Get set for the net

Searching PubMed and other databases

Vasumathi Sriganesh
Director, Q Med Services Pvt. Ltd., Mumbai, India

Address for correspondence: A-3, Shubham Centre, Cardinal Gracious Road, Chakala, Andheri East, Mumbai - 400099, India.
E-mail: vasu@qmedin.com

The introductory article of this series[1] covered how to browse the best of dermatology websites. This article focuses on retrieval of dermatology information from the internet.

IMPROVING SEARCH CAPABILITIES

While searching for information on the internet, you could search for information from
• one single web-page or website,
• the internet in general
• one single database,
• a group of databases

It is important to be able to verbalize or define your search query so that you know whether your quest is for quick and brief information, or detailed research or whether it lies in-between the spectrum. It is important to have knowledge of different types of resources and tools available for searching for information. You should also know what the resources cover, what they do not cover, their special features if any, their arrangement, and weaknesses - if any.

SEARCHING WITHIN A WEB-PAGE OR SITE

If you are browsing a very long web page, it is difficult to find a piece of information you are looking for. Use your browser’s Edit/Find feature. In the tool bar, click ‘Edit’, then ‘Find’. A search box will appear. Type in a word or phrase you are looking for. Click ‘Search’. You will find whatever you are looking for.

To locate information in a website, use the “Search” feature. Some websites have the Search box in every page. In some, you need to click on the ‘Search’ icon, for the box to appear. Type in the word / phrase you are looking for. You will get a search results page with headings and usually the first 2 or 3 lines of text that follow. The headings have links to take you to the appropriate page if you click on it.

SEARCHING THE NET

Improving your Google search
Google is one of the most popular search engines. Most often people do a simple search, by keying in a term or more in the search box. However it is a good idea to go one step ahead and learn some of the advanced features available at http://www.google.co.in/help/features.html For instance, in the advanced search options you can specify one or more of the following:
1. Your keyword should appear in the title of the website
2. The URL should contain the word / phrase
3. You want to search for a term only in a particular...
Learning these features is fairly easy and you can save a lot of time lost in wading through loads of information. You can also type in a keyword and then click on Images or News, to retrieve images or news items on the same. The news and images areas have advanced features too – and learning these helps shorten your search process. However one must remember that general search engines like Google also retrieve information from non-peer-reviewed sources, and hence each resource needs to be evaluated carefully.

MEDICAL SEARCH ENGINES AND DATABASES

Medical World Search
Medical World Search at www.mwsearch.com is a special search engine dedicated only to searching medical websites. A team of people select sites based on specific criteria, and then these sites are indexed. Subscription to MW Search is about $25 per year.

PubMed
PubMed – available at www.pubmed.gov is one of the oldest medical indexes. It is an index to medical journal articles. The process of indexing began in the 1950s and the print edition was known as Index Medicus. PubMed is updated daily and covers articles published from 1950 to present. Currently the database contains more than 15 million records. It is published by the National Library of Medicine, USA, and hence the focus is very strongly on American journals. However it also includes many non-English journals. Abstracts are available for about 70% of articles, and even abstracts of foreign language articles are in English.

What PubMed does not cover / provide
PubMed by itself does not offer the complete article, as the copyrights to each article are owned by the respective journal's publisher. Do note that most of the full text articles are available on payment only. However there are many articles that are available free to the whole world, and many that are free to readers in developing countries.

It is important to note that not all fields in PubMed are searchable. For instance every article is indexed by its country of publication. But one cannot search for articles using this parameter; in other words one cannot search for articles on acne published in Indian journals only.

PubMed indexing and MeSH terms
The print version – Index Medicus, provided author and subject indexes only for all journals. The electronic version – PubMed can be searched by several fields like author, journal title, article title, page number etc. (Figure 1). However the most important feature is the subject index. Every article is assigned one or more "Medical Subject Headings" or MeSH terms. MeSH terms are taken from a standardized thesaurus maintained by the National Library of Medicine and this thesaurus is updated every year. These terms, assigned, both by computerized systems as well as human indexers describe the coverage of every reference in PubMed.

Tips on searching PubMed
PubMed could retrieve huge numbers of records for your search. To make your search more meaningful, follow some simple tips. First define your query well. Example of a good query is: effectiveness of tacrolimus in contact dermatitis. Identify the key terms in your query. The key terms are tacrolimus and contact dermatitis. However typing just these key terms in the search box may give more references than you would want.

