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?

- Formally, a "database" refers to a set of related data and the way it is organized. Access to this data is usually provided by a "database management system" (DBMS) consisting of an integrated set of computer software that allows users to interact with one or more databases and provides access to all of the data contained in the database (although restrictions may exist that limit access to particular data). The DBMS provides various functions that allow entry, storage and retrieval of large quantities of information as well as provides ways to manage how that information is organized.

  Because of the close relationship between them, the term "database" is often used casually to refer to both a database and the DBMS used to manipulate it.

- https://en.wikipedia.org/wiki/Database#Terminology_and_overview

What is a database?

- Two parts to a literature database
  - Content
    - Set of related data
  - Interface or search engine
    - Database management system

What is a database?

- Content
  - It's the "stuff" of a database
  - Individual "stuff" is found in records
    - Each record contains many fields
    - Fields are defined by the database producer
      - ☐ Common fields are author, title, abstract, subject headings
      - ☐ Most fields are searchable

What is a database?

▶ Interface aka "search engine"
  ▶ Interface producer's name often = interface name
  ▶ It defines the look of the database & the rules for searching
    ▶ An analogy would be STATA vs SPSS
    ▶ You can do the same things in both; you have to different commands to get it done!
  ▶ Plays a major role in the results you retrieve
  ▶ Which is the interface? Which is the database?
    ▶ Ovid…..Medline
    ▶ Ebsco…..Medline
    ▶ NLM/NCBI…..PubMed

What is a database?

▸ If you have to report on database searching, you should not write that you searched Ovid or that you searched Ebsco

▸ Each interface offers multiple content options! Include the database searched

☐ Ovid MEDLINE(R) without Revisions 1996 to May
☐ Ovid MEDLINE(R) 1946 to May Week 5 2015
☐ Ovid MEDLINE(R) In-Process & Other Non-Inde
☐ Ovid OLDMEDLINE(R) 1946 to 1965
☐ PsycINFO 2002 to June Week 1 2015
☐ PsycINFO 1987 to June Week 1 2015
☐ PsycINFO 1967 to June Week 1 2015
☐ PsycINFO 1806 to 1966
☐ Health and Psychosocial Instruments 1985 to Ap
☐ Books@Ovid June 08, 2015
☐ Biological Abstracts 1980 to 2003
☐ Your Journals@Ovid
☐ Journals@Ovid Full Text June 09, 2015

☑ Academic Search Complete
☐ MEDLINE
☐ PsycARTICLES
☐ PsycBOOKS
☐ PsycEXTRA
☐ CINAHL Plus with Full Text
☐ Business Source Complete
☐ Health Source: Nursing/Academic Edition
☐ Mental Measurements Yearbook with Tests in Print
☐ Alt HealthWatch
☐ MedicLatina
☐ ERIC
☐ Agricola
☐ America: History & Life
☐ Historical Abstracts

☐ MasterFILE Premier
☐ The Serials Directory
☐ Professional Development Collection
☐ Psychology and Behavioral Sciences Collection
☐ Primary Search
☐ Religion and Philosophy Collection
☐ TOPICsearch
☐ Texas Reference Center
☐ MAS Ultra - School Edition
☐ Vocational and Career Collection
☐ eBook Collection (EBSCOhost)
☐ AHFS Consumer Medication Information
☐ GreenFILE
☐ Teacher Reference Center
☐ Arte Público Hispanic Historical Collection Series 1

Six Strategies for Effective Searching

1. Create concept clusters based on the components of your topic

2. Combine terms & concepts using Boolean operators

3. Use the appropriate vocabulary

4. Revise your search strategy

5. Search more than one database

6. Learn database search rules & peculiarities

Strategy #1
Create concept clusters

▸ **First and foremost**

  ▸ You have to be able to describe what you want to research and you have to be able to break it down into individual components!

▸ 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?

