Developing an Answerable Research Question

Douglas A Colquhoun
Assistant Professor
University of Michigan

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OUTCOMES GROUP

Outline

- Consider How to Design a Research Question

- Discuss Features of Suitable Research Questions for MPOG

- Discuss High Quality Data Elements

Maslow's hammer

Have a Vision For Your Research Question

- **What question are you trying to answer?**
  - Specific
  - Population Focused
  - Actionable

- **What are you NOT trying to answer?**
  - Define out of scope
    - What's best left as a follow up project?
    - What's really a different question?

Should Be:

S	Specific
M	Measurable
A	Achievable
R	Realistic
T	Time related

- George T. Doran

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Critically Consider the Best Way to Address Research Question

- Observational:
  - Is there good reason to believe that practice is meaningfully varied?
  - Is the variation of a clinically useful magnitude?
  - Does the variation arise from solely from different practice patterns? (Confounded by important patient factors)

- Interventional:
  - Can practice be varied in an ethical and practical manner?

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MPOG Is a Powerful Research Tool:

- Large Dataset

- Many Sites

- Long Time Periods

- Much Heterogeneity of Practice Described

Not All Research Questions Are For MPOG:

- Adding extra sites adds complexity
  - Does it meaningfully increase the research value?
  - Does it worsen confounding?

- Can MPOG data answer the question you are asking?
  - Is this a core data element?
  - Is this present at most sites?
  - Is the focus WHAT rather than WHY?
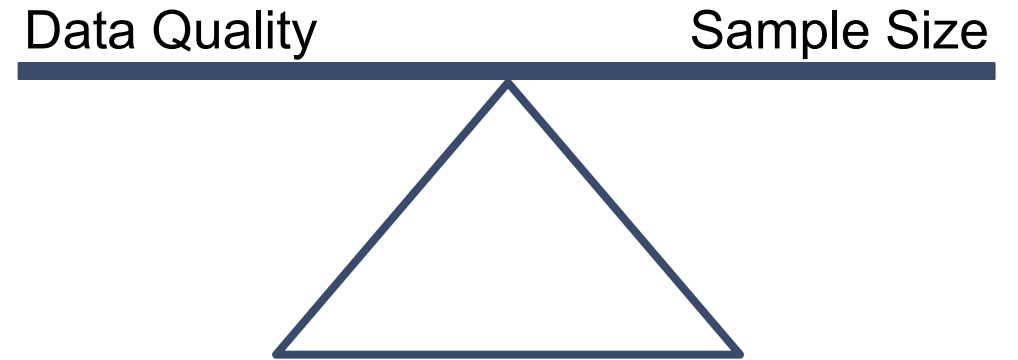
Project Will Live or Die in Data Quality:

- Quality > Quantity
  - Confounding gets worse by making populations more heterogeneous
  - May be best to answer serial narrow questions than many broad ones

- Consider the nature of MPOG Data Sources:
  - Machine Captured vs Human Entered
  - Structured vs Unstructured
  - Administrative vs Clinical

- Free text data remains very challenging to handle

Specific Data Types (Exposure/Covariates):

Good Data	Proceed with Caution	Unavailable Data
Perioperative Basic Labs	Home Medications	Floor/ICU Data
Intraoperative Vital Signs	Anesthesia H&P Elements	Surgical H&Ps
Structured Text Entries	PACU Data	
Intraop Drug Administration	Unstructured Text (Event Notes)	
	Administrative Data	

Specific Outcome Data Types:

- Practice Patterns as Data

- Administrative Data
  - Data used for Billing/Coding
  - Present for most patients, quality questionable

- In hospital mortality
  - Broadly available, limited utility

- Surgical Registry
  - Highest Quality,
  - Present in very select sub-populations

Data Quality   Sample Size

Practical Next Steps:

- Know Your Data
  - Consider Single Center Study to Understand the Problem and Data
  - May consider a descriptive study prior to an outcomes study
  - Discuss this with your local MPOG PI

- Define and Guard Your Scope
  - A single aim may fill a manuscript
  - Many aims may not lead to a more successful project

- Don't be afraid to plan your "next" project
  - Datasets take a long time to learn the quirks of
  - Next projects are best planned with insight

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Thank You

EXAMPLE

- What question are you trying to answer?
  - In surgeries involving 1-3 units of PRBC transfusion, what is the apparent hemoglobin "transfusion threshold"?

- What are you NOT trying to answer?

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