

Systematic Literature Searching

April 2016

A good literature search involves a number of steps which you should work through systematically:

1. Developing your research question
2. Define your search topic i.e. identify search terms
3. Identify the resources to search
4. Review your search strategy
5. Recording your results

1. Developing your research question

There are a number of tools which can help you develop your research question. A common tool you may come across in Health is **PICO**

PICO – Reviews of interventions for health

P Patient or population

I intervention

C comparator

O Outcomes

P Patient or population	I Intervention	C Comparator	O Outcomes

There are a number of other tools you can choose to use a comprehensive list can be found at University of Leeds, Faculty of Medicine & Health
http://medhealth.leeds.ac.uk/info/639/information_specialists/1500/search_concept_tools

Sage Research Methods Online

(via ifind, the library catalogue, username and password required)

For additional reading you may like to look at this research methods database which journal articles, books and book chapters which can help you write a good, testable research question.

2. Defining your search topic

There are a number of different techniques for identifying keywords and key terms for your topic and as you develop your search strategy your keywords will change. It will take a few attempts to produce a search strategy you are happy with. We have listed a number of suggestions below on how to get started.

- You can try a 'quick & dirty' search in Google to see the language and terminology used by authors to discuss the topic.
- Talk to colleagues & your Librarian as they can provide suggestions you may not have thought of.
- Look at previously published searches.

Tools we recommend

Medical Subject Headings (MeSH) search in PubMed

<http://www.ncbi.nlm.nih.gov/mesh>

The MeSH Database is available from PubMed's home page and database selection menu allows you to:

- locate and select MeSH terms (Headings, Subheadings, Supplementary Concept Records, and Publication Types) for use in PubMed searches
- see the definition and other helpful information for a MeSH term
- see the position of MeSH terms in the hierarchy
- select MeSH heading/subheading combinations to build a PubMed search

<https://www.nlm.nih.gov/bsd/disted/meshtutorial/themeshdatabase/>

PubReMiner

<http://hgserver2.amc.nl/cgi-bin/miner/miner2.cgi>

PubReMiner will query pubmed with your specified search query, get all abstracts and generate frequency tables. The resulting table will show you words that have been used most in the title and abstract of the articles and also displays MeSH terms used.

Yale MeSH Analyzer

<http://mesh.med.yale.edu/>

If you have identified several key articles in PubMed enter the PMID numbers into the MeSH Analyzer. The resulting grid will show MeSH terms sorted & grouped alphabetically for ease of scanning. This allows you and your Librarian to identify appropriate MeSH terms and term variants.

MeSH subheadings can be useful in a search for example in PubMed MeSH there is an economics subheading. MeSH [Subheadings](#) are used with MeSH terms to help describe more completely a particular aspect of a subject. For example, the drug therapy of asthma is displayed as asthma/drug therapy; see MeSH/Subheading Combinations in MeSH Terms [MH] below.

The MeSH Subheading field allows users to "free float" Subheadings, e.g., hypertension [mh] AND toxicity [sh].

MeSH Subheadings automatically include the [more specific Subheading](#) terms under the term in a search. To turn off this automatic feature, use the search syntax [sh:noexp], e.g., therapy [sh:noexp].

In addition, you can enter the two-letter [MeSH Subheading](#) abbreviations rather than spelling out the Subheading, e.g., dh [sh] = diet therapy [sh].

[A table of PubMed MeSH subheadings is available here](#)

Using Search Filters

“Search filters are collections of search terms designed to retrieve selections of records. Search filters may be designed to retrieve records of research using a specific study design or by topic or by some other feature of the research question. Filters may have a very specific focus or may be high level. Search filters may be designed to maximise sensitivity (or recall) or to maximise precision (and reduce the number of irrelevant records that need to be assessed for relevance).”

InterTASC Information Specialists' Sub-Group (n.d.) *What is the ISSG Search Filter Resource?*
Retrieved from <https://sites.google.com/a/york.ac.uk/issg-search-filters-resource/what-is-the-issg-search-filter-resource>

Sources of search filters for economic evaluations, RCTs, Reviews etc. include;

[Canadian Agency for Drugs & Technologies in health \(CADTH\)](#)

[InterTASC Information Specialists Sub-Group \(ISSG\)](#)

[National Information Center on Health Services Research & Health Care Technology\(NICHSR\)](#)

[Scottish Intercollegiate Guidelines Network \(SIGN\)](#)

Where to Search

A list of all bibliographic subject specific databases subscribed to by Swansea University (& some freely accessible ones) related to health and medicine can be accessed from iFind Research at <http://ifind.swan.ac.uk>

For Grey literature consider;

Google Scholar - conference proceedings, technical reports, abstracts etc.
Access at [https://scholar.google.co.uk/](https://scholar.google.co.uk)

Open Grey - open access to 700.000 bibliographical references of grey literature (paper) produced in Europe. Includes technical or research reports, doctoral dissertations, some conference papers, some official publications, and other types of grey literature.

Access at <http://www.opengrey.eu/>

Evidence Search - includes guidance, systematic reviews, evidence summaries and patient information

Access at <https://www.evidence.nhs.uk/>

Trial registers include;

- [EU Clinical Trials Register](#)
- [ISRCTN registry](#)
- [International Clinical Trials Registry Platform](#)
- [Clinical trials.gov](#)

Review your search strategy

Ask a colleague to check the search strategy, they will have subject knowledge. Ask a Librarian to check it too, they may be able to suggest improvements.

Remember as different databases work differently you may have to 'tweak' your search for the various resources.

To check your own or someone else's search strategy try the Peer Review of Electronic Search Strategies (PRESS)

<https://www.cadth.ca/resources/finding-evidence/press>

PubMed Commons provides a forum for scientific discourse that is integrated with PubMed, a major database of citations to the biomedical literature. Any author of a publication in PubMed is eligible to join and post comments to any citation.

This post to PubMed Commons is a commentary on the search for a study on 'Comparative efficacy and safety of blood pressure-lowering agents in adults with diabetes and kidney disease: a network meta-analysis', PMID 26009228.

http://www.ncbi.nlm.nih.gov/pubmed/26009228#cm26009228_14545

Document your search strategy

Remember to include;

- Date each search carried out
- Version of each bibliographic database searched (e.g. MEDLINE Complete from 1946 to present)
- Interface used for each bibliographic database searched (e.g. Ovid or EBSCO)
- Date span of search
- Copies of all the search terms used for each specific search
- Number of references identified by each search
- Number of duplicates removed

Tools such as the PRISMA flow chart for reporting searches for systematic reviews may help you to report the search in full <http://www.prisma-statement.org/PRISMAStatement/FlowDiagram.aspx>

Librarian Contact Details

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More information at

<http://www.swansea.ac.uk/iss/libraries/subjectinformation/healthscience/>

**** Book a Librarian** using the calendar booking system at <http://bitly.com/chhslibrary>