Create concept clusters

- ► **Develop a search strategy based on concept clusters**
  - ► Three concepts generally work best
  - ► Utilize a variety of synonymous terms to create a concept
  - ► Perform broad conceptual searches
    - ► Combine concepts to narrow results

Cluster Population
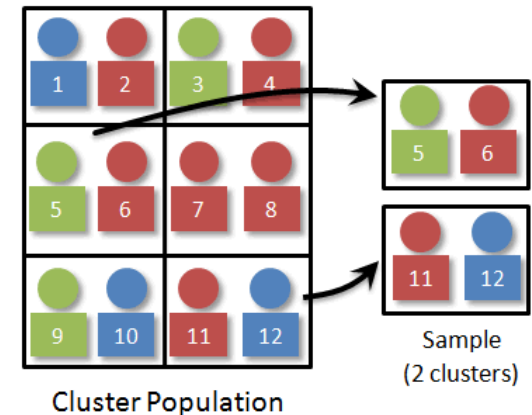
Sample (2 clusters)

Strategy #1
Create concept clusters

▶ Sample aim:

   ▶ Determine the effectiveness of interventions developed to reduce the use of tobacco products, specifically cigarettes, among adult African Americans

Create concept clusters

- **Interventions**
  - Interventions; health promotion; health education
- **Tobacco**
  - Smoking; cigarettes; tobacco
- **African Americans**
  - African Americans; Blacks; minorities

Strategy #2
Combine terms & concepts using Boolean

- Combine terms to create concepts
  - **or**
  - **OR** if searching PubMed
- Combine concepts to create a single search statement
  - **and**
  - **AND** If searching PubMed
- Remove terms (*use sparingly!*)
  - **not**
  - **NOT** if search PubMed

Strategy #2
Combine terms & concepts using Boolean

Interventions or health promotion or health education

Smoking or cigarettes or tobacco

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

African Americans or Blacks or minorities

AND finds the articles where all 3 circles converge.
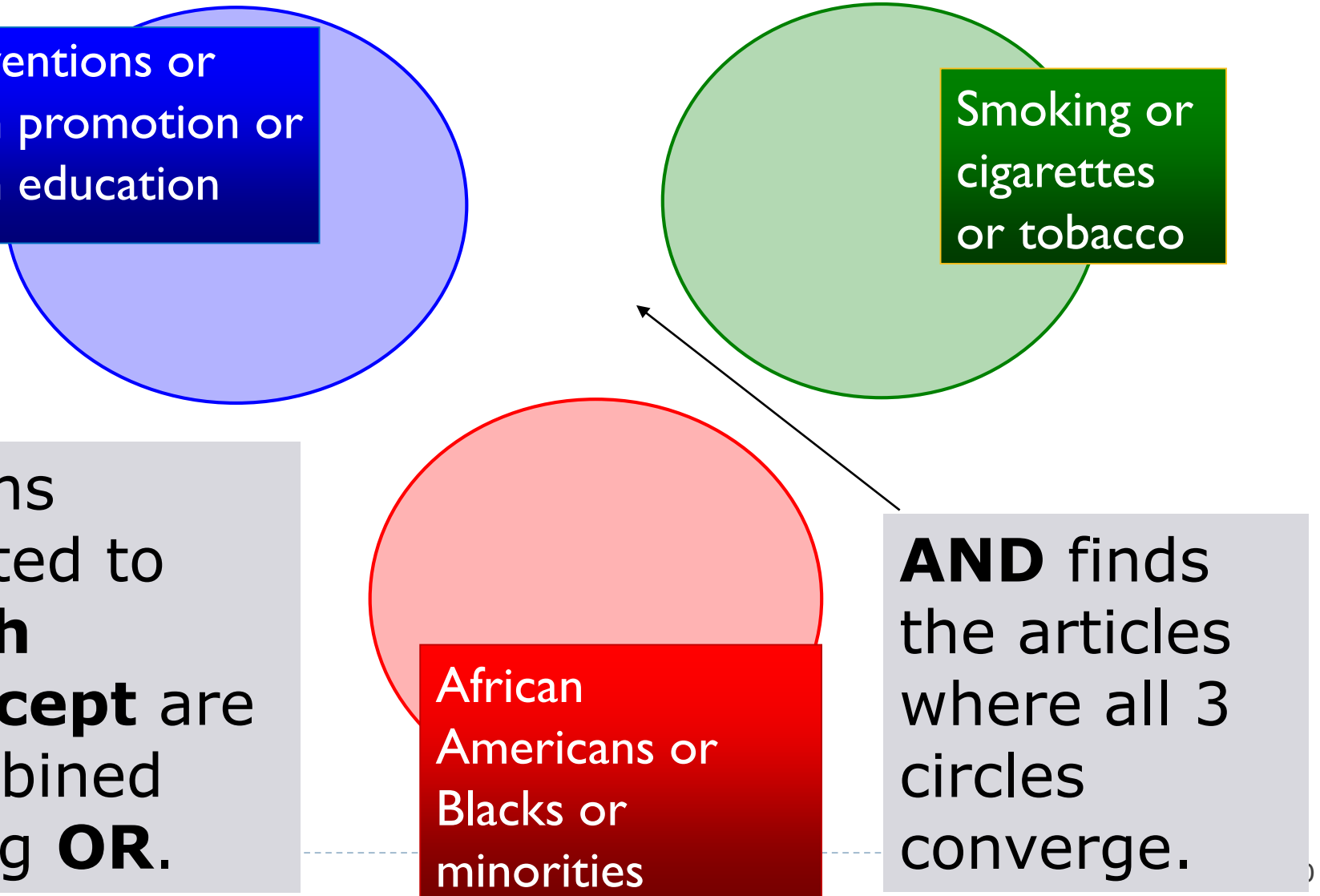
Strategy #2
Combine terms & concepts using Boolean