To focus your query, in the PubMed search box, type in tacrolimus[ti] AND contact dermatitis[ti]. This means you want references where both terms appear in the title. These will obviously be highly relevant. If you get too few, then you could try tacrolimus[tiab] AND contact dermatitis[tiab]. This means you want the terms to appear in either the title or abstract or both. You could get more references this way. The most relevant references would appear when you search for the terms with the MeSH qualifier - which means you want articles
indexed with the MeSH terms that describe the article. So type in tacrolimus[mh] AND contact dermatitis[mh].

It is best to search using MeSH because such a search will retrieve all articles about your terms, and not articles only containing these terms (these may be about something else, but may contain your term in another context). Moreover, if an article does not have your term/s in the title, and it does not have an abstract, you will still retrieve it because it is assigned the MeSH term after indexers have read the entire article and have determined that the article is about your search term.

What happens if you retrieve too many articles by searching for terms using MeSH. For example, if you want to search for articles on treatment of contact dermatitis, then type contact dermatitis[mh] AND treatment[ti]. You still get too many references. Now try contact dermatitis[major] AND treatment[ti]. When you restrict a MeSH term to major, you are retrieving more focused articles. Once you have a manageable number, you can limit your search by different parameters, by going to the Limits page in PubMed. You can choose to get only articles with abstracts, restricted to age groups, gender, language etc.

EMBASE (EXCERPTA MEDICA)

Embase (print version - Excerpta Medica) is very similar to PubMed, in that it is an abstracting and indexing database covering medical journal articles. It is produced by a commercial publisher, has stronger coverage of European journals beginning from 1974. Indexing is more in depth. Embase is not available free; one has to pay right from the moment one connects to the database, and you pay for the time you are connected, and the number of citations you download. It generally works out to about $2 per abstract.

RESEARCH INFORMATION

When searching for information for any major objectives - example writing a thesis, a book, a book-chapter, a journal article, a systematic review or for treating patients, then the literature search and review needs to be a very thorough process. The descending order of importance of types of studies that are published are as follows: randomized controlled trials (RCTs), other clinical trials (controlled clinical trials, and trials of phase I-IV), case control studies, case studies, animal studies and laboratory studies. While writing a book or a thesis, one needs practically every type of study. However, when treating a patient, you need only...
Evidence based literature - and this is retrieved by limiting your search to RCTs, controlled trials and other large studies.

**EVIDENCE BASED RESOURCES**

**Cochrane database of systematic reviews**
Available at - http://www.mrw.interscience.wiley.com/cochrane/cochrane_clsysrev_articles_fs.html

Systematic reviews in this database are prepared by experts in respective fields. These reviews are prepared after a thorough literature review of several randomized controlled trials and similar publications. The reviewers also do a hand-search (not computerized) of several journals not indexed in select databases. The entire process of reviewing the literature and preparing a Cochrane review follows a well-laid methodology which includes contacting authors for clarifications if there is any ambiguity in any article. Thus Cochrane Reviews are considered to be very dependable sources of evidence. These publications began in the year 1992, and several topics are still not covered; hence one has to go to resources like PubMed and Embase, when a systematic review is not available in Cochrane. Cochrane abstracts are free, but full reviews cost £10 each.

**EBM Online**
Available at http://ebm.bmjournals.com/, EBM Online is a bimonthly publication by the BMJ group. Again this publication started in the year 2000, and hence you may not retrieve clinical studies in all topics of interest. EBM Online is free to developing countries including India.

**Upto Date**
Available at www.uptodate.com, *UpToDate* is a subscription-based clinical information resource available to physicians. Topic reviews are written exclusively for *UpToDate* by physicians- nearly 3,000 physicians serve as authors. The reviews go through an extensive peer review process to ensure that the information and recommendations are accurate and reliable. Dermatology is not covered as a discipline by itself but is available under different areas (eg – Rheumatology / SLE). For a list of sample reviews check out http://www.uptodate.com/topics/index.asp

Searching for information on the internet is akin to searching for information in a library. It is worth spending some time to learn effective search methods, and understanding the scope and arrangement of such databases to exploit them to the best and retrieve highly relevant and useful information.

**REFERENCES**