

# Research in my Residency

Why? When? How?

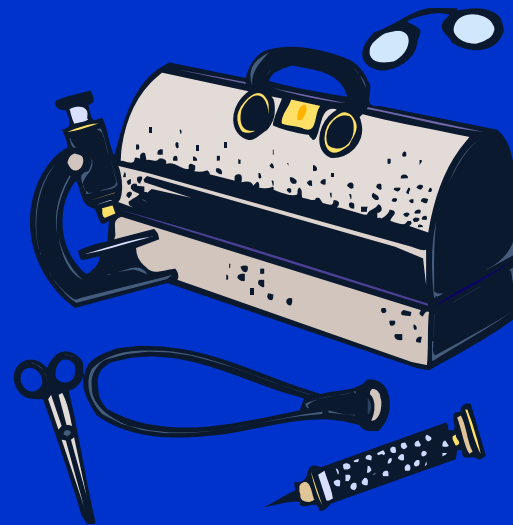


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# WHY?



**Don't keep talking to me about  
research!**



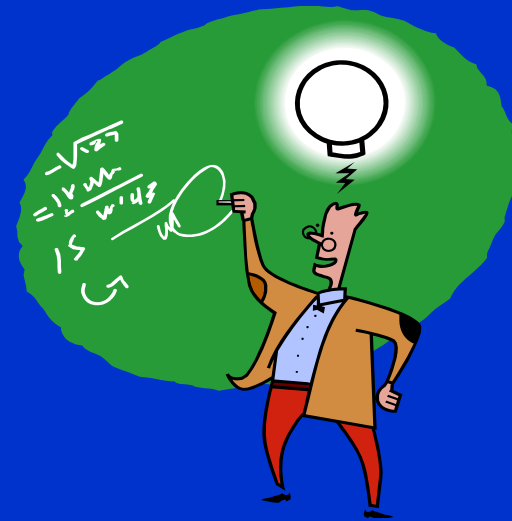
**I just want to be a Clinician.**

# THE THREE FACETS OF WHAT WE DO

## 1. Patient Care

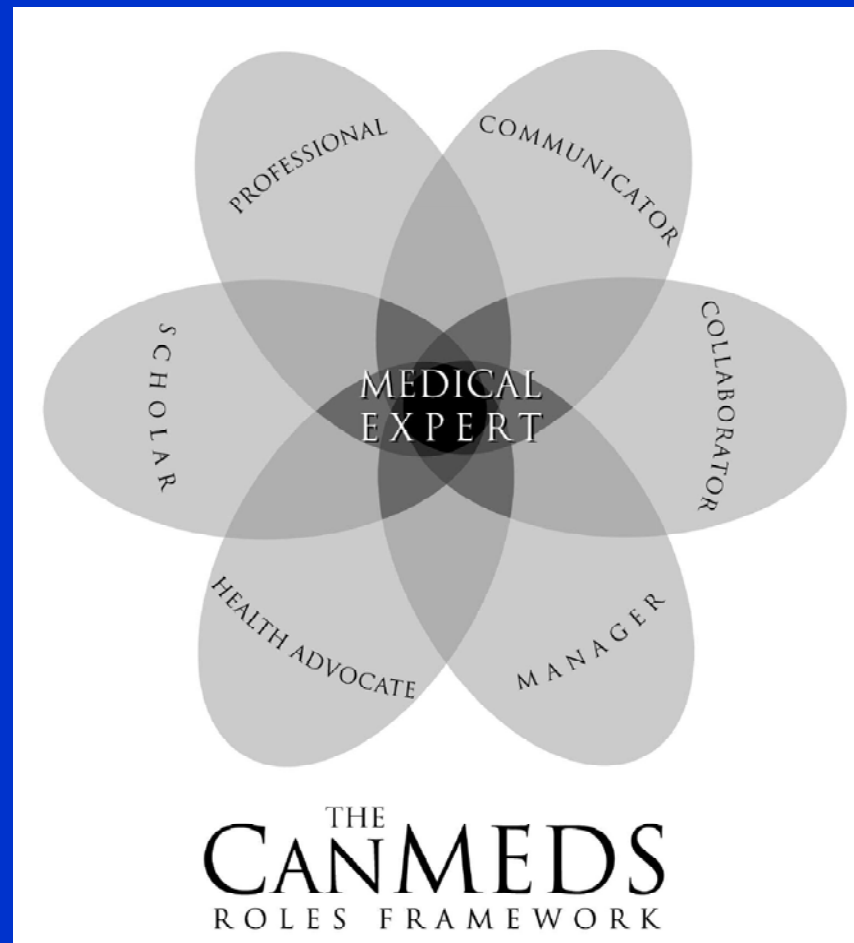


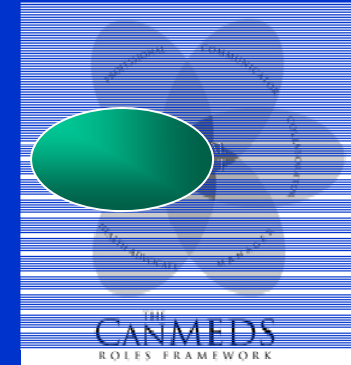
## 2. Teaching



## 3. Evaluation of effectiveness of 1 & 2

# CanMEDS 2005 Physician Competency Framework





# “SCHOLAR”

**indicates the anchoring role that lifelong learning or continuing professional development, critical appraisal, research literacy, and the ability to educate others must play in contemporary medical practice.**

