

10 easy steps to conducting a PubMed Clinical Queries search

Aim: To review the evidence base on a particular clinical topic/query.

Type of search: using the Clinical Queries and MeSH facilities in PubMed

Search Strategy:

1. Go to Pubmed (<http://www.ncbi.nlm.nih.gov/pubmed/clinical>)
2. Select the MeSH facility by clicking on MeSH in the Search box drop-down menu.
3. Type in an individual search term in the search box at the top and click on the Search button to find a list of MeSH headings.
4. Once you have decided upon the most appropriate heading or headings (by ticking the box next to the heading) click on the button 'add to search builder' to the right of the screen.
5. Copy the terms in the Search Builder box and open up Pubmed Clinical Queries (<http://www.ncbi.nlm.nih.gov/pubmed/clinical>) in a new tab or window.
6. Paste the terms into the search box at the top and click on Search button.
7. The results will be displayed in three sections: Clinical Studies, Systematic Reviews, and Medical Genetics.
8. Results for Clinical Studies (RCTs, Cohort Studies etc) can be narrowed down by Category and scope via the drop-down boxes.
9. It should be noted that Systematic Reviews cover Cochrane as well as non-Cochrane results.
10. Finally, to see all the results within each section, click on 'See all'.

Congratulations! You have now carried out a complex search combining a MeSH search in PubMed limited to clinical studies.

How to search the literature for evidence - by Terry Harrison

There are many (free) evidence sources available. To be absolutely thorough in your evidence searching you will search all relevant sources. But for most occasions we have time constraints - PubMed, Cochrane and TRIP will provide you with good results, providing you search them correctly.

Search is not as easy as it looks! You will become expert searchers the more you practice searching. When you're learning, try every available database. Each database has its own Help facility. Most databases have additional facilities you can use if you register with it (registration is free).

1. Using the MeSH facility in Pubmed (or Cochrane)

- Organise your concepts via PICO.
- Avoid searching on a single concept, as this tends to bring up background papers.
- Find a MeSH equivalent for each concept. If there is no exact equivalent you have the choice of either a) using a similar or broader or narrower term, using the in-built thesaurus within MeSH, or b) searching for your term as a text word.
- Every MeSH term sits in a concept tree (sometimes in more than one concept tree). It may have 'child' (narrower) concepts and 'parent' (broader) concepts and even siblings (related concepts). Sometimes it's worth exploring the MeSH database (a listing of all MeSH terms within their concept trees) to help refine your search terms.
- To access the MeSH database: <http://www.nlm.nih.gov/mesh/MBrowser.html>

2. Conducting the search in PubMed

- Conduct your search for each MeSH term using the MeSH facility.
- Combine the search results using OR or AND. Use AND to combine terms when searching synonyms. Use OR to fetch articles with any of the terms in.
- You can combine a MeSH term with a text word search using OR. So, if you use OR for asthma as a text word and as a MeSH term you will get all the papers that are about asthma (indexed as this) and all the papers that have the word asthma in them. This approach is better suited for searches involving more unusual terms/subjects.
- For more commonplace subjects it is better to ignore text word searching.
- Alternatively, with Pubmed you can use Pubmed's MeSH facility in conjunction with Pubmed Search Builder (this will create a Boolean search string with the MeSH terms you have selected).

3. Amending your search

- If you end up with too many results you can do the following: a) include a third concept to the search, or b) start again and try more precise terms.
- If you end up with too few results you can make one or more terms a 'words anywhere' search.
- When you conduct a 'words anywhere' (text word) search you are asking for all papers with that word(s) in the paper. Consequently the results are more, but very imprecise.
- When you conduct a MeSH search on a MeSH term you are asking for all papers that are indexed as being about that heading. Consequently, the results are less but more precise
- Sometimes you have no choice but to use a non-MeSH term. For example, the term Sudan is probably not MeSH.

- Sometimes you may decide to search without using the MeSH facility or to conduct a search that combines MeSH searching with 'words anywhere' searching. These variations are your choice, depending on the number and quality of results you seek.

4. **Using Pubmed Clinical Queries**

- When combining your MeSH search with the Clinical Queries search, sometimes you may not get enough results, in which case you could exclude the Clinical Queries part of the search.
- With Clinical Queries, sometimes it's worth experimenting between 'Broad' and 'Narrow' in the options for Clinical Studies, particularly if the results are too small or too large.

