Conceptualization of Research Topics and Formulation of Specific Aims

Presented as part of a workshop for junior researchers at the Global Health Council Annual Meeting
Washington, DC 2011

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Goals of this Module

- Describe the difference between a research topic and a research question
- Describe the process of getting from one to the other
- Describe key aspects of well-written research questions and specific aims

Moyer and Engmann, 2011
Asking the Right Question

Moyer and Engmann, 2011
Finding a great idea

The 3 Cs:

- **Curiosity** to investigate and question situations

- **Critical thinking skills** to refine your curiosity into a clearly stated idea

- **Courage** to have “bad ideas”

Moyer and Engmann, 2011
Research topics...

- Broadly define the area of research
- Are not the same as the title of your research study
- Need further work to become feasible research projects

Moyer and Engmann, 2011
Conceptualizing Research Topics

- Finding your focus:
  - Which aspects of your discipline interest you most?
  - What have you observed that you have questions about?
  - What articles have you read that have raised questions in your mind?

Moyer and Engmann, 2011
Where are the gaps in the literature?

- By topic (what is not being looked at?)
- Methods (what is not being done?)
- Populations (who is not being studied?)
- Comparisons (who is not being compared?)

Moyer and Engmann, 2011
Where to start?

- Read, read, read
- Detailed literature searches
- Attend seminars, conferences and presentations
- Discuss subject area with peers and seniors
- Listen
- Ask questions

Moyer and Engmann, 2011
Refining research topics

- Discuss with fellow researchers
- Discuss with stakeholders
- Assess what is most critical to learn
- Assess research resources available
- “The Ideal” may not be realistic

Moyer and Engmann, 2011
Questions to Ask Yourself

Is this a good idea?

1. Has it been done?

2. Who cares?/ So what?

3. Can it be addressed using appropriate research methods?

4. Will it stimulates interest by others and the sponsor

5. Is it feasible/practical/doable?

6. Is it fundable?

Moyer and Engmann, 2011
Research Topics need narrowing to become feasible projects

Examples?

“Infant health” ➔ “Community perceptions of neonatal jaundice”
Each Study is Only One Piece of the Puzzle

Moyer and Engmann, 2011
Example: SARS

- Epidemiologic studies
- Economic impact
- Psycho-social impact
  - On those quarantined
  - On caregivers
  - On families left behind

Moyer and Engmann, 2011
Specific Aims

- Aims, Hypotheses, Objectives...

- The **Overall Objective** is the main question that the researcher seeks to answer

- There may be three to five **Specific Aims** underneath that overall objective, driven by **Hypotheses**

- Within the specific aims may be **Study Objectives**, or exactly what you plan to do to achieve the broader aims

Moyer and Engmann, 2011
Writing Specific Aims/Objectives

- KEEP THEM SIMPLE
- S -- specific
- I -- immediate (why do this project now?)
- M -- measurable (what data will you gather?)
- P -- practical (realistic/feasible?)
- L -- logical (build to achieving goal)
- E -- evaluable (significance, how assess impact?)

Refining Your Specific Aims

- Are your aims descriptive vs why? Fishing vs hypothesis driven?
- Do the aims link to the central hypothesis?
- Is each aim tied to a working hypothesis?
- Is each aim needed?
- Is there a relative balance between specific aims with effort and anticipated outcomes?
- Does the ability to meet one aim depend on the outcome of another?

Moyer and Engmann, 2011
Problems with specific aims:
- Too ambitious, too much work proposed
- Unfocused aims, unclear goals
- Limited aims and uncertain future directions

Problems with significance:
- Not significant nor exciting nor new research
- Lack of compelling rationale
- Incremental and low impact research

http://www.ninds.nih.gov/funding/grantwriting_mistakes.htm
Reasons for Rejections

- Outcomes nebulous
- Objectives are global purposes rather than specific, measurable, achievable activities
- Realism of some objectives is questionable
- Confusing, nonspecific, nonmeasurable objectives
- Objectives are stated as activities

WEB Resources

- Grantwriting 101:

- Writing a research proposal:
  http://www.meaning.ca/archives/archive/art_how_to_write_P_Wong.htm

- Defining your research question:

Moyer and Engmann, 2011
Reminder: Goals of this Module

- Describe the difference between a research topic and a research question
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Moyer and Engmann, 2011
End of Conceptualization Module