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African Dissertation Workshop on Population and Health

Introduction and Session 1
Developing a Research Proposal

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Steps in Proposal Development*

Steps to take

- Statement of the Problem
- Literature Review
- Formulation of Objectives

Important Elements

- Purpose of the research
- Nature of the problem
- Significance of the results
- Literature and other information available
- Research questions or hypotheses

*Source: WHO 1988
Steps in Proposal Development*
(Continued....)

Steps to take

- Research Methodology

Important Elements

- Variables
- Type of study
- Data collection techniques
- Sampling
- Plan for data collection
- Plan for data analysis and interpretation
- Ethical considerations
- Pre-test or pilot study

*Source: WHO 1988
Steps in Proposal Development*
(Continued....)

Steps to take

- Work Plan
- Resources Required and Budget
- Summary of Proposal

Important elements

- Personnel
- Timetable
- Administration
- Monitoring and evaluation
- Material support and equipment
- Money

*Source: WHO 1988
Basic versus Applied Research

*Basic research* is designed to extend the base of knowledge in a discipline, primarily for the sake of gaining new understanding of fundamental processes.

*Applied research* concentrates on finding solutions to immediate problems of a practical nature.
Problem Identification*

Illustrative problem areas for health and population research:

- Political
- Economic
- Socio-behavioral
- Technological
- Management
- Ethical

*Source: WHO 1988
Suggested Criteria for Selecting a Research Topic*

1. Relevance
2. Avoidance of duplication
3. Feasibility
4. Political acceptability
5. Applicability
6. Cost-effectiveness
7. Timeliness
8. Ethical considerations

*Source: WHO 1988
Statement of the Problem

Elements of a problem statement include:

• Purpose of the research
• Nature of the problem
• Significance of the results
Statement of the Problem

This statement will answer the following:

• What is the problem or issue, and what specifically is to be studied?

• What are the major factors (socio-economic, cultural, programmatic, etc.) that may contribute to the problem?

• What is the relevance of this research scientifically and/or for policy/programs?
Literature Review

What information is already available on:

• Work done by others (*avoid duplication*)

• Important questions remaining (*focus*)

• Conceptual/methodological approaches (*improve design/analysis*)

• Importance of the question or problem (*justification for support*)
Literature Review

Multiple approaches required, including:

- Accessing standard Indexes and abstracting sources;
- Looking up the literature citations in every key article that relates to the topic of interest;
- Obtaining papers/presentations from recent meetings/conferences/symposia;
- Directly contacting leading researchers in the field with specific questions.

The internet now makes it possible to do much of this data gathering directly from a desk-top computer.
Bias in the literature, or in the review is a distortion of the available information so that it does not represent the real situation. Types of bias include:

- Use of rhetoric rather than reason
- Playing down controversies and conflicting results
- Limiting references to those supportive of the thesis
- Reporting statistically insignificant differences between groups in a study as if they were significant
- Drawing sweeping conclusions that are not warranted by the limitations of the data.

*Source: WHO 1988*
Formulation of Objectives

- The objective states what is to be accomplished by the research; it should be clearly related to the statement of the problem.

- Break down a broad general objective into smaller, logically connected specific objectives.

- *Specific objectives*, when properly formulated:
  - focus the study on the essentials
  - guide the design of the investigation
  - orient the collection, analyses and interpretation of the data.
Formulation of Objectives

Open research questions vs. hypotheses, which alternative to choose?

• A hypothesis requires sufficient knowledge of the problem to be able to predict relationships among factors which then can be explicitly tested.

• Open research questions are formulated when the investigators do not have enough insight into the problem being studied. Prematurely posing hypotheses can limit the scope of the research so that important relationships are never observed.
Formulation of Objectives

Open Research Questions

Criteria for open questions include:

- **Focussed**, each covering a single point
- **Ordered** in a logical sequence
- **Realistic** and feasible to answer;
- **Operational**, using *action verbs* such as:
  - determine - verify
  - describe - compare
  - calculate - establish
- **Measurable** outcomes at the end of the research