how to:

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Carry Out a Literature Search

Nia Morris

Every health care professional, medical student or tutor needs to find out the latest research on a given subject from time to time in order to keep up to date with developments within their speciality or to enhance their knowledge of the subject. Literature searching is sometimes confused with literature review. Literature searching is about finding information in a systematic way which enables you to find where possible all relevant published or unpublished work on a particular subject. A literature review is about reviewing the evidence you have found in your literature search in order to produce an account of what has already been written on the subject, listing the strengths and weaknesses of each viewpoint in the argument. A literature search therefore comes before a literature review.

Why search the literature?

- To identify completed as well as ongoing research, relevant to your topic
- To prevent duplication
- To avoid the pitfalls and errors of previous research
- To find gaps in existing research

Clinical Question:

Is cranberry juice effective in reducing the symptoms of urinary tract infections in women?

The key to a good literature search is to formulate your search topic into an answerable question.

"A well built clinical question contains 3 or 4 elements"

(Sackett, 2000):

Population/Patient	*women with urinary tract infections*
Intervention/Indicator	*cranberry juice*
Comparator/Control	*placebo*
Outcome	*reduction in symptoms*

This is referred to as the PICO approach or principle. Not all research questions are about interventions, and other types of questions are to do with aetiology and risk factors, frequency, diagnosis, prognosis and prediction, phenomena. The PICO approach can be used in all the above types of questions

Select a Resource

There are literally millions of published reports, journal articles and studies available in the biomedical fields. Choosing the best resource to search for up-to-date best evidence is an important decision.

There are two main biomedical databases available which provide references to journal articles - Medline and Embase.

Medline

Produced by the US National Library of Medicine. It contains over 12.2 million records and indexes over 4,600 journals from over 70 countries. It's coverage spans from 1950 to the present. Articles are indexed within 6 months of publication.

About 85% of the articles indexed are English language content. It uses MeSH (Medical Subject Headings) thesaurus, with over 22,000 main concepts.

Medline has an international coverage – with main focus on articles from United States and Eastern Europe.

Embase

Produced by Elsevier, Embase has almost 9.5 million records from over 4,600 journals from 70 countries. Its coverage spans from 1974 to the present.

Articles are indexed within 2 weeks of being published and 90% of references are English language content.

It uses EMTREE Life Science Thesaurus – with over 48,000 drug and medical index terms.

Embase has an international coverage – focus on Western Europe and USA.

Search Strategy

Start your search by planning which keywords define your search topic. Think around your subject and write down all possible terms. Consider synonyms, e.g. cancer and neoplasm, alternative spellings, e.g. paediatrics and pediatrics. Broaden your search terms to ensure a more general results should your search yield too few results, e.g. labour rather than labour stages.

Searching the databases

Enter each term or phrase separately so that you can build up a systematic search using the appropriate search terms. You can use *controlled vocabulary* or *free text* when searching for terms.

Controlled vocabulary searching usually gives a more precise search, as the terms used to index the article have been assigned by someone looking at the subject content of that article. e.g. the controlled vocabulary term for **cranberry juice** on **Medline is Vaccinium macrocarpon**. This will result in retrieving all references which have been assigned that MESH term. (Medical Subject Heading).

Free text searching looks for the occurrence of a specific word/phrase usually within the **title** or **abstract** of an article. The word/phrase needs only to have been mentioned to be picked up by the search, therefore the actual content of the article itself may not be relevant. e.g. **cranberry juice** as **free text** will only pick up references where this phrase appears.

Combining Searches

Keywords can be combined to include or exclude terms, to narrow or widen a search using Boolean operators.

The main *Boolean operators* are:

AND	both topics must be included, e.g. aspirin **and** pain
OR	either or both topics must be included, e.g. health promotion **or** patient education
NOT	the first topic must be included but not the second, e.g. nutrition **not** diet.

Limit your search

Databases often allow you to apply limits to the search you are performing. This enables you to be very specific in the type of references retrieved, which is vital when you have found too many references!

Most databases allow you to limit to language, year and publication type, e.g. Randomised Controlled Trials, s, reviews etc. Some also allow you to limit by human, gender, latest update etc.

Evaluate and Review

Evaluate the material you have found to ensure it is relevant to your topic. You may need to obtain copies of some articles from other libraries. Allow sufficient time for the articles to be requested and supplied to you.

Remember to keep the printouts of all the search results for your reference lists at the end of your assignments.

Further Information

Glasziou, P., Del Mar, C.D. and Salisbury, J. (2007) *Evidence based practice workbook.* BMJ Books: London.

Hart, C. (2001) *Doing a literature search: a comprehensive guide for the social science.* Sage: London.

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