- Want to "google-ize" a search?
  - Use parentheses to ensure the correct order of operations
- What does this equation equal?
  - 4 + 3 x 7 – 8
- What does this equation equal?
  - (4 + 3) x (7 – 8)

http://en.wikipedia.org/wiki/Order_of_operations

Strategy #2
Combine terms & concepts using Boolean

- ## What does this equation equal?
  - $4 + 3 \times 7 - 8 = \mathbf{17}$

  - According to the order of operations, multiplication and division are done before addition and subtraction.

- ## What does this equation equal?
  - $(4 + 3) \times (7 - 8) = \mathbf{-7}$

http://en.wikipedia.org/wiki/Order_of_operations

Strategy #2
Combine terms & concepts using Boolean

▸ **This search in any Ovid database:**

　▸ Interventions or health promotion or health education and Smoking or cigarettes or tobacco and African Americans or Blacks or minorities

▸ **Will return:**

　▸ (((((Interventions or health promotion or health education) and Smoking) or cigarettes or tobacco) and African Americans) or Blacks or minorities)
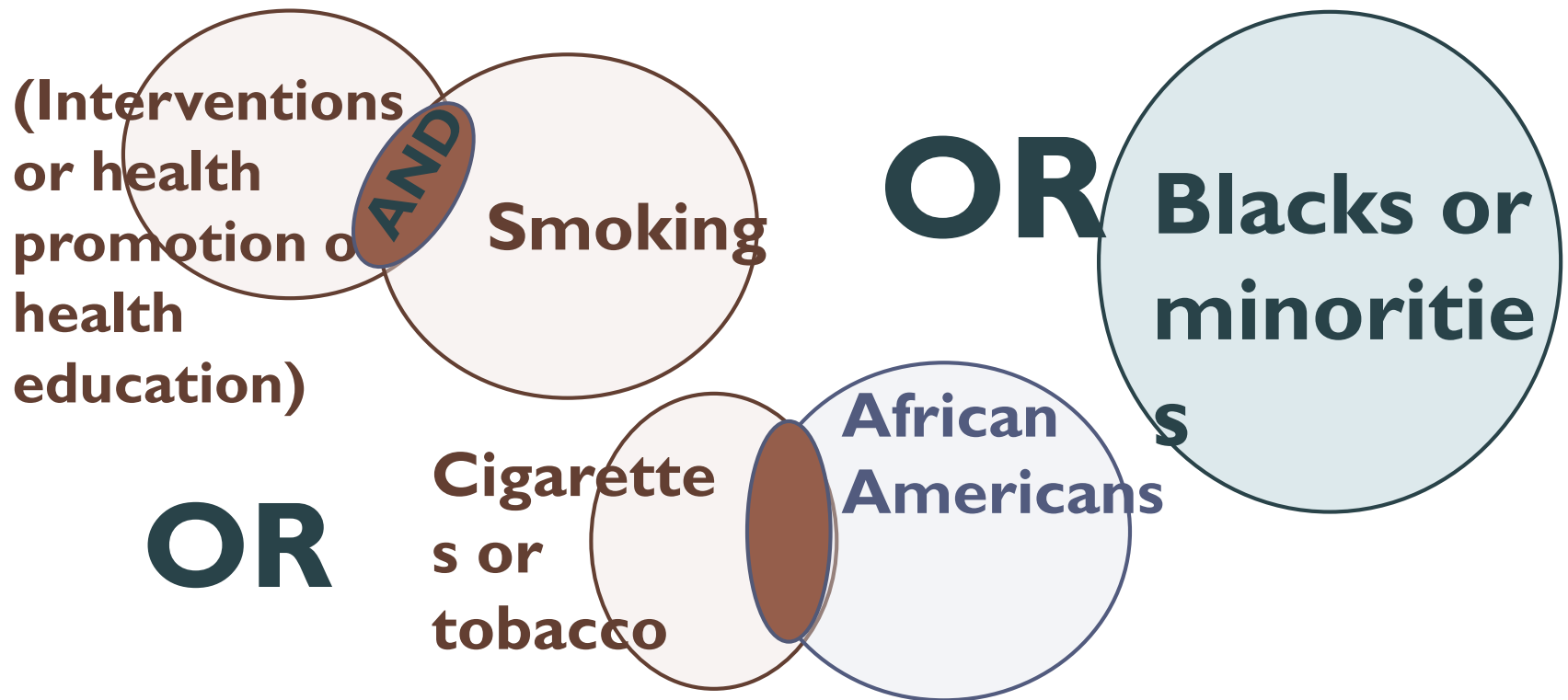
Articles with **((Interventions or health promotion or health education) and smoking) AND African Americans** will be returned.

