RESEARCH

HOW TO CONDUCT AN EFFECTIVE AND VALID LITERATURE SEARCH

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ABSTRACT Havard, L. (2007) How to conduct an effective and valid literature search. *Nursing Times;* 103: 44, 32–33. This article describes the key principles involved in conducting a literature search.

A literature search is an organised search for all the literature published on a topic. A well-structured search is the most effective and efficient way to locate sound evidence, which may be found in books, journals, government documents and on the internet.

CREATING A QUESTION

Creating a well-focused question is the first step – this will help you determine useful keywords and limitations for your topic. Being clear what you are researching will keep you on track and save valuable time.

When formulating your question, make sure you are specific. Consider:
● The type of patient;
● The condition/situation being researched;
● The type of intervention or nursing procedure you are investigating.

This is also a good time to determine limitations, such as:
● How many years you want to go back in the literature – you may want to limit the years to make the search more manageable or clinically up to date;
● Language – are you limiting the search to sources in the English language?
● Geographical specificity, for example, is your search limited to the UK or EU?

BOX 1. TRUNCATED WORDS AND WILD CARD SYMBOLS

Truncate means using the base of a word to find words that begin with that base: Nurs* = nurse, nurses, nursing, nursery. Wild cards are symbols you use to replace one or more characters in a word: Wom?n = woman or women.

IMPLICATIONS FOR PRACTICE

● There are many resources that you can use to search for information that is in print and electronic form.
● Many published papers have gone through a peer-review process but it is always important for you to determine for yourself the quality and relevance of an article.
● When you are evaluating sites, make sure that you are diligent – anyone can put information on the internet. Web portals can be useful in this respect. Portals such as Intute provide links to websites that have been reviewed by experts and specialists from different healthcare arenas.

SOURCES OF INFORMATION
Books

Books are a good start, giving you general or specific information. Check that the book is up to date – this usually means published within the past five years – especially if you are looking for clinical or drug information.

Search in an academic or healthcare library. The librarian may be able to help.

Journals

Journal articles are one of the best sources of information as they can be selected for being current and specific. Most of the important and groundbreaking research is published in journals.

Papers are best found using citation databases such as BNI and CINAHL. Each database has some unique searching features – your library may hold sessions or offer guidance on searching these. Many databases have help screens.

You need to be aware of the different types of articles:
● Research articles, including systematic reviews, are the best source of evidence;
● Review articles provide a summary of research articles on a topic;
● Opinion pieces such as letters and editorials can help to interpret research;
● Case studies focus on one person or situation, as opposed to a group of studies.

It is important to look at articles in peer-reviewed journals. These have passed scrutiny by those working in the same field.

Internet

Many studies and statistics are published on the internet, especially if sponsored by government, academic and non-profit agencies. Useful information such as clinical guidance and government policy is often available in full and is free to download. Sites such as British Official Publications Collaborative Reader Information Service (www.bopcris.ac.uk), The Stationery Office (www.tso.co.uk) and the Department of Health (www.dh.gov.uk) provide links to government documents.

The National Library for Health (www.library.nhs.uk) gathers guidelines, standards and sources of evidence, as do NHS sites from home nations, for example, Health of Wales Information Service (HOWIS) (www.wales.nhs.uk) and Scottish Health on the Web (www.show.scot.nhs.uk).

The Office of National Statistics publishes data on health and social conditions in the UK online (www.statistics.gov.uk).

Because anyone is able to put information on the internet, you therefore need to be careful when evaluating sites. There are good web portals, such as Intute (www.intute.ac.uk), which serve as gateways. They provide links to sites reviewed by subject specialists.

CREATING A SEARCH STRATEGY

A search strategy is a well thought-out plan to search for information. It is particularly important when using electronic citation databases, for example CINAHL, BNI,

BOX 2. EXAMPLE OF A CHART FOR RESEARCHING HANDWASHING COMPLIANCE BY NURSES

Handwash*	Complian*	Nurs*
Hand wash*	Non-complian*	
Hand hygiene		

Medline or ASSIA, because it keeps you focused on your topic and within the boundaries of what you want to search.

Key words and phrases

Your search strategy will break your research question into keywords or phrases. These are very important to a successful search, so it is often a good idea to 'think around' a topic as much as possible to identify useful terms.

Many people find it constructive to create a chart with the keywords and any synonyms or similar terms. You can also truncate your words or insert wild cards to expand your search (Box 1).

Some nursing and medical terms are spelt differently in the US and the UK, so it is best to include both spellings.

Box 2 provides an example of a chart used in a search for research on handwashing compliance by nurses.

PUTTING TERMS TOGETHER

Now that you have your terms along with their synonyms, truncations and wild cards, you can start putting them together.

'Boolean logic' is a system for refining searches by combining terms with the words AND, OR, NOT.

AND

Narrows your search by ensuring that all your terms appear in each article.
Example: handwash* AND complian* AND nurs* would call up articles that relate to handwashing and compliance and nursing – including all the variations of the truncated words.

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OR

Broadens your search by allowing any of the terms to show up in an article. It is also useful for linking together synonyms.
Example: handwash* OR hand wash* OR hand hygiene would bring back all articles containing either handwashing or any of its synonyms.

If you are combining one or more sets of synonyms with other terms, you must enclose each set in brackets. Example: (handwash* OR hand wash* OR hand hygiene) AND (complian* OR non-complian*) AND nurs*.

NOT

Narrows your search by eliminating a term from your search.
Example: handwash* NOT 'alcohol gel' would bring back articles on handwashing, but not articles on handwashing that mention alcohol gels.

Phrases

Phrase searching will help you if you are looking for a specific phrase or title. You need to put the phrase in quotation marks.
Example: 'NHS Code of Practice'.

CRITIQUING TOOLS

Being able to critique a paper or a website is an important skill. Many published papers have gone through peer review but it is always important for you to do your own critiquing to determine the quality of the article and its relevance to your research.

There are various tools to help you critique a paper. For example, the Critical Appraisal Skills Programme (CASP) from the Public Health Resources Unit in the NHS produces a number of checklists to help you to make sense of different types of research including:
● Qualitative research;
● Randomised controlled trials;
● Economic evaluation studies;
● Cohort studies;
● Case control studies;
● Diagnostic test studies.

REFERENCES

British Official Publications Collaborative Reader Information Service
www.bopcris.ac.uk

Critical Appraisal Skills Programme
www.phru.nhs.uk/Pages/PHD/CASP.htm

DISCERN
www.discern.org.uk/index.php

Health of Wales Information Service
www.wales.nhs.uk

Intute
www.intute.ac.uk

National Library for Health
www.library.nhs.uk

The Office of National Statistics
www.statistics.gov.uk

Scottish Health on the Web
www.show.scot.nhs.uk

These tools can be downloaded as PDFs from the CASP website and are available free for personal use.

Other checklists for critiquing a website are available. One is the DISCERN questionnaire (www.discern.org.uk/index.php), which assesses the quality of written information on treatment choices.

KEY POINTS

A well-designed literature search will include the following:
● A research question that will provide keywords and phrases to begin creating a search strategy.
● Your search strategy will include keywords and synonyms, along with truncated words and wild cards. You will also apply limits, such as language or publication years.

There are many resources that you can use to search for information, including print and electronic resources. All literature should be critically appraised to determine its quality and relevance.

Librarians at local public, academic and health libraries can be a valuable source of information and support. They can advise you on the databases, journals and books that are available to help answer your question and how to search them. ■