



Formulating a research idea

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**What do you do with
a problem?**

What is a research problem?



“ a statement about an area of concern, a condition to be improved, a difficulty to be eliminated, or a troubling question that exists in scholarly literature, in theory, or in practice that points to the need for meaningful understanding and deliberate investigation...”

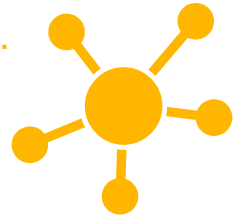
Basic characteristics of a research problem



1. Reflecting on **important** issues or needs.
2. Based on **factual evidence** (it's non-hypothetical).
3. **Manageable** and **relevant**.
4. Suggesting a **testable** and **meaningful** hypothesis (avoiding useless answers).



Components to consider when formulating a research problem



Specify your research objectives

Review its context / environment

Explore range of variables

Determine variable relationships

Anticipate possible consequences of alternative approaches



A clear and focused question is more likely to lead to a credible and useful answer, but a poorly formulated question can lead to an uncertain answer and create confusion. - *David Tovey*



The PICCO method

to writing a focused research question

P

= Patient / Population

I

= Intervention / Indicator

C

= Compare / Control

O

= Outcome

T

= Time / Type of study or question





P	I	C	O	T
Patient / Population	Intervention / Indicator	Compare / Control	Outcome	Time / Type of Study or Question
Who are the relevant patients? Think about age, sex, geographic location, or specific characteristics that would be important to your question.	What is the management strategy, diagnostic test, or exposure that you are interested in?	Is there a control or alternative management strategy you would like to compare to the intervention or indicator?	What are the patient-relevant consequences of the intervention?	What time periods should be considered? What study types are most likely to have the information you seek? What clinical domain does your question fall under?



Example:

In adult patients with total hip replacements (Population), how effective is pain medication (Intervention) compared to aerobic stretching (Comparison) in controlling post operative pain (Outcome) during the perioperative and recovery time (Time)?



Drills

Let's do it!



In middle-aged men with suspected myocardial infarction, are serial 12-lead ECGs compared with one initial 12-lead ECG more accurate in diagnosing an acute myocardial infarction?

- Can you identify the P, I, C, O, T in this study?



In middle-aged men with suspected myocardial infarction (P), are serial 12-lead ECGs (I) compared with one initial 12-lead ECG (C) more accurate in diagnosing an acute myocardial infarction (O)?



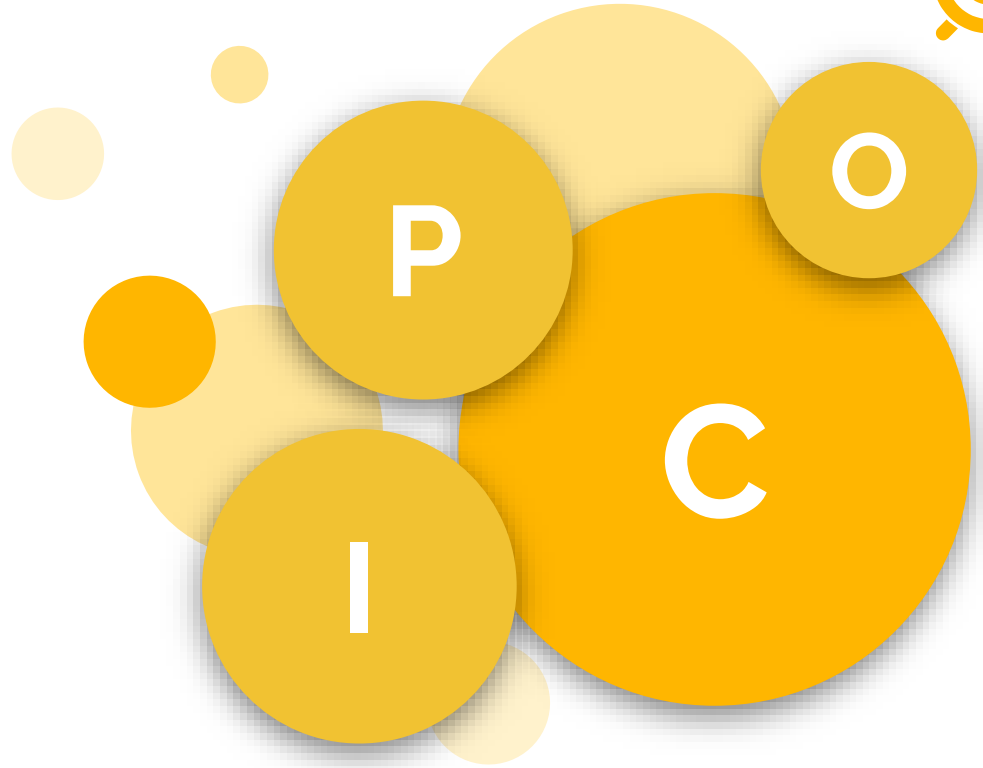
For patients 65 years and older, how does the use of an influenza vaccine compared to no vaccine influence the risk of developing pneumonia during flu season?

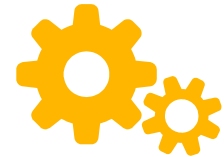
- Can you identify the P, I, C, O, T in this study?



For patients 65 years and older (P), how does the use of an influenza vaccine (I) compared to no vaccine (C) influence the risk of developing pneumonia (O) during flu season (T)?

Let's
formulate
your
research
idea with
PICO!





P

Patient / Population



I

Intervention / Indicator



C

Comparator / Control



O

Outcome



References

CLINE Library, Northern Arizona University (NAU). Ask: Write a focused clinical question. URL: <https://libraryguides.nau.edu/c.php?g=665927&p=4682772>

How to clarify a clinical question. BMJ Best Practice. URL: <https://bestpractice.bmj.com/info/toolkit/learn-ebm/how-to-clarify-a-clinical-question/>



Thanks!

Any questions?



Credits

Special thanks to all the people who made and released these awesome resources for free:

- Presentation template by [SlidesCarnival](#)
- Photographs by [Unsplash](#)