5. **Keyword searching tips:**

- In all cases where results prove low, MeSH searching becomes irrelevant.
- When you get low results, revisit your search and search each term separately before combining. This way you can see if a particular term is a weak one that will negatively affect the search as a whole.
- If you're searching key words (and not MeSH) you should always put double quotation marks around a phrase (e.g. "mosquito nets")
- Also, when searching as a key word, you can widen your search by using truncation or stemming - e.g. net* (note: check the truncation symbol for each database - usually it is a * or a \$). However, you can't do this with a phrase - in this case you have to do this: ("mosquito net" or mosquito nets")

6. **Other evidence sources**

- *TRIP*
 - TRIP is quite different to search than Pubmed: it only accesses evidence (clinical studies).
 - TRIP does not have its own database but searches others - simultaneously.
 - One nice feature is how it will sort the results in the left column by study type.
 - The best way to search TRIP is to search on MeSH terms (worked out via the MeSH thesaurus in Pubmed first) but combining them by using Boolean. For example: ((concept A AND concept B) OR (concept C AND concept D)).
 - Also, you should note that TRIP includes a facility called 'Developing world' (you can mark each item you find useful within the 'developing world' context and that way indicate to others that it may be of interest).

- *Cochrane*

Cochrane has the same built-in MeSH thesaurus as PubMed.

- To use the MeSH facility, click on the 'Advanced Search' link, then 'MeSH search'.
- Enter a term in the MeSH search box and click on 'thesaurus', then click on the correct term in the list that comes up.
- Tick the box 'Go directly to search history' and click on 'view results'.
- You will now be taken to the Search History page.
- If your search was a single concept search then click on the results link.
- If you wish to carry out a second or third search (as part of a combined search), click on the 'MeSH search' link and repeat the above process.
- You can combine results (if you have searched on more than one concept separately) by clicking on the 'Search for' box. Each search result has a number. So, if you have three searches to combine you would enter #1 AND #2 AND #3
- You can also combine searches using OR

- You can even carry out complex searches by using a combination of OR and AND.
For example: (#1 AND #2) OR (#3 AND #4)
- Next click on the link of the results that you wish to look at.
- The overall results are automatically displayed by study type - e.g. systematic review, RCT, etc.
- Note the tabs at the top of the results page that categorises the results by study types.

Evidence searching is all about finding the highest level study type available, then seeing if the items found are applicable to your query.

Good luck!

Terry Harrison

Example Literature Search in Pubmed

Aim: To review the evidence base of the effectiveness of impregnated mosquito nets on the burden of malaria in pregnant women.

Database used for illustration: Pubmed

Type of search: Advanced using Boolean operators AND & OR

Search terms:

Medicated, impregnated, bed nets, mosquito nets, pregnant, pregnant mothers

Search Strategy:

Type the individual search terms separately. Combine the search results of similar search terms with 'OR' command and then use 'AND' command to combine all the terms. An example is given below

Search for the literature using the search terms separately. The combine them as follows

1. (medicated) OR (impregnated)
2. (bed nets) OR (mosquito nets)
3. (pregnant) OR (pregnant mothers)

Finally, combine the searches 1, 2 & 3 using 'AND'.

The final search strategy looks like Search (((medicated) OR (impregnated)) AND ((bed nets) OR (mosquito nets))) AND ((pregnant) OR (pregnant mothers))

Results:

You can see on the screen capture how the number of articles retrieved changes from 'few thousands' at the beginning to very few in the end. Use different search terms to broaden the literature search. See if you can repeat this yourself and we will use this as a basis for the Discussion in this Topic. Important: the screen capture shows the results from a search that is not recent and so the actual numbers will be very different at this moment in time.



Advanced Search

[Details](#)

#11 AND #13

PubMed Search History

- Search History will be lost after eight hours of inactivity.
- Search numbers may not be continuous; all searches are represented.
- To save search indefinitely, click query # and select Save in My NCBI.
- To combine searches use #search, e.g., #2 AND #3 or click query # for more options.

Search	Most Recent Queries	Time	Results
#14	Search #11 AND #13	05:05:02	21
#13	Search #12 OR #3	05:02:23	96431
#12	Search pregnant	04:51:26	96431
#11	Search #8 AND #10	04:46:28	278
#10	Search #4 OR #5	04:44:43	860
#9	Search #4OR #5	04:44:15	0
#8	Search #7 OR #6	04:43:19	10790
#1	Search malaria	04:42:03	48771
#7	Search medicated	04:41:03	4499
#6	Search impregnated	04:40:41	6318
#5	Search mosquito nets	04:40:20	699
#4	Search bed nets	04:39:56	437
#3	Search pregnant mothers	04:39:35	7792
#2	Search prevention	04:39:05	887793

Search by Author, Journal, Publication Date, and more

Fill in any or all of the fields below, as needed.

All of these (AND) Any of these (OR)

Search for

Search for

Search for to
(yyyy/mm/dd - month and day are optional)

[Add More Search Fields](#)