

# Overcoming the Obstacles to Research During Residency

## What Does It Take?

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**A**LTHOUGH MOST PHYSICIANS WORK AS CLINICIANS AND never perform research, the Accreditation Council for Graduate Medical Education requires that residents “participate in scholarly activity” and that programs “allocate adequate educational resources to facilitate resident involvement in scholarly activities.”<sup>1</sup> The requirement varies by specialty, and programs are allowed considerable leeway in deciding how trainees will fulfill it.

The benefits of resident research are manifold. It may help promote evidence-based medicine and quality patient care, provide skills for lifelong learning, enhance residents’ analytic skills, and develop critical thinking. To successfully conduct research amid the demands of their training, residents must also possess strong clinical skills—one reason that evidence of research activity is usually a prerequisite for competitive fellowships. Moreover, residents who participate in research report higher satisfaction with residency training.<sup>2</sup>

Despite these benefits, conducting research in residency is challenging, and insufficient scholarly activity remains a common reason for residency program citation.<sup>3</sup> Authors have described research curricula or research rotations, but there is little empirical evidence for specific elements of a successful resident research program. Surveys of program directors<sup>4</sup> and residents<sup>5</sup> reveal 7 barriers to research during residency: insufficient resident interest, limited resident time, paucity of mentors, limited faculty time, lack of resident research skills, absence of a research curriculum, and inadequate funding. Although formidable, these obstacles can be overcome with sufficient resources and determination.

### Stimulating Interest

Many residents profess no interest in conducting research, perhaps because they do not see how doing so relates to their practice. Laying the foundation for future scholarship requires transformation of the program culture. Maintaining a constant focus on evidence-based medicine is a prerequisite because its practice identifies knowledge gaps from which research is a natural outgrowth. Challenging residents to critique the literature and use evidence-based medicine resources to answer clinical questions on rounds, in morn-

ing reports, and in journal clubs creates an atmosphere of inquiry that fosters research questions. This sort of transformation often takes years. In the beginning, program directors should concentrate efforts on mentoring residents who already demonstrate interest in research and are self-motivated to create successful approaches. When residents win awards at national meetings or have articles published in high-impact journals, the program should publicize these accomplishments so that other residents take notice.

### Finding Resident Time

Conducting research takes time, and residents have less time than other novice researchers, including students and fellows. Every step of the research process is subject to unexpected delays, and given the relatively short duration of residency, even routine delays can be devastating. A project that is delayed for 6 months by the institutional review board may never recover.

This obstacle can be overcome in several ways. The first step is to identify potential bottlenecks in the research pathway and attempt to facilitate them with specialists. Residents often have difficulty identifying a research question, navigating the institutional review board process, recruiting participants or collecting data, and performing statistical analysis. The initial step is particularly difficult. With limited clinical and research experience, trainees struggle to identify important questions and feasible study designs. Providing a list of important and reasonable projects from which residents can choose accelerates the process and has the added benefit of ensuring that chosen projects are of interest to the mentors. It is critical that these questions be focused, and the study can often be part of a preexisting project. Additional help from a departmental specialist (usually a research assistant or project manager) who can guide residents efficiently through the institutional review board process can save months of frustration. Data collection can be facilitated by using existing data sets, collecting data electronically, or providing the residency with a research assistant who can assist with chart review. Assistance with sta-

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tistical analysis should be provided either by the mentor or the program.

Projects can be further accelerated by temporarily relieving residents of clinical responsibilities and allowing them to focus on research, which could be in the form of a research elective or rotation lasting from 1 to 3 months and committed to the completion of a research project.<sup>6,7</sup> Alternatively, recurring protected time can be scheduled during ambulatory or elective months, allowing the time to be spread over several years. Having written timelines and monitoring progress frequently can effectively allow residents to focus on their research.

### Finding Mentors

Although most researchers may agree that good mentorship is crucial to successful research, access to mentors varies substantially among programs. In large research institutions, residents may compete with fellows for the best mentors, whereas in community hospitals there may be few active researchers available to work with residents. For programs beginning to develop research, it is prudent to match the best mentors with the most motivated residents to ensure a positive mentor experience. Otherwise, mentors are unlikely to volunteer to take on additional residents, and it is easier to find new residents than new mentors. If there are no local mentors, it may be necessary to appoint a research director to work directly with the residents and promote faculty development.

### Finding Faculty Time

Even if good mentors are available, their time is often limited by competing responsibilities. Successful mentors may find themselves beset by interested trainees. Resident projects rarely save faculty time or result in articles that will advance the faculty member's career. Because faculty time is expensive, programs generally do not reimburse for this work, which is therefore conducted during faculty members' personal time. However, working with enthusiastic residents allows faculty to explore areas of interest and can be rewarding from a mentoring standpoint. Division chiefs and department chairs can help by setting mentoring expectations and rewarding faculty who see resident projects through to publication.

### Developing Research Skills With a Research Curriculum

Most residents arrive without research experience and require formal instruction in the basics of study design and interpretation as part of evidence-based medicine. For programs without the resources to develop their own curriculum, the National Institutes of Health offers online research training.<sup>8</sup> Research-in-progress meetings are a valuable practical addition and offer the chance to interact with other researchers. These may be specifically for residents (eg, noon conference), or residents may be invited to other meetings

at the institution. As the research culture develops, residents learn research skills from one another in the same way they learn clinical skills. Ultimately, research follows an apprenticeship model, with mentors providing most of the instruction.

### Finding Funding

Many resident projects consist of chart reviews, meta-analyses, or surveys that can be conducted with little or no funding. However, maintaining research infrastructure can be expensive. In the most recent survey of internal medicine programs, conducted almost a decade ago by independent researchers, only half the programs reported having research funds, with an average investment of approximately \$12 000 per year.<sup>4</sup> Funds were generally spent on travel, technical support, start-up costs, and research assistants. In addition, many programs employ at least a part-time research director,<sup>9</sup> supported by direct graduate medical education dollars. Other sources include internal grants, philanthropy, and investigators within the department.

In conclusion, the requirement for resident research holds substantial promise for improving the practice of medicine, enhancing quality, and decreasing cost, but for research to become widespread, residency training programs must overcome a number of substantial obstacles. Successful implementation requires an intentional approach that addresses specific barriers, beginning with a commitment to change the underlying culture of the institution to create an atmosphere of inquiry and the financial investment to build the necessary infrastructure to facilitate rapid turnaround of small projects.

**Conflict of Interest Disclosures:** The author has completed and submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest and none were reported.

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