

# THE PICOTS FRAMEWORK AND COMPARATIVE EFFECTIVENESS RESEARCH

October 26<sup>th</sup>, 2016 | CFPHE

# OBJECTIVES

- Identify common challenges solved by using the PICOTS framework
- Define and understand the different components of the PICOTS framework
- How to utilize the PICOTS framework to write your research question
- Understand proper PICOTS questions that will increase the probability of achieving funding

# THE PICOTS FRAMEWORK

Population  
Intervention  
Comparators  
Outcome  
Time Frame  
Setting

# WHY SHOULD YOU USE THE PICOTS FRAMEWORK?

- Minimizes ambiguity
- Helps identify where review resources should be focused
- Guides the presentation of results
- Facilitates the search for evidence
- Assists in determining whether evidence is relevant to your question
- Independently associated with better overall reporting quality

# POPULATION

*“What is the patient population of interest?”*

*The population can narrowed by:*

- Age
- Gender
- Race
- Disease/Condition
- Stage of Illness
- People living with a specific condition, or
- People who are at risk for a specific condition, or even
- Caregivers for people with a specific condition



# POPULATION

*In Tier III you should be able to answer questions like:*

- Are intervention effects expected to be homogeneous or heterogeneous between different subgroups of the population?
- What subgroups will be considered in terms of age, gender, ethnicity, etc.?
- How will patients be recruited for the study?



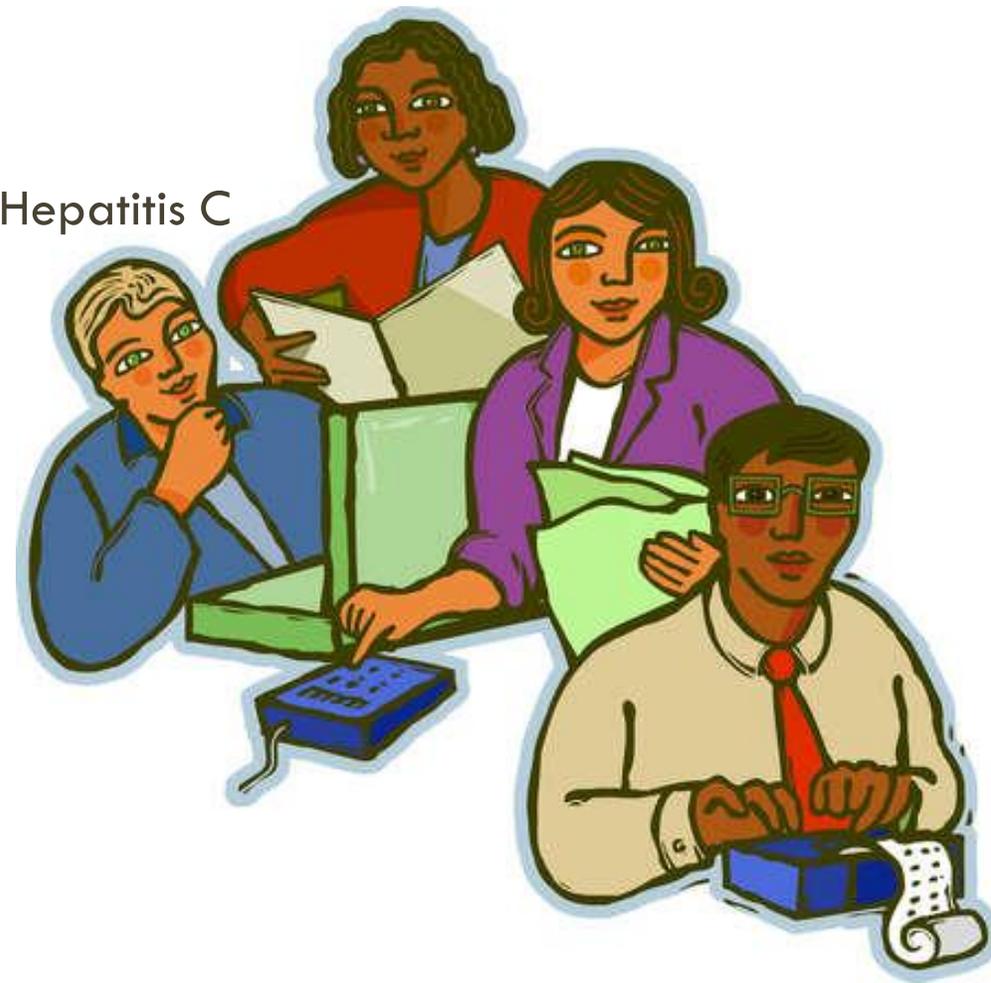
# POPULATION

## *Examples:*

- All people with lower back pain
- Injection drug users who share needles and are at risk for Hepatitis C
- Parents of teenagers with mental illness

