Searching for biomedical information on the internet

Scientific Institute of Public Health, Epidemiology Unit
S. DRIESKENS
Searching for biomedical information on the Internet
I. Introduction

Internet facilitates the access to worldwide information. But from the moment you explore it, you will notice that you can lose yourself in it, because you spend hours on inessential and insignificant things before you find some useful texts.

The knowledge about the origin of the text, about the validity of the information of a site, about the owners and about the updating is indispensable to judge about the quality of the information. Therefore, it is necessary to learn how and who draws up the site, to verify the credibility, how to surf to a certain site without losing yourself in inessentials.

By searching information on the Internet, you have to keep in mind 2 principles:

1. access is easier to near information: search first on the server of your city or institute, next on the server of your country and finally on the one of the world.

2. knowledge is slowly acquired: you only get the skill by practicing a lot!

You can save the most interesting and useful URLs (Uniform Resource Locators) in Favorites (Internet Explorer) or Bookmarks (Netscape). URLs are short strings that identify resources in the web: documents, images, downloadable files, services, electronic mailboxes, and other resources. They make resources available under a variety of naming schemes and access methods such as HTTP, FTP, and Internet mail addressable in the same simple way.
II. Methods of tracing information on the Internet

1. Alert

Be **attentive** for announcements of new URLs.

2. Exchange

Exchange of URLs between colleagues, friends,...

3. Guess

You can sometimes **guess** an URL: many organisations do use a simple URL, which refer to there name.

http://www.vig.be/

Universities often have the extension "ac" which stands for academic:

http://www.vub.ac.be/
http://www.ucl.ac.be/
http://www.oxford.ac.uk/ ==> http://www.ox.ac.uk/ (direct link to the right URL)

Each country has its own extension:

http://www.cbs.nl/ (Centraal Bureau voor de Statistiek in Nederland)
http://www.who.dk/ (World Health Organization in Europe- Danmark)

It is important to know the meaning of an extension. Commercial sites often have the extension "com" or "org"; the extension for governmental organisation is "gov".

http://www.whitehouse.gov/
4. Major organizations

Connecting to sites of major organisations such as our Federal Government - Department Health, CDC, WHO and NIH can lead you directly to what you are looking for. These sites can be trusted to provide reliable information.

- Federal Government - Department Health
  

- CDC (Centre for Disease Control and Prevention) for information on chronic diseases and injuries, as well as guidelines on prevention, data on travellers health and full text access to the *Morbidity and Mortality Weekly Reports*.
  
• WHO (World Health Organization - international) for statistical material and a global perspective on health.

http://www.who.int/

• NIH (National Institutes of Health) for a wealth of information ranging from CancerNet to research and training programs.

http://www.nih.gov/
5. Internet clubs

There are many community servers which attempt to gather together information in a given subject field. PharmWeb is an information database and a directory of pharmacy information resources from the University of Manchester.

http://www.pharmweb.net/

6. Internet subject lists

There are countless directories of Internet resources, which are easy to use: you can browse the subject sections of these lists and many lists have a search facility. Subject lists are selective and some make a serious attempt at evaluating the quality of Internet resources. OMNI (Organising Medical Networked Information) is one of the best UK subject lists, covering medicine, biomedicine, allied health, health management and related topics.

http://www.omni.ac.uk/
7. Internet search engines

There are a large number of Internet search engines. Search engines are not always the best tools. They look easy to use, but most Internet surfers do not know how to get the best of them. Search engines work best with specific queries that are unambiguous or which can be reduced to a phrase. For the best results, use the search engine help screen, which will tell you how to formulate your search to cut down on the number of hits. Search engine databases are generally arbitrary (at random) about their contents because robots compile them.

The most known Internet search engines are:

- Alta Vista  

- Yahoo!  

- Lycos  
  [http://www.fr.lycos.de/](http://www.fr.lycos.de/)

- InfoSeek  

- HotBot  

- Google  
8. Electronic reporting system: ProMED-mail

ProMED-mail, the Program for Monitoring Emerging Diseases, is a program of the International Society for Infectious Diseases. It is a global electronic reporting system for outbreaks of emerging infectious diseases and toxins, open to all sources.

- ProMED-mail [http://www.promedmail.org/](http://www.promedmail.org/)
III. Sources

1. Bibliographic databases

A large number of organisations allow free, unrestricted Internet access to Medline and to other bibliographic databases. These databases contain the full citation and the abstract of an article. The downside is that free bibliographic databases on the Internet do not usually benefit from the sophisticated search engines found on expensive CD-rom. The free Medline of the National Library of Medicine is provided with two search interfaces:

- PubMed
  

- Internet Grateful Med (IGM): On this site, there are different databases to select for a search, including PubMed.

  http://igm.nlm.nih.gov/
• IPH-Library: For the moment is the website of the library of the Institute of Public Health only available on Intranet, this means only for the members of the Institute, but possibly real soon on Internet. One can consult the current periodicals, the acquisitions, IPH-reports, the digital library,... The IPH Library Staff is always willing to help finding some information.

http://www.intranet.iph.fgov.be/biblio.index.htm

2. Electronic journals

More and more journals are now available on the Internet, and you can find them in numerous lists. Free access commonly extends to tables of contents - sometimes well in advance of publication - as well as abstracts of major papers, but access to full-text is usually available on subscription or on a pay-per-view basis.

