

# **Starting University Clinical Careers Efficiently, Scholarly, and Successfully**

## **Developing Your Research Question**

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# What Is a Research Question?

- Research is a rewarding process.
- To do research successfully, you must start with the right ***research question***.
- ***A research question:***
  - Is the **fundamental core** of a research project, study, or literature review.
  - Focuses the study, determines the methodology, and guides all stages of inquiry, analysis, and reporting.

Reference: Research Rundowns: Writing Research Questions

# The Importance of a Solid Foundation for Your Research Project



**Research Question**

# You Must Know What Is Already Known

- You need to know if the question that you are interested in has already been answered.
- This will help you identify the “next-step.”
  - **Existing publications:** PubMed, Google Scholar, etc.
  - **Existing grants:** NIH reporter  
<https://projectreporter.nih.gov/reporter.cfm>
  - **Hint:** Don't just go to your usual sources!

Reference: Haynes, R. Brian. (2006). Forming research questions.  
*Journal of Clinical Epidemiology*, 59(9), 881-886.  
<https://doi.org/10.1016/j.jclinepi.2006.06.006>

# How to Get Started

1. Decide what you want to know about the specific concern or issue.
2. Turn what you want to know about the specific concern into a question.
3. Ensure the question is answerable.
4. Check to make sure the question is not too broad or too narrow.

# The Foundation for Your Research Question is **PICO**

**P**

- **P**articipants / **P**opulation
  - Who are the relevant patients?

**I**

- **I**ntervention / **I**ndication
  - What is the management strategy, diagnostic test or exposure that you are researching?

**C**

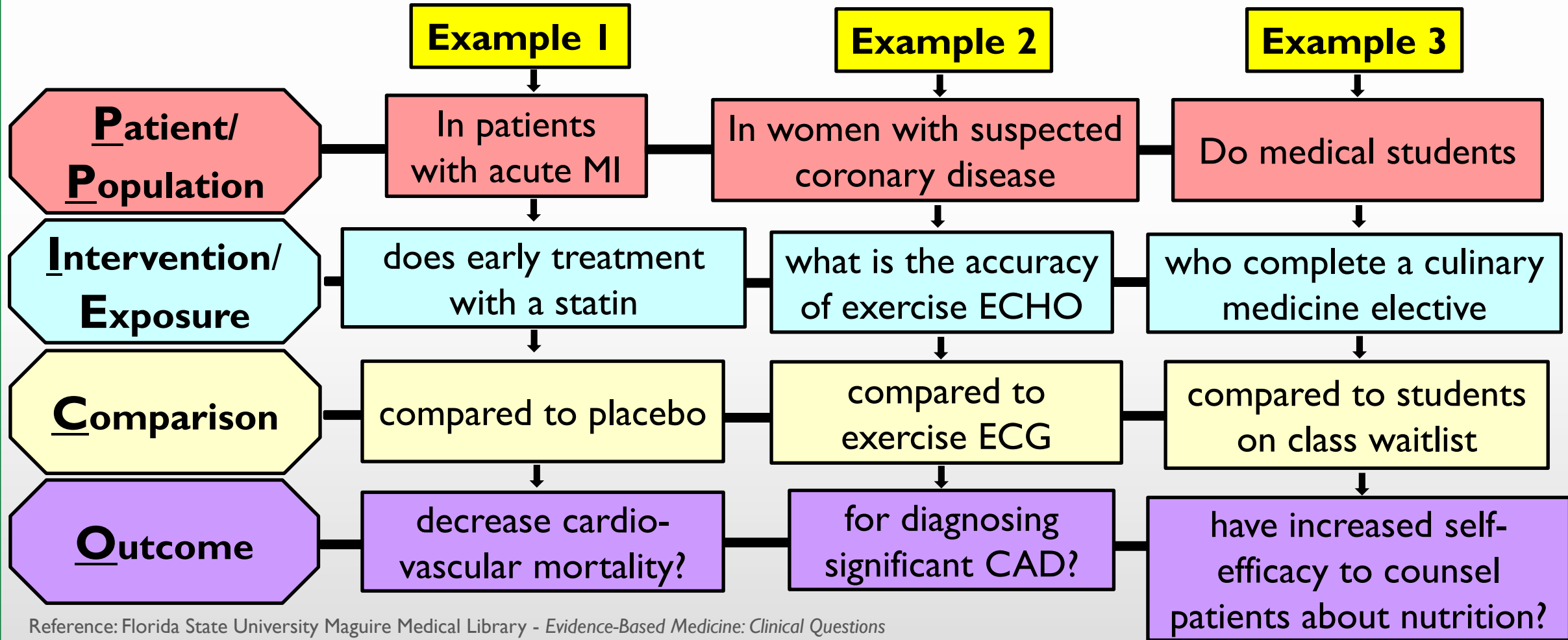
- **C**omparator / **C**ontrol
  - Is there a control or alternative management strategy, test, or exposure?

