the demographics of NIH-funded investigators have raised national concerns about dwindling numbers of physician-scientists, driving discussion about policy changes to revitalize this workforce.[1-3]

At the same time that the importance of this traditional, basic science–focused physician-scientist workforce has never been greater, it is also clear that the need for curiosity-driven, scientifically based, critically thinking physicians goes far beyond a focus on molecular pathways and fundamental science. This need reflects the growing appreciation of the importance of research beyond basic science for improving health and health care, building on the remarkable growth of clinical and translational medicine over the last 40 years and now encompassing fields such as quality of care, health care delivery, epidemiology, and medical education. Increasingly, it also includes the opportunity for practicing physicians to ask questions about their own clinical practice, whether driven by single clinical observations, patterns across patients, or systematic efforts to improve quality of care and to engage in clinical trials to provide options for their patients and support practice finances. Research training and experience is increasingly integrated into medical school education, including at the Vagelos College of Physicians and Surgeons where students are required to complete a scholarly project in addition to options for research electives, summer research programs, and research years.

In this issue, Browne uses a survey conducted by the Association of American Medical Colleges to provide a broader perspective on the current state of physicians engaged in research, complementing the data from NIH grants and Medical Scientist Training Program alumni surveys.[4] Based upon this survey of 5917 active physicians, 14% were engaged in some form of research. Of note, more than one-third of research-engaged physicians were not affiliated with academic institutions, and more than three-fourths spent less than 10% of their time on research. Perhaps not unexpectedly, the proportion doing clinical research (84%) greatly outweighed the proportion doing basic science research (7%).

These results are instructive in several ways. A substantially greater proportion of physicians are engaged in research than meets the traditional definition of physician-scientist. However, for most of these physicians, research is a small part of their overall effort. Interestingly, a relatively large proportion of research-engaged physicians are not in academic institutions. Clearly, the traditional definition of a laboratory-based physician scientist captures only a small proportion of research-engaged physicians, suggesting that new terminology and definitions will be needed to advance our understanding of this critical part of the physician workforce. Perhaps the term *research-engaged physician*, as used in this article, is helpful for the broadest category, with subcategories for those who spend a substantial proportion of their time in research outside of their clinical practice (ie,

research-focused physician), those who use research as a tool in their clinical practice (ie, research-enabled physician), and for those who engage in clinical trials or other research activities to supplement their practice activities (ie, research supplemented physician). Within that framework, the traditional term of *physician-scientist* would continue to describe the independent, NIH-funded investigator focused on fundamental discovery.

Although these insights add to the current knowledge about physician researchers in the US, the limited data from the survey and the lack of information about practice or other system characteristics mean that the study raises many more questions than it answers. For example, what types of research are being conducted and how are they supported? Are research-engaged physicians more satisfied? Do they have better patient or practice outcomes? Do these associations vary by the type of research engagement? Are there experiences in medical education or training that support physicians to be successful in research engagement? If research engagement is beneficial, are there structural or other characteristics of their health care environment that make it easier for physicians to engage in research?

Advancing knowledge through medical research is part of the social compact underlying the role of the medical profession in society. Delivering on this compact requires exciting the next generation of physicians about research-engaged careers and demonstrating that research engagement is a meaningful and beneficial professional pursuit. To achieve those goals, we must ensure our educational systems promote intellectual curiosity, continue to prioritize research experiences in medical education and training, and move from estimating the prevalence of research engagement to developing standardized terminology and measures to conducting longitudinal studies of the determinants and outcomes of that engagement. The future of the physician researcher workforce is too important to be guided by anecdote and opinion. Perhaps it is not unexpected that, for this topic, more research is needed.

ARTICLE INFORMATION

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