## *Sample Size*

- Representative of the population
- Sufficient size
- Small population sizes



**Running example:** For persons entering a healthcare facility...

# INTERVENTION

*“The method and type of delivery for the treatment considered for the patient with the health problem under investigation.”*

## **Intervention Level:**

- Dosage or Frequency

## **Intervention Type**

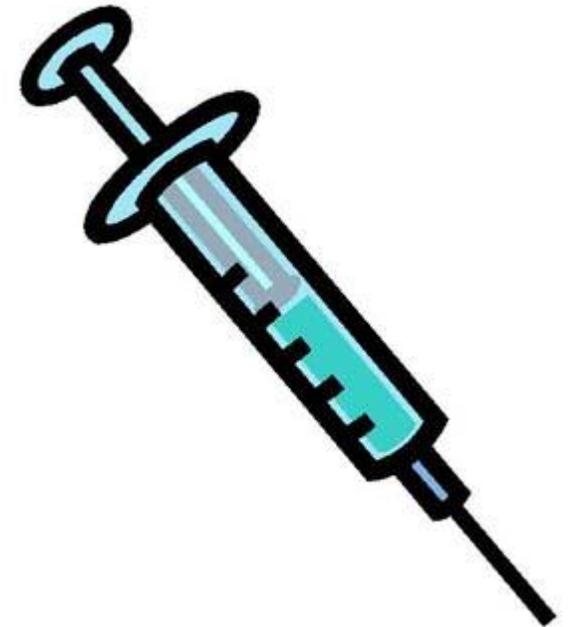
- Shot, Pill, etc.

## **Stage of Intervention:**

- Preventative, Early, or Advanced

## **Delivery:**

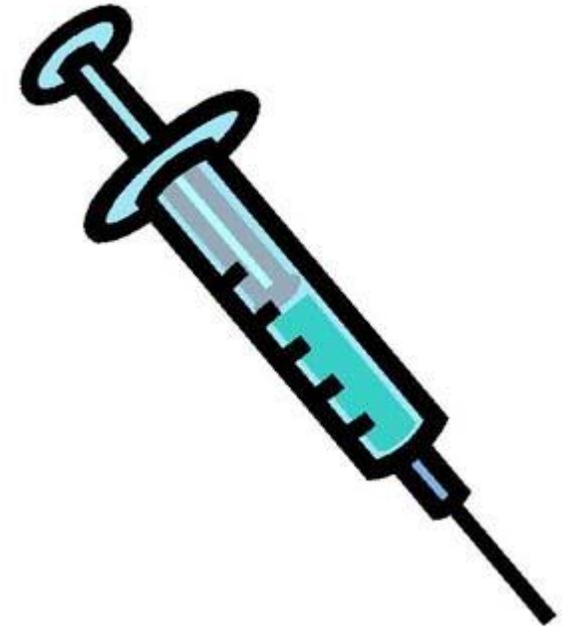
- By who? Where?



# INTERVENTION

*In Tier III you should be able to answer questions like:*

- How will patients access the intervention?
- What will the costs of the intervention be?
- Who will implement the intervention?
- Why is your study design the best way to answer your CER question?



**Running Example:** For persons entering a healthcare facility, is hand rubbing with a **waterless, alcohol-based treatment solution** as effective as standard hand washing with **antiseptic soap**...

# COMPARATORS

*“What are the treatments being considered?”*

*Options that should be compared may be:*

- One or more tests or treatments for a specific condition
- One or more ways to deliver the care for the specific condition
- Choosing among different ways to inform people about the benefits and harms of different choices



# COMPARATORS

*In Tier III you should be able to answer questions like:*

- Why are these comparators the best for your patient population?
- What benefit does each comparator provide?
- What data proves the efficacy of each comparator?
- What modifications to each comparator might make them more appropriate for the population of interest?
- How will a study of these comparators help patients make decisions in the healthcare system?



**Running Example:** For persons entering a healthcare facility, is **hand rubbing** with a waterless, alcohol-based treatment solution as effective as **standard hand washing** with antiseptic soap...

# OUTCOME

*“What is the measurable result expected if the intervention is successful?”*

***Examples:***

- Symptom improvement
- Healing
- Side effects
- Improved quality of life



# OUTCOME

*In Tier III you should be able to answer questions like:*

- Why are these outcomes important to your patients?
- What will the impact of these outcomes be in the health care system?
- How will you measure the outcomes?
- How will you share your findings back with the research, patient and stakeholder communities?