**O**

- **O**utcome
  - What are the patient-relevant consequences?

Reference: Haynes, R. Brian. (2006). Forming research questions. *Journal of Clinical Epidemiology*, 59(9), 881-886. <https://doi.org/10.1016/j.jclinepi.2006.06.006>

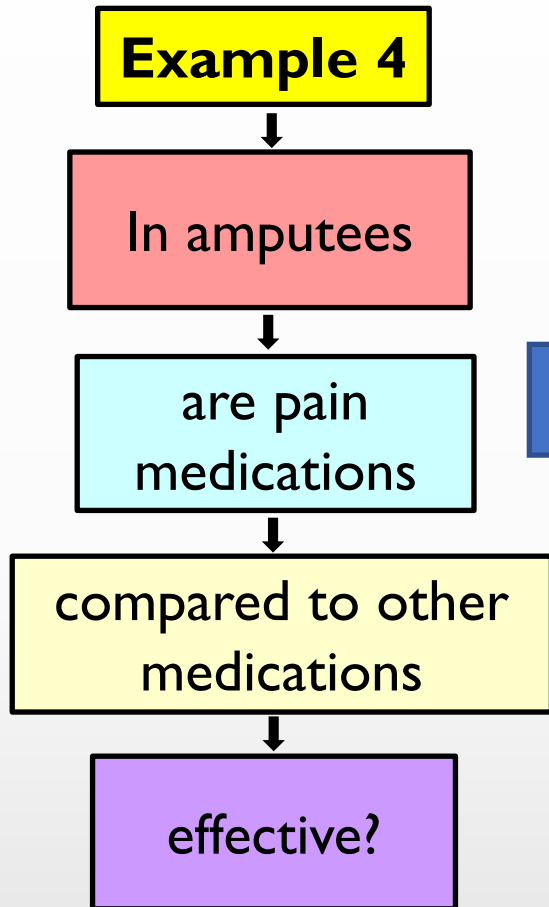
# Clinical Examples of Using PICO to Formulate Research Questions



Reference: Florida State University Maguire Medical Library - Evidence-Based Medicine: Clinical Questions

<https://med-fsu.libguides.com/c.php?g=402313&p=2788739>

# Be Specific



Research Question  
needs to be specific!

**P**

- In middle aged, male amputees suffering phantom limb pain

**I**

- is gabapentin,

**C**

- compared with placebo,

**O**

- effective in decreasing pain symptoms?

When studying the effect of the intervention over *time*,  
PICO becomes **PICOT**



# Developing A Research Question Is An Iterative Process

- **Iterative components include:**

- basic dimensions of the clinical problem
- plausibility and feasibility of the design
- colleagues you will work with
- resources you can muster to address the question, and
- contingencies that emerge as you conduct the trial

- **Competing considerations:**

- what you want to do and what is possible to do
- ability to measure the variables and collect and analyze the data from your proposed population

# Additional Information and Resources

1. Clinical Epidemiology: How to do clinical practice research 3<sup>rd</sup> ed.  
Haynes, Sackett, Guyatt & Tugwell
2. Research Rundowns: Writing Research Questions  
<https://researchrundowns.com/intro/writing-research-questions/>
3. Study.com: Writing Research Questions: Purpose & Examples  
<https://study.com/academy/lesson/writing-research-questions-purpose-examples.html>
4. Haynes, R. Brian. (2006). Forming research questions. *Journal of Clinical Epidemiology*, 59(9), 881-886. <https://doi.org/10.1016/j.jclinepi.2006.06.006>

# Developing Your Research Question

## Summary of Key Points



Your research question is the foundation of your study

Must be an answerable question at the intersection of what is/isn't known

Use PICO (or PICOT) framework to specify patients/population, intervention/exposure, comparison and observations

You must be able to answer the research question with the team and resources available to you

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