More Techniques for Locating Evidence-Based Literature

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Agenda

1. Ask a well-defined clinical question

   PICO practice

2. Acquire medical literature relevant to your question

   Search strategies
   • Medical Subject Headings (MeSH)
   • Use PubMed “Search details” to your advantage
   • Other filter options

3. Appraise this literature, interpreting and weighing its results

Resources for critical appraisal—see EBCP tab on MD and PA Students guide
PICO Refresher

What is PICO?

- P – Patient and Problem
- I – Intervention
- C – Comparison (If any)
- O – Outcome (the outcome expected to occur because of the intervention)

The purpose of writing a PICO is to help organize search terms. PICOs are written **BEFORE** you search a database.
PICO Variations

Diagnosis domain
- P – Patient and Problem
- T (I) – Test
- S (C) – Standard test (e.g., the current gold standard test)
- D (O) – Disease

Prognosis domain
- P – Patient and Problem
- F (I) – Factors (additional qualifiers of patient’s condition)
- (C) – Other factors
- O – Outcome
**Terminology: MEDLINE? PubMed? PubMed Central?**

**MEDLINE**
- NLM’s journal citation database
- Over 5600 biomedical journals that get indexing

**PubMed**
- How we access MEDLINE
- Search interface (Other interfaces: Ovid Medline)
- Over 27 million references (includes MEDLINE, PMC, & others)

**PubMed Central (PMC)**
- Archive for free full text articles
- Deposited in compliance with NIH Public Access Policy
- Deposited by participating publishers
- Potential differences in quality
Contents of PubMed

- Ahead of print citations
- In-process citations
- Not yet updated pre-1966
- Out-of-scope citations from some MEDLINE journals
- Citations prior journal added to MEDLINE
- PubMed Central (journals in PMC & manuscripts archived to meet NIH Public Access Policy)

MEDLINE

(Articles that are part of MEDLINE)
(In other words, articles that have been indexed in PubMed)
(In other words, articles that have MeSH terms added to them)
What is MeSH?

- **Medical Subject Heading**
- Labels assigned to article → controlled vocabulary identifying what the article is about
- Indexers at NLM assign *all* relevant headings to articles
- Searching with a MeSH term retrieves every article with that heading assigned to it
Benefits of MeSH Over Keywords

MeSH account for:

➢ Synonyms — Photon absorptiometry (a.k.a. DEXA scan)

➢ Different spellings — pediatrics vs. paediatrics

➢ Multiple endings — diagnosis, diagnoses, diagnostic, diagnostics, diagnosing

➢ Homographs: tears (from eyes) vs. tears (in cartilage)

Articles can contain a keyword once without it actually being the topic of the article
Finding MeSH Terms

➢ How do I know what the terms are?
➢ How do I know if there’s a subject heading for my concept?
➢ How do I know what’s the best subject heading for my concept?

Use the MeSH Database by switching the dropdown menu in PubMed to MeSH.
The MeSH record gives a definition, subheadings, and shows where the term fits in the MeSH hierarchy.

Click “Add to search builder” and then “Search PubMed” to search with a MeSH term. Find all your terms in MeSH, add them to your search history, and then combine them with the Advanced search page in PubMed.
Benefit of Keywords Over MeSH

➢ Indexing takes time
➢ Some concepts are too specific for controlled vocabulary
➢ Articles are indexed by humans (so, yes, variation)
➢ Date headings introduced affects search results

![Denture, Overlay](image1)

![Legendary Creatures](image2)
PubMed Maps Keywords to MeSH Terms Giving You a MeSH and Keyword Search

➢ Use Search Details box to your advantage

➢ Search one concept at a time → check Search Details for each concept

➢ Be sure PubMed is handling your concepts as desired before combining concepts

➢ Watch for terms it doesn’t recognize & don’t get benefit of mapping (e.g., CPAP)

➢ Watch for terms it recognizes in an unexpected way (e.g., if you typed vs for versus, the vs maps to the journal Veterinary Surgery)
Search Details on PubMed Results Page

When you type a keyword into the search bar, look at Search Details on the results page (on the right side, scroll down as needed) to see how (if) PubMed is mapping your keyword.
Filters Save Time

On the left sidebar
- Age, sex, publication dates, language, species
- Publication types

Remember
- Click “Show additional filters” for more
- Add and then apply
- Filters are sticky!
Clinical Queries for EBCP Searches
The 1st column retrieves results geared to answer questions of different domains. Change the drop down for the domain of your clinical question.

The 2nd column shows results that might be systematic reviews or meta-analyses on your topic.
Add the Clinical Queries Filters to Your PubMed Account

You can add the Clinical Queries filters to your PubMed account so that they always show on the results page when you’re signed into your account. Follow the instructions here for creating an account and adding the filters.
QUESTIONS?

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