



THE CONSORTIUM OF
EVIDENCE-INFORMED
PRACTICE EDUCATORS

The Savvy Practitioner

A bulletin for practitioners and teachers of evidence-informed practice.

Want access to the Educator's Exchange?

To sign up for this closed website, just contact rlefebvre@uws.edu and you will be sent an invitation to set a username and password.

Target audience this issue:

- ✓ *Classroom faculty*
- ✓ *Clinicians*
- ✓ *Teaching tips for EIP core instructors*

Stephen M. Perle, DC, MS
CEIPE Board of Directors

Professor of Clinical
Sciences
University of Bridgeport
College of Chiropractic

11/17/16
Issue 8

Searching PubMed: Part 1 MeSH

The basic steps of evidence informed practice are to ask, acquire, appraise, apply and appraise. Acquire is the process of searching the literature to find the answer to the question one has formulated in a PICO.

Generally, when searching for the best available clinical evidence one will want to use PubMed. To clarify Medline is a subset of PubMed and rarely does one actually choose to do a MedLine search specifically. However, for certain pre-established reasons one can limit a PubMed search to only Medline. The difference is that PubMed is more inclusive (containing all of MedLine, Pre-MedLine (not yet indexed citations destined for MedLine) and other citations from publishers, such as BioMedCentral, popular magazines and textbooks

PubMed ≠ Google

At this point in time most people have become acquainted with Google's Internet search engine. Google's great power and ease of use is detrimental to learning to conduct efficient searches of PubMed. In some way Google is far more forgiving than PubMed. It makes different assumptions about the meaning of a search entry. PubMed's assumptions are based upon its database of keywords, called MeSH, and its database of author names. It tries to find the MeSH term or author that matches what when one has entered in the search box. This is called "term matching".

MeSH is a unique and controlled lexicon

MeSH (Medical Subject Headings) is a vocabulary thesaurus of medical terms for indexing in MedLine. By controlled what is meant is that there is often (but not always) a unique MeSH term to express a particular idea, which in practice may have many synonyms. The advantage is that lacking other issues all the synonyms should be searchable using only the one MeSH term. This makes searching for evidence on a particular topic often very quick in all but the most rigorous circumstances, as in a systematic review. The MeSH database is searchable and will often find the correct MeSH term if one searches using one of its synonyms (so-called entry terms). The MeSH database and the basic PubMed search box will try to autocomplete the likely MeSH terms.

Once one performs a search PubMed will term-match to the MeSH term or author it "thinks" you were searching for. Clicking on See more... below the Search details on the right side of the web page will show exactly what PubMed searched for - it is often not what one intended. Putting ones search or individual words in quotation marks prevents term-matching.

In the USA the word entrée means main dish but in French, where the word originates, the word means enter or when it comes to food an appetizer. Asking for an entrée in France won't get one a large plate of food. Likewise, in the USA the word entrée means main dish but in French, where the word

Help your students understand how best to find clinical research evidence.

For more help on MeSH, see:
<http://www.ncbi.nlm.nih.gov/books/NBK3827/>

**Want to know more?
Want handouts for
your students?**

**Consult the Educator's
Exchange!**

Click through the following
webpages: [EIP Resources](#) >
[Information Literacy](#) > [Data
Bases](#) and [download more
pdfs and videos.](#)

**Lost your link to the
Educator's Exchange?**

Try <http://bit.ly/CEIPE>.

You will need your password
and user name.

originates, the word means enter or when it comes to food an appetizer. Asking for an entrée in France won't get one a large plate of food. Likewise, with MeSH's controlled vocabulary some words do not mean what one might desire and sometimes there is a word one would never have thought of that expresses ones thought. An example of the former is Intervertebral Disc Displacement (for herniated disc) and for the later physiopathology (for pathophysiology).

Indexing is Fallible

Thinking about what section of a music store one would find a disk titled "Modern Sounds in Country and Western Music" the obvious answer is C&W. However, this is a 1962 record album by Ray Charles and ought to be in Rhythm and Blues(R&B) despite the fact the songs were C&W standards they are done in Ray's R&B style. This is an example of improper indexing. Sometime no matter how many times an author uses a MeSH term in their title, abstract or Keywords it still doesn't get indexed in what the author and readers would consider an appropriate way. Thus, in some situations one must use terms that do not seem appropriate but work better. For example, many papers that are specifically about chiropractic/chiropractors don't have the MeSH term chiropractic but instead, osteopathy or orthopedic, manipulation etc. It is just impossible for those doing the indexing to know all 27,883 (as of 2016)

Major and Minor

Some MeSH terms are deemed more central to the subject of a paper these are called Major MeSH terms. Some are more peripheral these are just MeSH terms. The Major ones are denoted by an asterisks after the term in a listing of MeSH terms attached to a paper. Using Ray Charles album again one might call R&B a major term and C&W a minor. One can choose when creating a search within the MeSH database to search for Major terms, minor is the default.

MeSH has a hierarchical structure

At the bottom of every MeSH record is the hierarchy where the term one is looking at is found. Many are found in multiple places. This is very useful in finding more general terms (going up the hierarchy when one has conducted a search with limited results) or more precise terms (going down the hierarchy when one has conducted as search with too many results). If one creates a search from the MeSH database one can limit a search to only the term selected rather than the default which includes terms below it in the hierarchy.

Author Teaching Tip 1: Term Matching

Ask students to predict how many hits they will get searching Google and PubMed for Brain CT. Google returns over 100 million "hits" that are mostly about Computerized Axial Tomography of the brain, the likely desired outcome. However, the same search in PubMed will yield only a few "hits" as it will term map Brain CT to the author whose family name is Brain with the first two initials C and T (thanks to Dana Lawrence, DC for this example).

Teaching Tip 2: Terms Have Different Meanings

Ask students to predict how many hits they will get searching PubMed for adjustment asthma. Then show them that it doesn't result in any citations about spinal manipulation and asthma but instead citations for papers on social adjustment or psychological adaptation, which are term mapped to the term adjustment. Show how this occurred by clicking on See more... below the Search details on the left side. Then do the search again with aand withoyt adjustment in quotation marks and then again with the phrase chiropractic adjustment.