DEVELOPING A RESEARCH QUESTION
CONDUCTING LITERATURE REVIEWS

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Objectives

1. Identify the attributes of an effective research question
2. Discuss why a proper literature search will assist to justify your research question
3. Describe the steps to complete an effective literature search and how to use the information
What’s in a research question

• Your question drives every aspect of your research design
  • Subjects
    • Inclusion/exclusion
  • Interventions
    • Time for outcomes to occur
  • Data collection
    • What measurements
    • What time points
  • Data analysis
Sources of Knowledge

- Tradition
- Trial & Error
- Logical Reasoning (Deductive & Inductive Reasoning)

Because I said so: Authority – are they always right? Or just never questioned?

Scientific Method

Touger-Decker
What literature to search

Text books
- May be dated information

Practice guidelines
- What is currently recommended, what is the strength of that recommendation

Review articles may help clarify understanding
- Author’s bias
- Potential for cherry picking the literature

Observational and randomized control trials

Meta-analysis and systematic review
Conducting a literature search

Starts with planning!

- What population of interest
  - What populations may be similar enough to provide meaningful data
- Is there a specific disease state or process
- Is there a specific intervention you are looking to examine
- Consider whether you can phrase your topic of interest in the form of a PICO question
  - Population, intervention, comparison, outcome
  - For descriptive studies you may not have all of these elements
Conducting literature search continued

What databases are most applicable for searching
- Guideline.gov
- OVID Medline
- EBSCO/CINAHL
- Pubmed
- Google scholar

Do they use MeSH terms or other controlled vocabularies?
Consult your librarian
Don’t limit yourself to full text articles!
Searching the literature

- Systematic reviews
- Critically-appraised topics [evidence syntheses and guidelines]
- Critically-appraised individual articles [article synopses]
- Randomized Controlled Trials (RCTs)
- Cohort studies
- Case-controlled studies case series / reports
- Background information / expert opinion
Search plan

Question: Perioperative diet order practices for elective surgical patients at Brooke Army Medical Center a retrospective review

Date of literature review for Evidence Analysis

October 2013

Inclusion Criteria:
- Adults
- Elective surgical procedure
- Study design preference: 1) systematic review 2) randomized control trial 3) non-randomized trial
- Year range: 2003-2013
- Language: limited to articles published in English

Exclusion Criteria
- Children <18 years of age
- Pregnancy
- Language: articles not published in English

Search Terms: Search vocabulary
NPO
Fasting
Perioperative
Preoperative
Postoperative
Surgery

Electronic Databases:
Database: PubMed
Searched terms: NPO surgery
Hits: 15
Can you define/refine your specific research question?

A research question must be:

- **Answerable**
  - Why questions tend not to be answerable with clinical research methods
- **Feasible**
  - Time space, population
- **Meaningful**
  - So what? Who cares?
Research problem: What are the effects of food insecurity on military readiness?

What is the relationship between food insecurity, diet quality, and weight among active duty service members?

Hypothesis:

Null: There is no relationship between food insecurity and diet quality.

Alternative: There is an indirect relationship between diet quality and food insecurity.

Null: There is no relationship between weight status and food insecurity.

Alternative: Individuals who are overweight have a higher risk of food insecurity than those who are normal weight.
Physical Therapy

Research problem: What is the role of preoperative rehabilitation on post surgical outcomes?

Research Question: Is preoperative physical therapy effective at improving post operative functional recovery (6-minute walk test) in non-emergent cardiovascular patients?

Research hypothesis:
- Null: there is no difference in time to functional recovery between those who received preoperative physical therapy and those who did not
- Alternative: Those who received preoperative physical therapy will have significant shorter time to functional recovery.
Research Problem: What is the physician assistants role in tobacco cessation?

Research question: Does tobacco cessation counseling provided by a physician assistant result in increased enrollment in tobacco cessation programs compared to nurse initiated counseling?

Hypothesis:
- Null: there is no difference in tobacco cessation enrollment
- Alternative: significantly greater enrollment occurs with PA initiated counseling
Research Problem: What is the effects of concussive event on Soldier’s ability to operate at a high cognitive level during combat operations?

Research question: What is the difference in mini mental state examination scores between Soldiers 48 hours post concussive event compared to healthy controls.

Hypothesis:
- Null: there is no difference in mini mental state examination scores
- Alternative: post concussive Soldiers have significantly lower mini mental state examination scores
Wrap up

Start with the question

- Is it answerable
- Is it feasible
- Is it supported in literature/theory
- So what and who cares?