Articles with (**Cigarettes or tobacco) and African Americans** will be returned.

All articles with the terms **Blacks or minorities** will be returned.

Strategy #2
Combine terms & concepts using Boolean

▸ Where do you think the parenthesis should go?

   ▸ Interventions or health promotion or health education and Smoking or cigarettes or tobacco and African Americans or Blacks or minorities

Strategy #2
Combine terms & concepts using Boolean

▸ Where do you think the parenthesis should go?

> ▸ (Interventions or health promotion or health education) and (Smoking or cigarettes or tobacco) and (African Americans or Blacks or minorities)

Strategy #2
Combine terms & concepts using Boolean

▸ You can "google-ize" a search but…

▸ Parentheses are REALLY important!

   ▸ Find it Fast search example no parentheses

   ▸ Find it Fast search example parentheses

   ▸ Ovid Medline example:

# ▲	Searches	Results
1	(((((Interventions or health promotion or health education) and Smoking) or cigarettes or tobacco) and African Americans) or Blacks or minorities).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier]	14729
2	((Interventions or health promotion or health education) and (Smoking or cigarettes or tobacco) and (African Americans or Blacks or minorities)).mp. [mp=title, abstract, original title,	485

Strategy #2
Combine terms & concepts using Boolean

▸ Example concept cluster

# ▲	Searches		Results
1	Intervention Studies/	▶	6787
2	Health education/	▶	25557
3	Health promotion/	▶	44404
4	(intervention or health education or health promotion).ti,ab,kw.	▶	341119
5	1 or 2 or 3 or 4	▶	387226

Strategy #3
Use the appropriate vocabulary

▸ Each database has its own unique terminology

  ▸ Also known as a "controlled vocabulary"

  ▸ Developed by the database producer

  ▸ Specific to EACH database

  ▸ Searches can look for controlled vocabulary terms

    ▸ Previous slide– see the terms with a "/" following them?

    ▸ Controlled vocabulary terms!

Strategy #3
Use the appropriate vocabulary

- ▸ Common controlled vocabularies
  - ▸ MeSH: Medical Subject Headings
    - ▸ Used by both Ovid/Ebsco Medline & PubMed
    - ▸ Ex. **Intervention Studies/**
  - ▸ Thesaurus of Psychological Index Terms
    - ▸ Used by PsycINFO

Strategy #3
Use the appropriate vocabulary

▸ What does "stress" mean to you?

A Candy Bar would make me feel better!

Subject Heading
Dental Stress Analysis
Echocardiography, Stress
Endoplasmic Reticulum Stress
Fractures, Stress
Heat Stress Disorders
Medial Tibial Stress Syndrome
Oxidative Stress
Stress Disorders, Post-Traumatic
Stress Disorders, Traumatic
Stress Disorders, Traumatic, Acute
Stress Fibers
Stress, Mechanical
Stress, Physiological
Stress, Psychological
Urinary Incontinence, Stress

Strategy #3
Use the appropriate vocabulary

Strategy #3
Use the appropriate vocabulary

▸ Many databases also have special fields that utilize a different vocabulary or codes

  ▸ Librarians frequently use them to help refine searches

Use the appropriate vocabulary

▸ **Example from Ovid** *Medline*

    ▸ **MeSH + subheadings**

        ▸ / eh [Ethnology]

        ▸ / th [Therapy]

