Six Strategies for Effective Searching

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Objectives

- Be able to define what a database is
- Be able to describe the strategies for developing an effective search
**What is a database?**

- “A **database** is a system intended to organize, store, and retrieve large amounts of **data** easily. It consists of an organized collection of data for one or more uses, typically in digital form.”

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**What is a database?**

- Two parts to consider
  - Content
  - Interface or search engine
What is a database?

- Databases contain records
- Records contain fields
- Fields are defined by the database producer
  - Most fields are searchable
  - Searches can be directed to look in specific fields

What is a database?

- Interface/search engine defines how the db looks and the rules for searching the db
  - Plays a major role in the results you retrieve
Six Strategies for Effective Searching

1. Conceptualize your search
2. Use the appropriate vocabulary
3. Combine terms & concepts using Boolean operators
4. Revise your search strategy
5. Search more than one database
6. Learn database search rules & peculiarities

First and foremost—know what you want to research!
- Consider the following:
  - What class are you in?
    - Make your topic appropriate to the class you are taking.
  - Who is your population?
  - What types of studies do you want?
  - What range of years do you want?
    - Why?
  - What languages do you want to include?
  - What setting(s) are you interested in?
Strategy #1
Conceptualize your search

- Develop a conceptual search strategy
  - Three concepts generally work best
  - Combine terms to create a concept
  - Perform broad conceptual searches
    - Combine concepts to narrow results

Sample aim:
- Examine factors in interventions that result in the reduction of the use of tobacco products, specifically cigarettes, among adult African Americans
Strategy #1
Conceptualize your search

- **Interventions**
  - Interventions or health promotion or health education or health knowledge acquisition
- **Tobacco**
  - Smoking or cigarettes or tobacco
- **African Americans**
  - African Americans or Blacks

Strategy #2
Use the appropriate vocabulary

- Each database has its own unique terminology
  - Also known as a “controlled vocabulary”
  - Search for controlled vocabulary terms within the database
Strategy #2
Use the appropriate vocabulary

- Common controlled vocabularies
  - MeSH: Medical Subject Headings
    - Used by both Medline & PubMed
  - Thesaurus of Psychological Index Terms
    - Used by PsycINFO
Many databases also have special fields that utilize a different vocabulary or codes

- Librarians frequently use them to help refine searches

Example from Ovid Medline

- MeSH + subheadings
  - / eh [Ethnology]
  - / th [Therapy]
- Publication type
Strategy #2
Use the appropriate vocabulary

- Ovid PsycINFO
- Subject headings
- Key Concepts
- Classification code
- Population Group
- Methodology

Strategy #3
Combine terms using Boolean

- To combine terms & concepts, use logical (i.e. Boolean) operators
  - and, or, not
  - AND, OR, NOT
    - If searching PubMed
Strategy #3
Combine terms using Boolean

Terms related to **each concept** are combined using **OR**.

<table>
<thead>
<tr>
<th>Interventions or health promotion or health education or health knowledge acquisition</th>
<th>Smoking or cigarettes or tobacco</th>
</tr>
</thead>
<tbody>
<tr>
<td>African Americans or Blacks</td>
<td><strong>AND</strong> finds the articles where all 3 circles converge.</td>
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**AND** finds the articles where all 3 circles converge.
Strategy #3
Combine terms using Boolean

- Use parentheses to ensure the correct order of operations
- What does this equation equal?
  - $4 + 3 \times 7 - 8$
- What does this equation equal?
  - $(4 + 3) \times (7 - 8)$


Strategy #3
Combine terms using Boolean

- This search in any Ovid database:
  - Interventions or health promotion and Smoking or cigarettes and African Americans or Blacks
- Will return:
  - (((((Interventions or health promotion) and Smoking) or cigarettes) and African Americans) or Blacks)
Articles with ((Interventions or health promotion) and smoking) AND African Americans will be returned. Articles with Cigarettes and African Americans will be returned. All articles with the term Blacks will be found.

Strategy #3
Combine terms using Boolean

- Where do you think the parenthesis should go?
- Interventions or health promotion and Smoking or cigarettes and African Americans or Blacks
Strategy #3
Combine terms using Boolean

- Where do you think the parenthesis should go?
- (Interventions or health promotion) and (Smoking or cigarettes) and (African Americans or Blacks)

Strategy #4
Revise your search strategy

- Multiple searches in the same db are the norm
- Use citations found in earlier searches to help develop and revise searches
Strategy #4
Revise your search strategy

- Example:
  - African Americans or Blacks or Ethnic Groups

<table>
<thead>
<tr>
<th>MeSH Subject Headings</th>
<th>Adolescent</th>
<th>Adult</th>
<th>Aged</th>
<th>Epidemiologic Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Ethnic Groups</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Strategy #5
Search more than one db

- No one database does it all
  - Not even Google or Google Scholar
- Each db has strengths & weaknesses
- For in-depth health promotion research paper:
  - PsycINFO and Medline/PubMed
Strategy #6
Learn db search rules & peculiarities

- **Adjacency (proximity) searching**
  - Interface function
  - Terms must be within certain number of words from each other
  - PubMed – not allowed
    - Use “quotation marks” for phrases

- **Adjacency (proximity) searching**
  - Ovid (Medline, PsycINFO)
    - Cancer `adj3` screening
  - Ebsco (CINAHL, Acad Srch Comp)
    - Cancer `n3` screening
      - Words in any order
    - Cancer `w3` screening
      - Words must be in the order entered
    - Cancer screening will be found; screening for cancer won’t
Strategy #6
Learn db search rules & peculiarities

- Search in specific fields
- Fields are defined by database producer
- How to search defined by interface
  - Ovid databases
    - Ovarian cancer.ti,ab. and english.la.
  - PubMed
    - Ovarian cancer[tiab] AND English[la]
  - Ebsco databases
    - (TI Ovarian cancer OR AB Ovarian cancer) AND LA english

Strategy #6
Learn db search rules & peculiarities

- PubMed requires CAPITALIZED operators
  - “and” vs “AND”; “or” vs “OR”; “not” vs “NOT”
- Search for phrases using “quotation marks”
  - Works in Google, too!
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Questions?
Ask a Librarian or
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