• PubList

http://www.publist.com/
• PubMed Central gives free online access to the full text of life science research articles. It acts as a repository for peer-reviewed primary research in the life sciences, which began accepting journal articles in January 2000.

http://www.pubmedcentral.nih.gov/

• KULeuven

http://www.kuleuven.ac.be/
Electronic Health Sciences Journal: This directory is administered by the Health Libraries Section of the Australian Library and Information Association. It provides information on the electronic version of key English language peer-reviewed print journals in clinical medicine, biomedical research, nursing and allied health. By working through the AZ listing on the homepage, determine if electronic versions of a journal exist. Each journal title found will have a corresponding detailed information table (see "How to use the Directory"). The Free Journal List includes all titles, which are categorized as Free or Free trial access, and contains either full-text or partial full-text content. Titles from this list will generally require some sort of online registration, and the use of passwords to control access.

http://www.med.monash.edu.au/shcnlib/dehsj/

There is an increasing number of journals which only exist in electronic form, e.g. EID - Emerging Infectious Diseases), a peer-reviewed journal published by the CDC.

http://www.cdc.gov/ncidod/eid/
3. Books on the Internet

Not many books on the Internet are free. For obvious copyright and economic reasons, not many books are published full-text on the Internet.

Tracing books is becoming easier and easier. Publishers’ lists and library catalogues are increasingly available on the Internet:

- **NLM LOCATOR Plus**: the US National Library of Medicine’s online catalogue system
  

- **OPAC 97**: the holding of the major Reference and Document Supply collections of the British Library
  
  [http://opac97.bl.uk/](http://opac97.bl.uk/)
4. Mailing lists

One of the benefits of Internet connectivity is the ability to form networks among colleagues by means of electronic mails. **Mailing lists** (or discussion groups, listservs) provide a way of communication between people who share information about a specific subject. Many **newsgroups** are available on USENET. Anyone can read or post messages to the newsgroup, so the quality of information varies considerably from group to group.

http://www.epibiostat.ucsf.edu/epidem/epidem.html

5. Continuing education

Many institutes of higher education publish programmes of continuing medical education (CME), some are totally Internet-based. All teaching for the course takes place on the Internet. The students give regularly work assignments, self-assessment exercises and tutorials by e-mail. Most of them are not free of charge.

- Continuing medical education

http://www.cme.wisc.edu/index.html
6. Non-bibliographic databases

There are countless numbers of non-bibliographic databases on the Internet. Many of them take advantage of the multimedia capabilities of the Web.

For example: The National Institute Drug Information 3D database is a collection of 3D structures for over 400,000 drugs.

http://dtp.nci.nih.gov/docs/3d_database/dis3d.html
7. Medical information

A group of the ULB named GRAS, which stands for Groupe de Recherche et d'Action pour la Santé, has created a website with medical information and their quality. The target population of this site are the General Practitioners (GPs). The main purpose is to guide them in the discovery of the Internet: how to use the tools, what are the limitations, the valuable sites and to exercise the critical sense.

http://www.ulb.ac.be/esp/gras/web-crit2.html

Other interesting sites:

Health On the Net (HON): http://www.hon.ch/
IV. How to use Medline

PubMed is the National Library of Medicine's search service that provides free access to over 11 million citations in MEDLINE, PreMEDLINE, and other related databases, with links to participating online journals.

http://omni.ac.uk/medline/

Search instructions based on an example:

- Search for: colorectal cancer ==> 63,250 items
- When you look at DETAILS, then you will see that you have searched for colorectal as a Text Word as well as for the MeSH term colorectal neoplasms.

Researchers need to be beware of misspelt text words within Medline and to realise the importance of using both MeSH headings and text word in any systematic literature search. Search with MeSH terms give comparatively better results. A more elaborate analysis of these results shows that the references which are not indexed with MeSH terms are the least relevant.
- Click on the CLEAR button to erase what is in the search box, then click on PREVIEW/INDEX. Pull down the menu of ALL FIELDS to select “MeSH Terms”, type “colorectal cancer” in the box next to it and click on INDEX. Scroll down the list and click on the MeSH Term “colorectal neoplasms/diet therapy” to highlight it. Finally click on the AND button to add your selection to the search box.

- Now click on LIMITS, select “Middle Aged: 45-64 years” from the AGES box and then click on GO ==> 98 Items

- Finally, click on the History link to see what your search history looks like.
V. Reference manager

It is possible with Reference Manager version 9.0 to search references on the Internet. You can make a selection of the useful references and copy them to your database.
VI. Bibliography

Training course "Biomedical information on the Internet" in the British Library, London 18 July 2000 taught by Alain Besson.

Coordinates:

1. Maureen Heath
   The British Library
   RS&CD Marketing
   96 Euston Road
   London NW1 2DB
   Tel: 020 7412 7470
   Fax: 020 7412 7947
   E-mail: maureen.heath@bl.uk

2. Alain Besson
   Medical Systems Librarian
   St Bartholomew's and the Royal London School of Medicine and Dentistry
   Whitechapel Library
   Turner Street
   London E1 2AD
   Tel: 020 7882 7121
   Fax: 020 7882 7113
   E-mail: a.besson@mds.qmw.ac.uk

MeSH terms must be used in Medline searches.

By M. Clarcke
BMJ 1997 Apr 19; 314 (7088): 1203

http://www.bmj.com/full/314/7088/1203/a