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## Developing a Research Interest and Formulating a Research Question

PEER Research Faculty

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# Workshop 1: Introduction to Clinical Research



# Workshop Day 2: Objectives



After completing Day 2 activities, it is our hope that you acquire skills in the following areas:

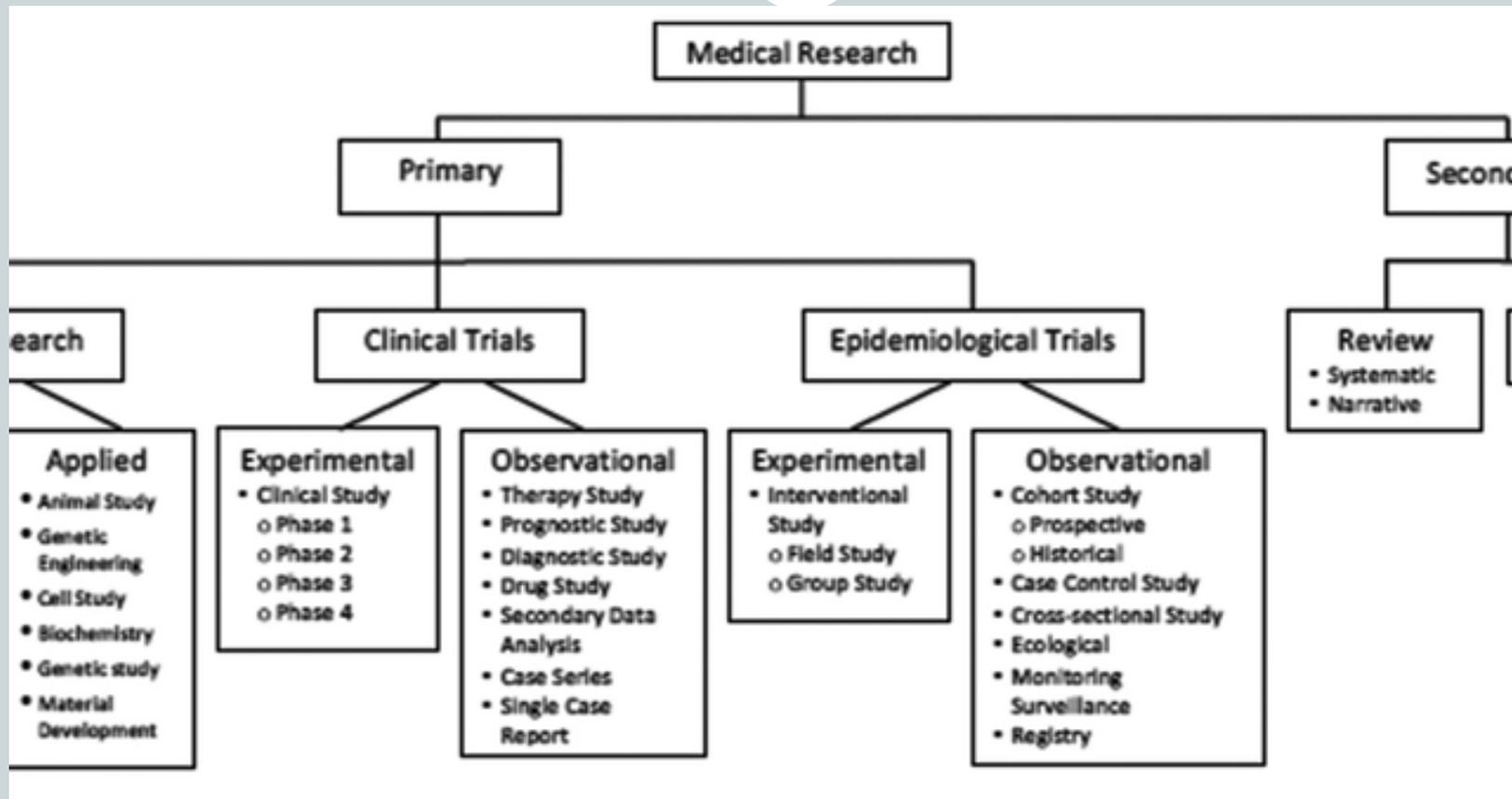
- Understanding the many types of medical research
- Formulating a research question
- Accessing the medical literature and performing a literature search
- Becoming more comfortable and familiar with reading scientific literature