# **Medical Experts Must Demonstrate That They:**

- 1. Maintain and enhance professional activities through ongoing learning;**
- 2. Critically evaluate information and its sources, and apply this appropriately to practice decisions;**
- 3. Facilitate the learning of patients, families, students, residents, other health professionals, the public, and others, as appropriate;**
- 4. Contribute to the creation, dissemination, application, and translation of new medical knowledge and practices**

# Why do we need research?

- Affords progress in patient care and teaching

➤ Old



New

- Effects: far reaching, long lasting



**Treatment of “edema of the lungs”:  
the nurse raises and lowers the head  
to allow full inspiration**

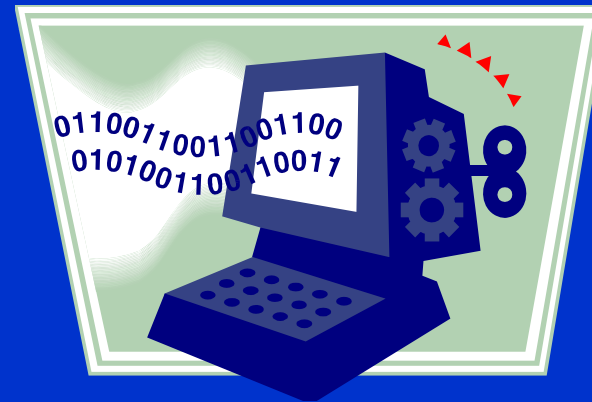
## From the “Lying-in” Hospitals



Postpartum use of the Murphy's binder

# VALUES OF RESEARCH IN A UNIVERSITY DEPT

- Spin-offs vis-à-vis education
- Increased resources  
/ personnel
- Cutting edge of patient care
- Pride in accomplishment



# CAREER OPTIONS

## RESEARCH



## CLINICAL PRACTICE

- Early grounding in fundamentals
- Competitive edge

- Critical appraisal skills based on understanding of research methodology
- Evidence based clinical practice

# When?



# Finding Time for Research in a Busy Residency Program



1. Elective time to complete literature review and develop protocol
2. Focus on topic in Grand Rounds, Journal club etc
3. Protected Time vs. Research Integrated with Clinical Care
4. Progressive involvement: case report, review article, project (chart review, cohort study, RCT)

# RESEARCH IN MY RESIDENCY

HOW?



# Getting Started



**“What do you think...should we get started on that motivation research or not?”**

# Develop Your Critical Appraisal Skills



1. Take a basic course (like this one!)
2. Regularly attend a journal club where the focus is on the study design and quality of the research (not necessarily on the clinical utility)
3. Buy a simple primer (like PDQ Epidemiology or PDQ Statistics)
4. Think critically about the quality or level of evidence when choosing between therapeutic options in clinical practice

# Undertake a Personal Research Project



- 1. Meet with the responsible faculty supervisor to determine your program's expectations**
- 2. Determine the level of research productivity and interests of various possible faculty mentors**  
(Tip: Speak to senior residents to determine which faculty are willing to give the necessary time and support)
- 3. Meet with your research collaborators, agree on the specific research question, and assign responsibilities**
- 4. Plan prospectively involving a statistician or epidemiologist from the start.**

# TYPES OF RESEARCH

## BASIC:

- Has its roots in the study of biological phenomena

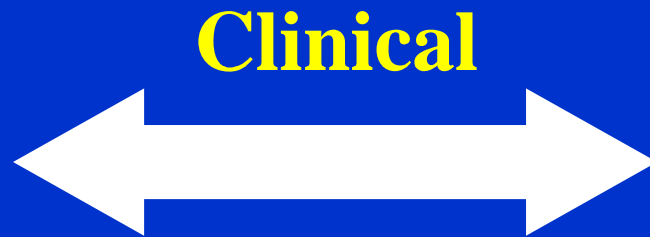
## CLINICAL:

- Has its roots in the desire to improve patient care

**Clinical  
Epidemiology**



**Scientific  
Research**



**Technological  
Research**



**Basic**

**Scientific**



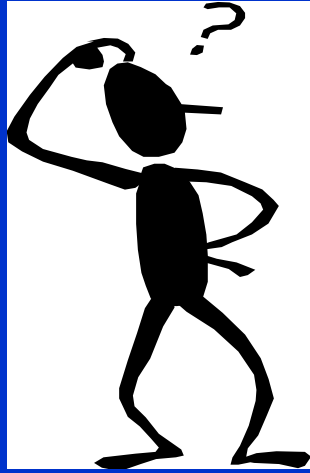
**Technological**

# Where Do Resident Research Projects Originate?

- **Interesting ideas**
- **Common problems with unsatisfactory solutions**
- **Quality assurance audits**
- **Literature reviews revealing unanswered questions**
- **Coat tails**

**Have faith in your idea: but confirm it  
hasn't already been done!**





## Should I Pursue My Idea?

- Do a thorough literature search !
- Can a specific research question be formulated?
- Will the answer be of significance?
- Is it feasible (time, space, collaborators, resources, funding, patient population)?

