Searching the Literature

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Searching Databases Effectively

- Look for reliable information
- Objective, unbiased evidence
- Best evidence
- Evidence Based Medicine
Evidence Based Medicine (EBM) requires integrating the best research evidence with clinical experience and the patient’s unique values & circumstances.

From: Evidence-Based Medicine How to Practice and Teach EBM. Sackett DL et al 2nd edition 2000
The 5 A’s of EBM

- Assess the patient
- Ask clinical questions
- Acquire the best evidence
- Appraise the evidence
- Apply evidence to patient care
PICO(TT): to Develop Specific & Answerable Clinical Questions

P = patient or problem
The key patient characteristics (e.g. the primary problem, disease, or co-existing conditions, gender, age, and/or race etc), what group (population) has similar characteristics that might help answer the question.

I = Intervention (treatment or test), prognostic factor or exposure
What do you want to do for the patient – prescribe a drug? Order a test to make a diagnosis? Order surgery?

C = Comparison
What are you comparing to the intervention? Deciding between 2 drugs or 1 drug and no medication or a placebo? Two diagnostic tests? A ‘gold standard’ diagnostic test and another diagnostic test? (A comparison is NOT always necessary)

O = Outcome
What outcome for your intervention? Relieve or eliminate the patient’s symptoms? Reduce the number of adverse events? Improve function or test scores?

T = Type of clinical question – see the next 2 slides
T = Type of study design to answer the question – see the next 2 slides
<table>
<thead>
<tr>
<th>Type of Clinical Question</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Etiology / Harm</td>
<td>What are the risk factors for this disease?</td>
</tr>
<tr>
<td>Diagnosis</td>
<td>What’s the best way to determine what’s wrong with my patient?</td>
</tr>
<tr>
<td>Therapy</td>
<td>What’s the best way to treat my patient?</td>
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<tr>
<td>Prognosis</td>
<td>How long before my patient recovers?</td>
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</tbody>
</table>
**Best Type of Study Design to Answer the Question**

<table>
<thead>
<tr>
<th>Type of Question</th>
<th>Suggested Best Type of Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Etiology/Harm</td>
<td>Cohort, Case Control</td>
</tr>
<tr>
<td>Diagnosis Test</td>
<td>Case Control, Blind Comparison to a Gold Standard Diagnostic Test</td>
</tr>
<tr>
<td>Therapy</td>
<td>RCT (Randomized Controlled Trial)</td>
</tr>
<tr>
<td>Prognosis</td>
<td>Cohort</td>
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</tbody>
</table>
The Evidence Pyramid

EBM Categorized Resources
A 55-year-old man with chronic obstructive pulmonary disease (COPD) is currently taking Atrovent. He’s heard about the possible benefits of switching to Spiriva. He wants to know if switching to Spiriva would improve his quality of life. You decide to search the literature for the latest research before making any recommendations.
What is your answerable clinical question?
Literature Searching Assignment

• You will be searching for information on your Longitudinal Patient’s disease state and drug in:
  • PubMed (Medline)
  • Embase
  • Cochrane Library
  • International Pharmaceutical Abstracts (IPA)
How to Search

• Use your search question to create concepts or keywords that become your search terms
• Consider using controlled vocabulary - MeSH (Medical Subject Headings) or Emtree terms
• Search each concept separately
• Combine using AND, OR, NOT
• Refine your search e.g. publication type, age, date, etc.
Using Boolean Operators to Combine Concepts

**OR**
- I want articles that contain either concept. I don’t care which concept.  
  \[\text{[girls OR boys]}\]

**AND**
- I want only articles that contain both concepts.  
  \[\text{[girls AND boys]}\]

**NOT** (use sparingly)
- I want to disregard any articles that contain a specific concept.  
  \[\text{[girls NOT boys]}\]
Not on target?

• Try synonyms, broader terms, or more focused terms:
  • Angina OR Angina Pectoris – synonyms
  • Coronary heart disease – broader terms
  • Stable angina, unstable angina, variant angina, microvascular angina – more focused terms/synonyms

• Try combining search terms differently
• Try a different database
• Try ‘Pearl’ searching
Pearl Searching

- Look for the relevant word or phrase in the title of article citations
- Find a couple of good articles
- Look at how the article is indexed i.e. Thesaurus terms, MeSH terms, or Emtree terms
- Use the Thesaurus terms / MeSH terms / Emtree terms to find more relevant articles
Recitation Assignment Expectations
PICO & Question

• Disease state, longitudinal patient & drug or other therapy in your PICO should also be in your clinical question.

• Include patient age and gender in PICO & question.
PICO & Question

• No comparison is okay unless your searches are only finding articles that compare your drug with something else.

• Then change your PICO & question to show what you are finding when you search.

• Be consistent, select the same drug comparison in each database.
PICO & Question

• If you are not finding articles with your patient disease state and drug, **revise** your PICO & question to show a drug from the same class.

• If there is no drug from the same class, **select a related drug** that is being used to treat your patient’s disease state.

• **Bottom line**: your PICO & question must match the articles you select.
Searching the Databases

- The search history for each database needs to show that your search terms match what is in your PICO & question.

- Do a screen capture of the entire search history for each database.

- Not able to find articles to answer your search question in most of the databases?

- Change your PICO & question to show what you are finding when you search.
Choosing an Article

• Choose an article in English. The citation usually reveals what language it’s in.

• The article you choose should match what is in your PICO & question.

• If you find articles that match in all but one database, choose an article that is the closest & write a brief note.
Choosing an Article

• If you are unable to find an article to match in 3 of the 4 databases,

• **change** your topic

• **revise** your **PICO & question** to match the topic change

• **Key:** Everything matches – PICO & question, articles selected, search terms
Screenshots

• You will lose a point if you do not include all the parts of the article citation that you select.

A citation includes:

• Article title, authors, journal title, year of publication & abstract.
Screenshots

• Include the entire search history for each database.

• This may require multiple screenshots.
Questions?

• Ask any time during the recitation
Pharmacy Resource Guide

• [http://guides.libraries.uc.edu/pharmacy](http://guides.libraries.uc.edu/pharmacy)

• Or Google: UC HSL pharmacy guide