# Developing a research interest & formulating a research question



# Perceptions of Research by Students !





# How to choose a research topic



**Choose something you are passionate about!**

- **Which patient populations are you drawn to?**
- **Which disease processes are you fascinated with?**
- **Is there a way that you wish to improve patient care?**

# Choose a project that you can complete!



## Some things to consider:

- **Time frame: How long will it take to complete?**
  - Consider: IRB approvals, data collection, data analysis
- **Cost – what is your budget?**

Cost will be related to the number of patients that you are proposing and the types of tests or interventions required (e.g. RDT malaria test vs MRI scan)

- **Number of study subjects needed**
  - Are there many patients with this condition (e.g. malaria) or few (e.g. Chagas disease). This will impact length of data collection
  - Estimate how many types of these patients are seen per month or per year at JFK

# Projects that are easier and less costly to complete:



- **Secondary data analysis**
  - Review data that has already been collected
  - Examples: Electronic medical record data , large data sets from prior studies of large patient populations (e.g PREVAIL study database on Ebola survivors, Demographic and Health studies, Malaria Indicator Survey )
- **Quality improvement projects**
  - Infection control: Use of hand sanitizer by doctors and nurses on the wards
  - Does Improvement of patient handoff improve patient outcomes
  - Does Electronic Medical Record improve patient care
- **Retrospective studies:**
  - Chart reviews, case series (case controlled studies)
  - This will depend on quality of information and access to medical records
- **Work with a mentor on a project already in progress**
  - E.g. Ongoing study of malaria in children which also measures hemoglobin levels: Secondary aim of study: What is the Incidence of anemia in this patient population)

# Formulating a Research Question



- The best research questions are focused and specific
- This allows you to perform a better literature search and makes your project more easily implemented

**Example of research question:**

- Does increased exposure to sugar in the diet cause children to become hyperactive?

# Formulating a Research Question: The PICO Method



- **P-Population:** What is the population you are studying?
  - Age group
  - Male, female
  - Rural, urban
- **I-Intervention:** What is the intervention you will be undertaking?
  - Medication trial, vaccine, surgical procedure
  - Lab investigation
  - Systems improvement
- **C-Comparison Group:** Who are you comparing them to?
  - Patients who did not receive the intervention
  - General population
  - Standard practice
- **O-Outcome:** How will you measure your outcome?
  - Survival, mortality rate, number of hospital days, clinical improvement
  - Improvement in knowledge base, skill

# Prior example of childhood obesity



- **Population:** Children : age 5-12 yrs living in USA
- **Intervention:** consumption of > 250g sucrose in diet per day over 6 mos
- **Control :** Children who consume < 50 g sucrose per day
- **Outcome:** increased hyperactivity by ADHD rating scales performed by teachers and parents
  
- **Focused research question:** Does a diet containing > 250mg/d of sucrose cause increased levels of hyperactivity in school age children in the US?

# Small Group Breakouts

## Session 1: Formulating a Research Question



<b>Specialty Area</b>	<b>Group Leaders</b>
Pediatrics	Drs Moon, Deressa, Ovundbun
Internal Medicine	Drs Moorman, Ideh
Surgery	Drs Hatch, Sacra
Ophtho/ Family Medicine/ OB Nursing	Drs Valdman, Sseitiloleko

# Focus of Discussion for Small Groups:



- **Developing your research interest**
- **Formulating a research question**
- **Finding a research mentor**