

APM Perspectives

The Association of Professors of Medicine (APM) is the national organization of departments of internal medicine at the US medical schools and numerous affiliated teaching hospitals as represented by chairs and appointed leaders. As the official sponsor of The American Journal of Medicine, the association invites authors to publish commentaries on issues concerning academic internal medicine.

For the latest information about departments of internal medicine, please visit APM's website at www.im.org/APM.

Scholarship During Residency Training: A Controlled Comparison Study

Colin P. West, MD, PhD,^{a,b} Andrew J. Halvorsen, MS,^c Furman S. McDonald, MD, MPH^{a,d}

^aDivision of General Internal Medicine, ^bDivision of Biomedical Statistics and Informatics, ^cInternal Medicine Residency Office of Educational Innovations, ^dDivision of Hospital Internal Medicine, Mayo Clinic, Rochester, Minn.

Scholarship during residency training has important benefits for both learners and faculty. For residents, research experiences promote proficiency in critical appraisal of the literature, a key skill for all physicians, and provide training necessary for successful research activities in fellowship or future academic careers.^{1,2} Research experiences also provide networking opportunities and foster mentoring relationships.^{1,3,4} Research experiences may further satisfy the intellectual curiosity characteristic of many physicians in training and even encourage careers in clinical investigation.⁵⁻⁷ For faculty, participation in resident scholarship can result in publications and other activities crucial to academic promotion.⁸ Many faculty also especially prize opportunities to work with inquisitive residents.⁷

In recognition of the importance of resident scholarship, in 1994 the Residency Review Committee for

Internal Medicine established that residents must complete “original research, comprehensive case reports, or review of assigned clinical and research topics.”⁹ This language has evolved to the current standard, in which faculty must “establish and maintain an environment of inquiry and scholarship with an active research component” and “encourage and support residents in scholarly activities.”⁹ In addition, the training curriculum “must advance residents’ knowledge of the basic principles of research, including how research is conducted, evaluated, explained to patients, and applied to patient care.”⁹ Training programs and their parent institutions are expected to “allocate adequate educational resources to facilitate resident involvement in scholarly activities.”⁹

Despite these requirements, many training programs have difficulty developing scholarly opportunities for their learners.¹⁰ Numerous barriers to successful implementation of resident scholarship activities have been identified,⁵ including lack of faculty mentoring and time,⁵ competing resident clinical responsibilities,^{3,5,11,12} and funding limitations.^{5,10,12} However, since the initial certification requirement was issued there have been several reports of approaches to resident research promotion and common themes have emerged as core elements of a successful residency research program, including exposure to and guidance from mentors, training in research methodology and critical appraisal, protected time for research, an environment supportive of research, an identifiable research director, opportunities to present scholarly activities in peer-reviewed settings, and appropriately focused res-

Funding: This study was supported in part by the Mayo Clinic Internal Medicine Residency Office of Educational Innovations as part of the Accreditation Council for Graduate Medical Education Educational Innovations Project. The Accreditation Council for Graduate Medical Education had no role in the funding, design, or conduct of the study; collection, management, analysis, and interpretation of the data; or preparation, review, or approval of the manuscript.

Conflict of Interest: None of the authors have any conflicts of interest associated with the work presented in this manuscript.

Authorship: All authors had access to the data and played a role in writing this manuscript.

Reprint requests should be addressed to Colin P. West, MD, PhD, Divisions of General Internal Medicine and Biomedical Statistics and Informatics, Departments of Medicine and Health Sciences Research, Mayo Clinic College of Medicine, Rochester, MN 55905.

E-mail address: west.colin@mayo.edu

ident projects with clearly articulated goals, expectations, and timelines.^{1,5,13} Unfortunately, despite these commonly agreed-on core elements, descriptions of effective programs have typically been compromised by limited objective outcome assessment.¹

At Mayo Clinic, research has been a mandatory part of residency training since 1988,¹³ even before it became an accreditation requirement. The internal medicine residency research curriculum has been developed over time to meet the key requirements. To assess objective outcomes from this residency scholarship program, we evaluated peer-reviewed publications authored by internal medicine residents beginning training from 2003 to 2006 and completing training from 2006 to 2009 at Mayo Clinic compared with similar residents at other institutions.

MATERIALS AND METHODS

Mayo Clinic Resident Research Curriculum

The resident research curriculum spans the full 3 years of training, beginning with pre-internship orientation. An online research manual expanded from a previously copyrighted and widely distributed format¹³ (Appendix 1, online) provides core content related to project planning, protocol development, and introductory principles of biostatistics and epidemiology. Additional education resources are available through the Center for Translational Science Activities, the Mayo Graduate School, and semiannual workshops on scientific writing.

Protected month-long research electives are available in all years of training. Under the direction of the Associate Program Director for Resident Scholarship acting as the residency research director, residents develop projects with interested mentors across all clinical areas. These connections are facilitated by the faculty education coordinators in each subspecialty, who are most familiar with the work of their colleagues. Approval of research electives requires submission of a proposal, which is reviewed by the residency research director, and a formal approval letter from the mentor. These supporting materials must be submitted at least 2 months before the start of the desired elective month to allow adequate time for critical review and modifications, if necessary. This process is aided by the use of a standardized protocol template (Appendix 2, online). Each research elective is evaluated after its completion

by the mentor, and this feedback is shared with the resident. Institutional and residency policies provide travel benefits for dissemination of resident scholarly activities through presentations given at recognized society or association meetings.

In addition, training in evidence-based medicine throughout the 3 years of residency is led by the chief medical residents, each of whom pursues advanced training in teaching methods for evidence-based medicine before beginning his/her chief year.¹⁴ Residents provide critical review of literature relevant to clinical questions arising for their patients at a weekly conference, the Clinical Decision-Making Journal Club. Residents also receive formal instruction in quality improvement methodology and systems-based practice.¹⁵

Study Groups

For this study, cases were applicants who were matched to our program and began their training between 2003 and 2006, representing 4 separate residency classes completing training from 2006 to 2009. Controls were all applicants on our rank list for these same years who were “ranked-to-match,” that is, were in a position on the rank list such that they would have been matched with Mayo had they ranked our program high enough on their list. This list includes all applicants ranked higher than the lowest ranked applicant who matched with the Mayo Clinic internal medicine training program. The ranked-to-match applicants provide a natural comparison group for assessing scholarship outcomes, because on the basis of their rank list placement they were anticipated to perform at least as well as our matched residents but were matched elsewhere because of personal preference.

Outcomes and Statistical Analysis

To objectively quantify the scholarly output of the 2 groups, we examined peer-reviewed articles published between July of each resident’s match year and the end of the expected graduation calendar year. Publications were identified using Ovid MEDLINE. We initially searched by author last name, first initial, and middle initial (when available), as provided in the application files. The resulting list of references was then searched manually for full name matches. For references without a listed full first name or where multiple authors were listed under the same name, the institution field was examined for

PERSPECTIVES VIEWPOINTS

- Resident scholarship is a required component of residency training with benefits to both residents and faculty.
- Key features of successful resident scholarship programs have been identified, but robust outcomes have seldom been reported.
- Mayo Clinic has developed a successful comprehensive research curriculum demonstrating that internal medicine residents can achieve the highest standards of scholarship.

Download English Version:

<https://daneshyari.com/en/article/2719632>

Download Persian Version:

<https://daneshyari.com/article/2719632>

[Daneshyari.com](https://daneshyari.com)