

Developing an Answerable Research Question

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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

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?

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:

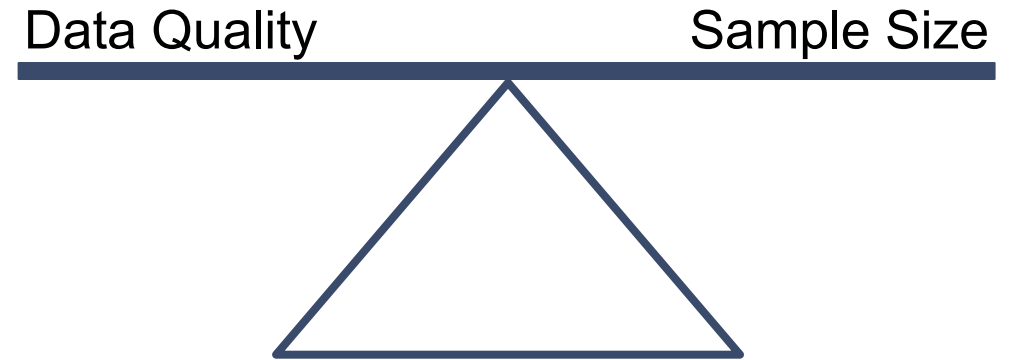
- Quality > Quantity
 - Confounding gets worse by making populations more heterogeneous
 - May be best to answer serial narrow questions than many broad ones
- Consider the nature of MPOG Data Sources:
 - Machine Captured vs Human Entered
 - Structured vs Unstructured
 - Administrative vs Clinical
- 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



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

Thank You