# OUTCOME

*How can people make informed choices between options?*

- By identifying which treatment or test option has the most benefits and the least harms for the population of interest, or
- By identifying which form of healthcare delivery is most likely to produce a specific benefit such as improved pain control

**Running Example:** For persons entering a healthcare facility, is hand rubbing with a waterless, alcohol-based treatment solution as effective as standard hand washing with antiseptic soap for **reducing hand contamination...**



# TIME FRAME

*“What is the time frame needed to implement the intervention and assess outcomes?”*

***Examples:***

- The time it takes to demonstrate an outcome
- The time it takes for the intervention to achieve an outcome, or
- How long participants are observed



# TIME FRAME

*In Tier III you should be able to answer questions like:*

- Are stakeholders interested in short-term or long-term outcomes?
- Why is this an appropriate time frame for your patient population?
- Is the time frame realistic for the funding period and budget?
- Why is the time frame realistic for getting to robust research outcomes?

**Running Example:** For persons entering a healthcare facility, is hand rubbing with a waterless, alcohol-based treatment solution as effective as standard hand washing with antiseptic soap for reducing hand contamination over a **4 week trial period**.

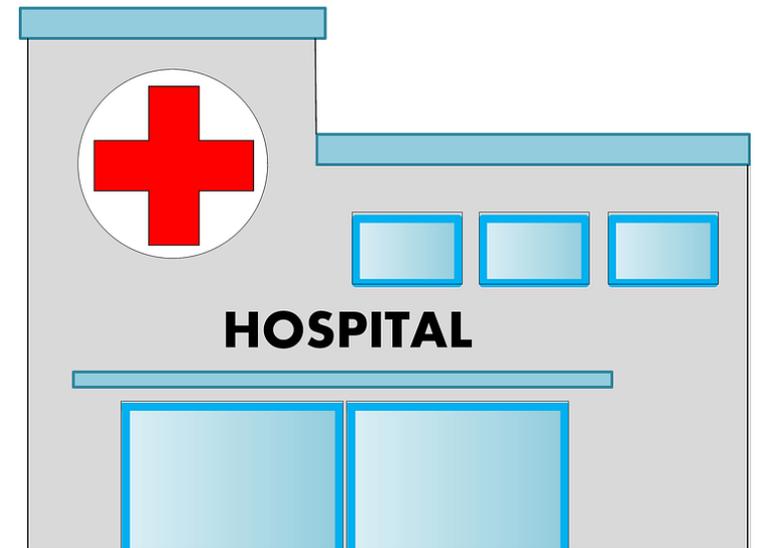


# SETTING

*“What is the setting of interest?”*

***Examples:***

- Hospital
- Private practice
- Community
- Rural
- Urban



# SETTING

*In Tier III you should be able to answer questions like:*

- Why is this an appropriate setting for your patient population?
- How is the setting appropriate for the time frame and budget?
- How is the setting realistic for translating outcomes into a real world setting that is meaningful to patients?
- How is the setting the most appropriate place to conduct this research?

**Running Example:** For persons entering a **healthcare facility**, is hand rubbing with a waterless, alcohol-based treatment solution as effective as standard hand washing with antiseptic soap for reducing hand contamination over a 4 week trial period.



# POP QUIZ!

In adult patients with total hip replacements in a physical therapy facility, how effective is PCA (patient controlled analgesia) IV pain medication compared to prn IM (“as needed”) pill pain medication in controlling post-operative pain during the perioperative and recovery time?

**Population:**

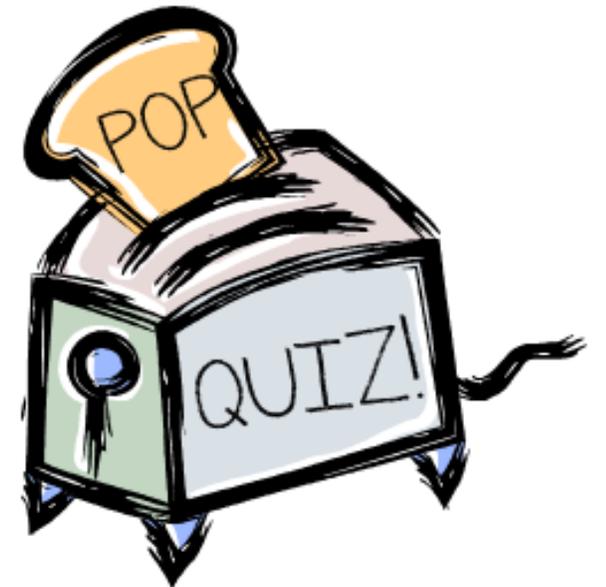
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**Comparators:**

