

DEVELOPING THE RESEARCH IDEA



Yardlee S. Kauffman and Sarah J. Billups

"The idea of finishing my project within 1 year initially seemed overwhelming. While each individual step seemed manageable, the totality of the project made me cringe and even lose sleep occasionally (honestly, quite often). Despite the valuable guidance I received from my mentors, they didn't seem to share my level of anxiety about the project. After all, it was my residency certificate that was hanging in the balance! Overall, I'm grateful for the experience because it taught me so much and really prepared me for future projects."

—Former PGY2 Ambulatory Care Resident

LEARNING OBJECTIVES

- Identify how to write a scientific research question that meets PICOTS (Population, Intervention, Comparison group, Outcomes, Timeline, and Setting) or FINER (Feasibility, Interesting, Novel, Ethical, and Relevant) criteria.
- Formulate primary and secondary study objectives.
- Formulate study hypotheses and select related outcome measures.
- Develop a research proposal and timeline.

INTRODUCTION

As you embark on your research journey, you are probably asking yourself, *Where do I begin? What needs to go into the research question?* If so, this chapter will lay out a step-wise process for building the foundation of your project:

1. Identifying a research question.
2. Searching and appraising background scientific literature.

3. Writing study objectives.
4. Specifying and defining outcomes.
5. Compiling these elements into a study protocol.

This chapter will equip you with the tools to accomplish these steps (Figure 1-1).

CONCEIVING THE RESEARCH IDEA

Where do good research ideas come from? Creating a focused, relevant research idea may be one of the biggest challenges for a new researcher. A great place to identify research ideas is from your own clinical practice, such as when you encounter problems but cannot find solutions in the scientific literature. You may also want to evaluate the way evidence-based care has been implemented at your institution.^{1,2} Problems may relate to a patient-specific clinical question (e.g., "What is the relationship between benzodiazepine use and emergency department utilization in the elderly?"), institutional concerns related to quality measures defined by The Joint Commission or the Centers for Medicare & Medicaid Services (e.g., "How can we increase bisphosphonate use in women who have experienced an osteoporosis-related fracture?"), resource justification (e.g., "What is the value of a clinical pharmacist as part of a diabetes-management team?"), or process improvement (e.g., "Is there a more efficient way to conduct double-checks of intravenously prepared products?").

As a resident, your clinical experience is typically limited to rotations from pharmacy school or a previous residency; you may not have been in your practice site long enough to recognize a relevant research question. Engaging in dialogue with preceptors and mentors about possible research ideas can be the first step in building your own skills in idea development. By asking research questions, you can help to build skills in identifying relevant questions. If you have to formulate your own idea, a good place to start is by reviewing the literature about a general topic that interests you. Many studies end with recommendations for future research. Another tactic is to attend

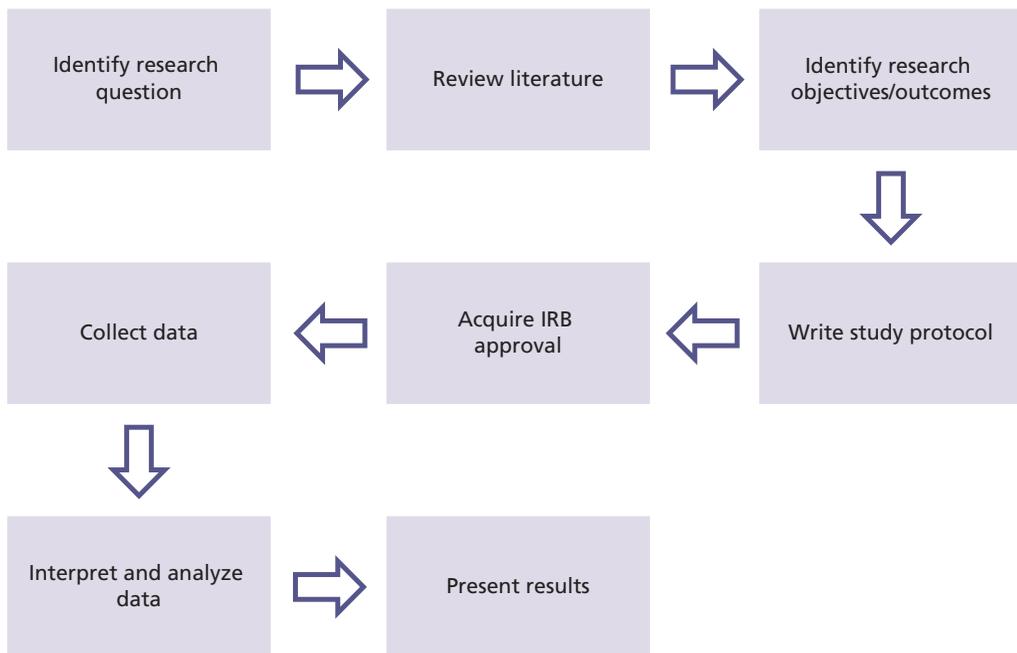


FIGURE 1-1. The Research Process