    ▸ **Publication type**

Title	Racial/ethnic differences in menthol cigarette smoking, population -based tobacco cessation treatments.
Source	Addiction. 105 Suppl 1:75-83, 2010 Dec.
Abbreviated Source	Addiction. 105 Suppl 1:75-83, 2010 Dec.
NLM Journal Name	Addiction (Abingdon, England)
Publishing Model	Journal available in: Print

MeSH Subject Headings	Adolescent
	Adult
	Aged
	Epidemiologic Methods
	*Ethnic Groups / sn [Statistics & Numerical Data]
	European Continental Ancestry Group / sn [Statist
	Female
	Humans
	Male
	*Menthol
	Middle Aged
	*Patient Acceptance of Health Care / eh [Ethnolo
	*Smoking / eh [Ethnology]
	Smoking / th [Therapy]
	Smoking Cessation / eh [Ethnology]
	*Smoking Cessation / sn [Statistics & Numerical Da
	Socioeconomic Factors
	United States / ep [Epidemiology]

Publication Type	Journal Article. Research Support, U.S. Gov't, Non-P.H.S..

Strategy #3
Use the appropriate vocabulary

▶ **Ovid *PsycINFO***

   ▶ **Key Concepts**

   ▶ **Subject Headings**

   ▶ **Classification Code**
   ▶ **Population Group**

   ▶ **Methodology**

Targeting african american nonsmokers to motivate smokers to quit: A qualitative inquiry.

Publication Date	Oct 2010
Year of Publication	2010
Language	English
Author	Thomas, Janet L; Scherber, Robyn M; Stewart, Diana W; Lynam, Ian M; Daley, Christine M; Ahluwalia, S.
E-Mail Address	Thomas, Janet L.: jthomas@umn.edu

Digital Object Identifier	http://dx.doi.org.www5.sph.uth.tmc.edu:2048/10.11
Key Concepts	African Americans, nonsmokers, motivation, smokers,
Subject Headings	*Health Promotion
	*Motivation
	*Smoking Cessation
	Blacks
	Tobacco Smoking
Classification Code	Promotion & Maintenance of Health & Wellness [3365]
Population Group	Human; Male; Female.
	Adulthood (18 yrs & older)
Location	US
Methodology	Empirical Study; Interview; Focus Group; Qualitative St

Strategy #4
Revise your search strategy

▶ Plan on doing several searches in the same database

▶ Use citations found in earlier searches to help develop and revise searches

1	Intervention Studies/	7141
2	health education/	25989
3	health promotion/	45286
4	(intervention or health education or health promotion).ti,ab,kw.	350541
5	1 or 2 or 3 or 4	397343
6	"tobacco use"/ or smoking/	80105
7	(smoking or cigarettes or tobacco).ti,ab,kw.	165311
8	6 or 7	184749

Final search
Sort of!

9	african continental ancestry group/ or african americans/	46441
10	Minority Health/ or Minority Groups/	7948
11	(african americans or blacks or minorities).ti,ab,kw.	30402
12	9 or 10 or 11	65798
13	5 and 8 and 12	516
14	limit 13 to english language	512

Revise your search strategy

▶ Example: We didn't add smoking cessation terms to the search!

MeSH Subject Headings
Adolescent
Adult
*African Americans / sn [Statistics & Numerical Data]
Counseling / mt [Methods]
Educational Status
Female
Health Promotion
*Hotlines / ut [Utilization]
Humans
Pregnancy
*Pregnant Women / px [Psychology]
Seasons
Smoking / ep [Epidemiology]
Smoking / ep [Epidemiolo... cs & Numerical Data]
*Smoking Cessation / sn [S
*Social Marketing

Strategy #4
Revise your search strategy

▸ Add the appropriate terms, then combine!

13	5 and 8 and 12	516
14	limit 13 to english language	512
15	smoking cessation/	19702
16	(cessation or quit or quitline).ti,ab,kw.	44033
17	15 or 16	50933
18	14 and 17	200

Search more than one db

- ▸ No one database does it all
  - ▸ Not even Google or Google Scholar
- ▸ Each db has strengths & weaknesses
- ▸ Subject listing for SPH databases
- ▸ A-Z listing for SPH databases

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

    ▶ "breast cancer screening"[tiab] OR "screening for breast cancer"[tiab]

Strategy #6
Learn db search rules & peculiarities

- **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,kw. 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"

▸ Find it Fast works differently if you capitalize operators!

  ▸ If finds more, but the items ranked first in relevancy are really good!

▸ Search for phrases using "quotation marks"

  ▸ Works in Google, too!

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Questions?
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