**Outcome:**

**Time Frame:**

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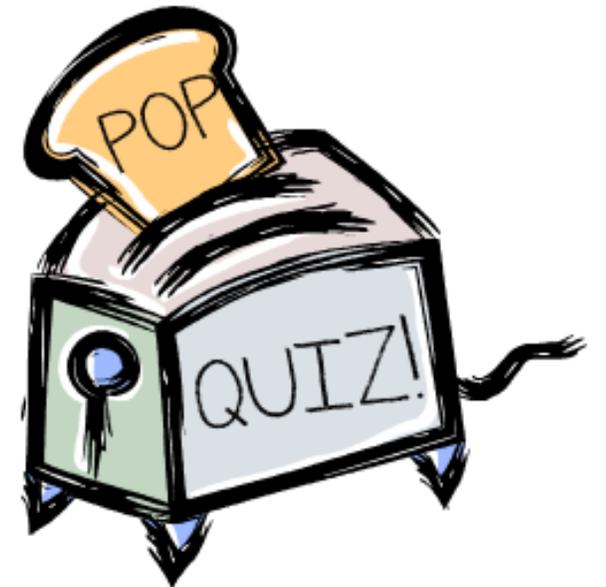
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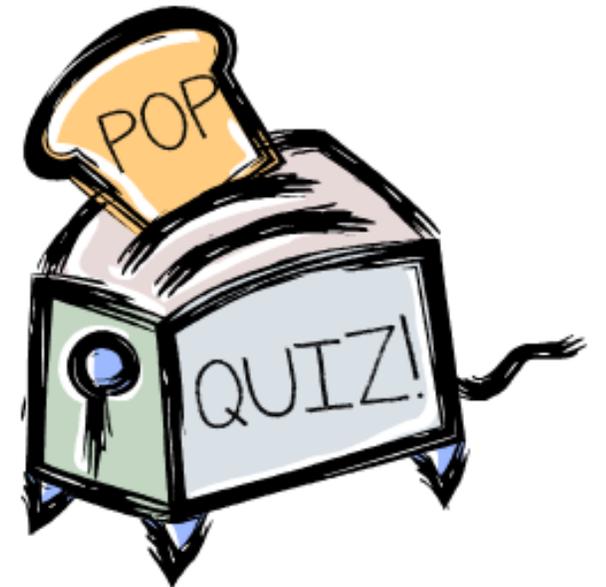
**Intervention:** Pill/IV and frequency of delivery

**Comparators:**

**Outcome:**

**Time Frame:**

**Setting:**



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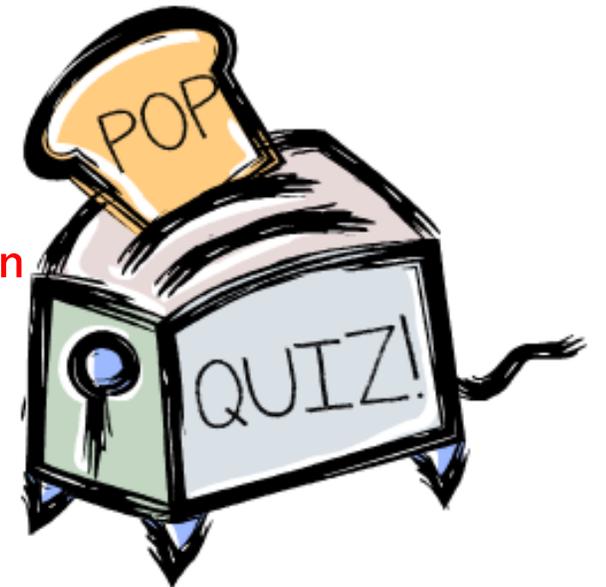
**Intervention:** Pill/IV and frequency of delivery

**Comparators:** PCA IV pain medication and prn IM pill pain medication

**Outcome:**

**Time Frame:**

**Setting:**



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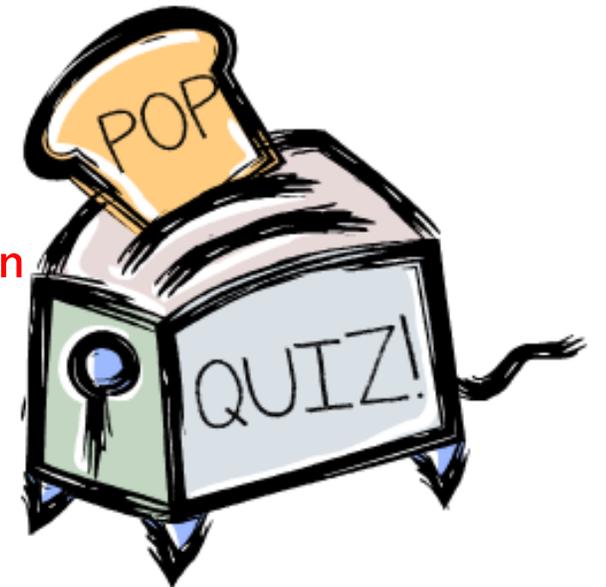
**Intervention:** Pill/IV and frequency of delivery

