

Navigating the Research Landscape: A Roadmap for Residents

Author: Edwin Mogaka, MD, PhD

In general, resident physicians often encounter the formidable challenge of embarking on their initial research projects, particularly when devoid of prior research skills. The intricacies of formulating a coherent and answerable question loom large, setting the stage for an undertaking that can be both intimidating and complex. Recognizing this, the American College of Physicians in the USA has ardently championed the cause by actively promoting resident abstract and poster sessions, serving as pivotal platforms for skill development and knowledge dissemination. These sessions embrace a diverse array of categories, encompassing traditional biomedical research, quality improvement projects, evidence-based medicine (EBM) initiatives, and clinical case studies.

For individuals new to the world of research, engaging in quality improvement projects and evidence-based medicine (EBM) initiatives represents a valuable initiation into the intricacies of scientific inquiry. These initiatives serve not only as educational endeavors but also as pivotal stepping stones, endowing residents with fundamental skills and fortifying them for the challenges inherent in more advanced research pursuits.

Embarking on a quality improvement project offers residents a hands-on learning experience, guiding them through a multifaceted process. They navigate the intricacies of identifying pressing problems, formulating plans for improvement, conducting a meticulous examination of intervention outcomes, and brainstorming innovative ideas for further enhancements. This comprehensive approach not only addresses the practical aspects of intervention but also cultivates a nuanced understanding of the entire research lifecycle.

Moreover, quality improvement projects immerse residents in the complexities of abstract writing, poster preparation, and the articulate defense of their work. These high-level skills, surprisingly, are often perceived as less daunting than the administrative challenges associated with managing Institutional Review Board (IRB) approvals, overseeing laboratory procedures, or navigating the intricacies of clinical data collection. The acquisition of skills through hands-on projects thus establishes a solid foundation, easing the transition for residents as they progress towards more intricate and demanding biomedical research endeavors.

By delving into the practicalities of research methodologies, residents not only cultivate a proficiency in addressing immediate healthcare challenges but also develop the acumen to navigate the broader landscape of scientific investigation. This experiential learning approach, grounded in the intricacies of quality improvement projects, positions residents to seamlessly transition from foundational research experiences to the complexities of advanced biomedical research, marking a transformative journey in their research proficiency and contributing to the collective advancement of medical knowledge.

Embarking on an Evidence-Based Medicine (EBM) project offers novice residents a straightforward yet highly educational avenue into the realm of research. This particular approach provides an accessible framework for residents to hone their research skills while delving into the intricacies of clinical inquiry. The journey begins with residents tasked with identifying a clinical question, firmly rooted in a specific case. Employing established EBM techniques, such as the widely used PICO framework (Patient, Intervention, Comparison, Outcome), residents systematically formulate their inquiries. This structured approach ensures a methodical exploration of the essential components, guiding residents in the precise delineation of their research questions.

Following the formulation stage, residents engage in a comprehensive literature search. This phase serves as a crucial aspect of the project, requiring residents to navigate through a vast expanse of scholarly literature to gather relevant information and evidence. The literature search, a skill in itself, allows residents to synthesize findings and distill pertinent information that contributes to a more profound understanding of their chosen clinical question.

The culmination of their efforts finds expression in a poster presentation, wherein residents articulate their research question, methodology, and key findings in a concise and visually engaging format. This presentation format not only facilitates effective communication of their work but also offers residents an opportunity to

showcase their ability to distill complex information into a clear and accessible format. This EBM project, with its structured approach and tangible outcomes, proves to be an excellent vehicle for residents eager to refine their abilities in answering clinical questions. Beyond that, it serves as a platform for mastering the intricacies of literature searches, allowing residents to navigate and critically evaluate existing knowledge, thus contributing to the establishment of the current landscape surrounding their inquiries.

In essence, the EBM project not only empowers residents with hands-on research experience but also equips them with essential skills in formulating clinical questions, conducting systematic literature reviews, and presenting their findings—an invaluable foundation for their evolving roles as practitioners engaged in evidence-based healthcare practices. For residents interested in biomedical research, a well-structured and deliberate curriculum emerges as a vital compass to navigate this intricate landscape. The city's medical community recognizes the significance of offering tailored guidance and has curated a wealth of online resources within the AAMC's MedEdPORTAL to empower these aspiring researchers.

These invaluable resources, ranging from tutorials on "How to Write an Abstract of a Research Project" to comprehensive guides on "How to Formulate a Clinical Question," form an indispensable toolkit. Each component serves as a beacon, illuminating the path for residents as they embark on their research journey. This curated curriculum ensures that residents have access to a well-rounded education, covering essential aspects of research methodology, project formulation, and effective communication of findings.

A structured timeline acts as a scaffolding, providing residents with a clear roadmap for their research endeavors. This temporal framework not only fosters discipline but also ensures a steady progression, allowing residents to navigate the various stages of their projects with a sense of purpose and direction. Mandatory mentorship meetings further enriches this educational experience. The guidance and insights provided by experienced mentors become invaluable, offering residents a compass to navigate challenges, refine their research objectives, and gain a more nuanced understanding of the research landscape.

Crucially, the overarching message is clear: residents need not be daunted by the prospect of immersing themselves in awe-inspiring bench work to derive meaningful insights from a research project. Programs encourage residents to opt for more manageable, smaller-scale projects. This strategic approach allows them to grapple with the entire research process—from the conception of ideas through the intricacies of execution to the articulate presentation of findings. By engaging in this comprehensive process, residents not only acquire profound insights into research methodologies but also cultivate a holistic understanding of the scientific inquiry.

The Author is a PGY3 and Leader of Scholarly Activities for the Family Medicine Residency of The Wright Center for Graduate Medical Education in Scranton, Pennsylvania.