# How Do I Proceed?

- **Prospective planning**
- **Find a qualified supervisor / mentor**
- **Enlist help of necessary collaborators**
- **Write it down –the research proposal**
- **Ethics review**
- **Grant application?**



**Identify  
Problem or Question**



**Thorough Literature Search**



**Answer Available**



**Answer Not Available**



**Formulate  
Hypothesis**

**Formulate Hypothesis**

**Design Experiment**

**Acquire Methodology / Skills**

**Perform Experiment**

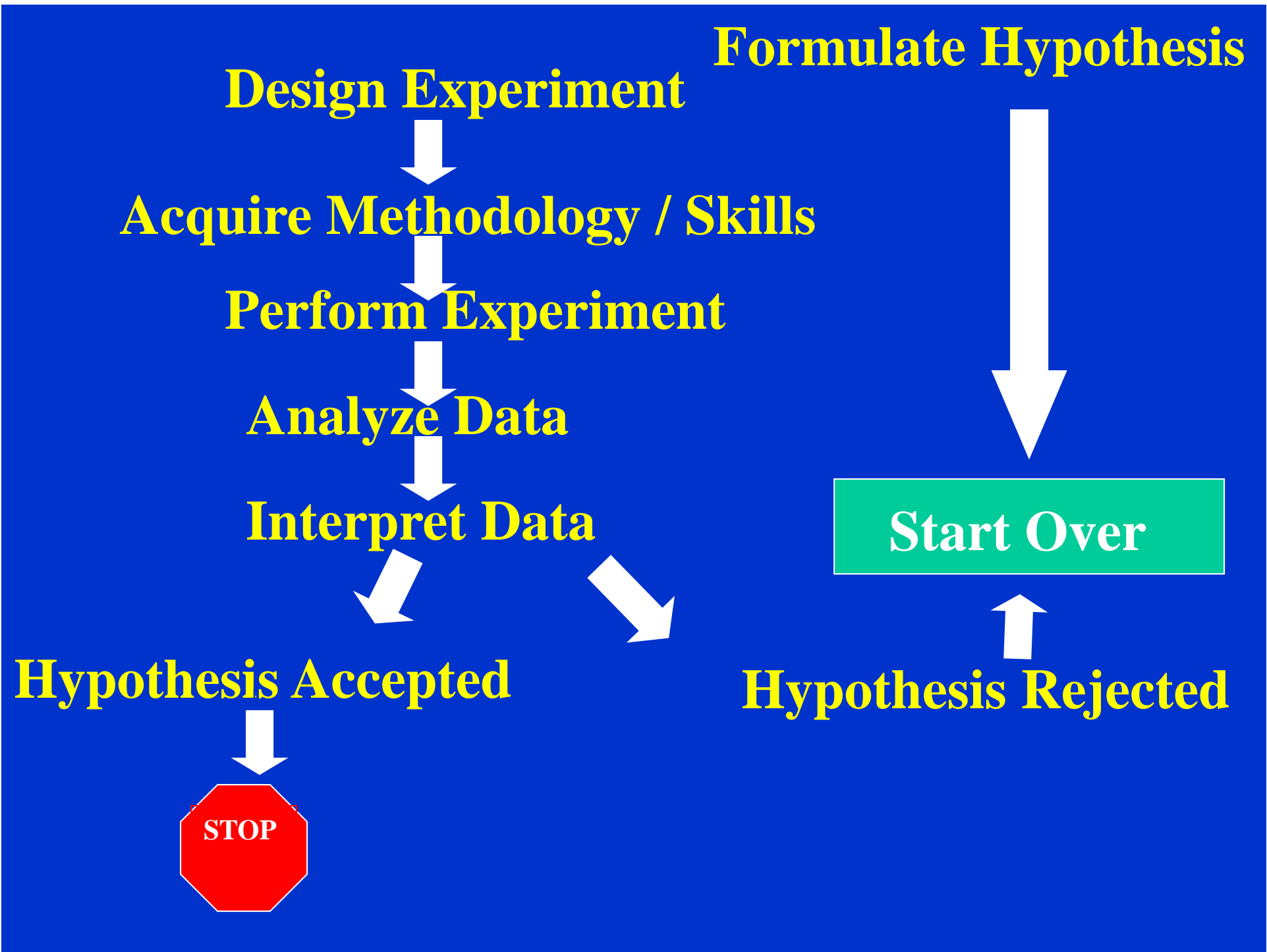
**Analyze Data**

**Interpret Data**

**Start Over**

**Hypothesis Accepted**

**Hypothesis Rejected**



# How to have a successful research career

- Choose mentors wisely
- Seek opportunities for collaboration
- Be persistent
- Maintain a research focus
- And always remember 

**“Research is to see what  
everyone else has seen,  
And to think what nobody  
else has thought.”**

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**Albert Szent-Gyorgyi**