**Comparators:** PCA IV pain medication and prn IM pill pain medication

**Outcome:** Controlling post-operative pain

**Time Frame:**

**Setting:**



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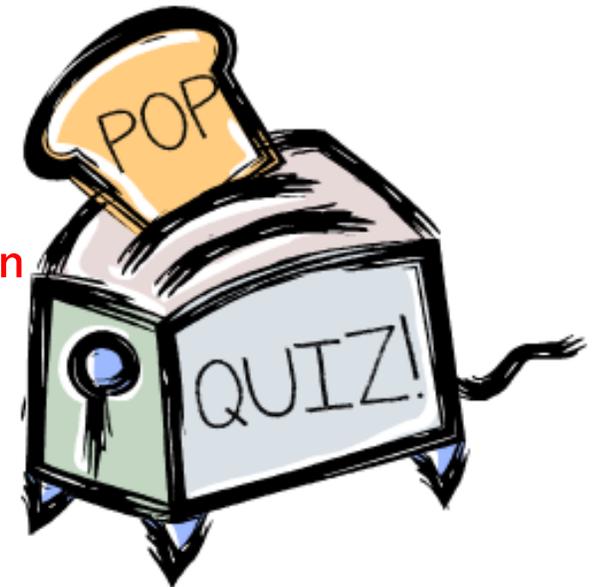
**Intervention:** Pill/IV and frequency of delivery

**Comparators:** PCA IV pain medication and prn IM pill pain medication

**Outcome:** Controlling post-operative pain

**Time Frame:** The perioperative and recovery time

**Setting:**



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In adult patients with total hip replacements in a physical therapy facility, how effective is PCA (patient controlled analgesia) IV pain medication compared to prn IM (“as needed”) pill pain medication in controlling post-operative pain during the perioperative and recovery time?

**Population:** Adult patients with total hip replacements

**Intervention:** Pill/IV and frequency of delivery

**Comparators:** PCA IV pain medication and prn IM pill pain medication

**Outcome:** Controlling post-operative pain

**Time Frame:** The perioperative and recovery time

**Setting:** Physical therapy facility



# YOUR RESEARCH QUESTION

Comparative  
Effectiveness  
Research

# WRITING YOUR RESEARCH QUESTION



Keep it clear  
and simple

Write down  
why it's  
important

Think of how  
others will read  
your question

# WHAT DETERMINES IF YOUR RESEARCH QUESTION BECOMES A STUDY?

- The outcomes are relevant to patients and caregivers.
- The research provides new knowledge or fills in gaps in our current knowledge.
- The research focuses on conditions that have the greatest impact on the most people.
- The research findings are likely to be used by clinicians and/or health care systems.



# WHAT PCORI WON'T FUND

- Looking at issues of cost
- Asking about causality
- Testing a new approach that is not evidence based
- Proposing a new pilot project or clinical trial
- Developing clinical practice guidelines
- Looking for a cause of a disease
- Describing or raising awareness of an issue or disease
- Studying the social determinants of health
- Improving or developing a product or application
- Implementing and measuring a delivery intervention



# RESOURCES

<https://www.ncbi.nlm.nih.gov/pubmed/20137069>

<http://libguides.ggc.edu/c.php?g=362349&p=2447296>

<http://www.pcori.org/get-involved/suggest-patient-centered->

[http://learntech.physiol.ox.ac.uk/cochrane\\_tutorial/cochlibd0e187.php](http://learntech.physiol.ox.ac.uk/cochrane_tutorial/cochlibd0e187.php)

[https://www.aaacn.org/sites/default/files/documents/misc-docs/1e\\_PICOT\\_Questions\\_template.pdf](https://www.aaacn.org/sites/default/files/documents/misc-docs/1e_PICOT_Questions_template.pdf)

[https://www.youtube.com/watch?v=O1\\_Aok2FfKs](https://www.youtube.com/watch?v=O1_Aok2FfKs)

<https://www.youtube.com/watch?v=gkwOLC90e9E>

<https://www.youtube.com/watch?v=iwh4x8e5jzQ>

**QUESTIONS OR COMMENTS?**



Thanks for watching!