Part 1: medical resources

Introduction

The publication and circulation of many medical journals each year provides the reader with up-to-date information and thereby improves communication of key messages. Without a way of critically appraising the information they receive, clinicians are relatively helpless in deciding what new information to incorporate into their practice (Anonymous, 1981).

Evidence-based medicine is the process of systematically finding, appraising, and using contemporaneous research findings as the basis for clinical decisions (Rosenberg and Donald, 1995). The interest in evidence-based medicine in clinical practice has become widespread in the last three decades.

This first of three articles discusses how to obtain and access medical resources. This enables the clinician to locate the relevant journals in their area of specialty quickly and easily.

Where to look

The internet is a vast sea of knowledge. Where to locate the information is more problematic. Several search engines are aimed at providing access to medical/scientific journals.

PubMed

PubMed (www.pubmed.gov) was developed by the National Centre for Biotechnology Information (NCBI) at the National Library of Medicine (NLM), located at the US National Institutes of Health (NIH). Direct links to full text articles is sometimes available but there may be a charge to access the information or an Athens password may be required, e.g. journals provided by PubMed Central.

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The search toolbar aids the researcher when selecting the appropriate research material, requiring either the title of the article, author or keyword.

PubMed coverage also includes OLDMedline (citations pre-1966), Medline and many other life science journals.

Medline

This is the primary component of PubMed. It includes citations back to 1966 from approximately 4800 worldwide journals currently in 30 languages and 40 languages for older journals. The subject scope of Medline is health and biomedicine, focused at health professionals and others engaged in basic research and clinical care, public health, health policy development or related educational activities.

The result of a Medline/PubMed search is a list of citations (including authors, title, source, and often an abstract) to journal articles and an indication of free electronic full-text availability. Searching is free of charge and does not require registration. For those articles that are not freely available, links to publishing sites are often available. Registration is required and local fees may apply for this service.

Google Scholar

Google Scholar (www.scholar.google.com) provides a simple way to search for scholarly literature. Using one search engine, peer-reviewed papers, theses, books, abstracts and articles are available with the most relevant results shown first. The literature is ranked according to the content of the article, the author, the publication in which the article appears and how often it has been cited in other published papers.

Public Library of Science

Public Library of Science (PLOS) (www.plos.org) is a US web site operated by scientists and physicians, 'committed to make the world's scientific and medical literature a public resource'. The latest scientific research is available via open access (unrestricted use, distribution and reproduction of material if properly cited). The site

Table 1. Examples of different searches found with various search engines

Typical examples of a search for pseudomyxoma peritonei	
Search engine	Result
PubMed	Management of an unexpected appendiceal neoplasm (Murphy et al, 2006)
Google Scholar	Pseudomyxoma peritonei. Long-term patient survival with an aggressive regional approach (Gough et al, 1994)
Public Library of Science	No searches found
Scirus	Pelican Cancer Foundation – Psuedomyxoma peritonei (Pelican cancer, 2006)
Scopus	An unusual inguino-scrotal presentation of disseminated peritoneal adenomucinosis (Novara et al, 2006)

commends itself on a strict, rigorous editorial process to ensure only work of the highest scientific quality and accuracy is available. It encourages work from every nation to assure international breadth, engaging a diverse group of editors from all over the world.

Scirus

Scirus (www.scirus.com) is a search engine, which focuses only on web pages containing science content. It searches more than 250 million science-related pages and filters out information not relevant. For example if one types in the word REM, Google locates the music group while Scirus focuses on literature related to sleep.

Scopus

Scopus (www.scopus.com) prides itself on being the largest abstract and citation database. It is a US-based and run web site designed to support scientists and researchers to find the relevant scientific/clinical information. It includes 28 million abstracts and results from 200 million scientific web pages. Subject areas include, general science, mathematics, life/health sciences, social sciences, psychology, engineering and environmental science. An alert feature can keep the researcher up-to-date on new articles matching their search inquiry or work by their favourite authors. It can also notify you when an article you specify is cited by another paper by sending an email directly.

As an editor of a journal, you can locate and evaluate authors and referees for review articles and observe other papers in that field. As a researcher, you can discover how many people are citing you, investigate work being completed by other authors and uncover relevant and important articles otherwise missed.

Scopus is accessible at most campus constituents and research institutes.

Table 1 demonstrates the variations between the search engines discussed above. By typing in 'Pseudomyxoma peritonei' the different search engines highlight a diverse selection of web sites.

Athens password

Athens is a nationwide authentication system, which was introduced because of the proliferating rate of electronic resources.

Access to some electronic journals and other bibliographic resources is restricted to certain groups. There is no cost for this but an Athens password is required for full access. NHS Athens personal accounts are available to individuals working within the NHS family. The term NHS family is used to describe employees who work for, deliver services on behalf of, or work in conjunction with, the NHS (National electronic Library for Health, 2006). Athens passwords are also available to students, researchers and scientists working in a known institution.

Conclusions

Commencing research can be stressful and overwhelming. Once a subject is chosen, locating the information is easy when you know how.

This short article has sought to provide insight and guidance into this process. Each of the search engines described demonstrates a diverse approach to finding the necessary resources. They are all simple to use and provide a beneficial launch pad to instigate a successful project. BJHM

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Anonymous (1981) Department of Clinical Epidemiology and Biostatistics. How to read clinical journals: I. why to read them and how to start reading them critically. *Can Med Assoc J* **124**(5): 555–8

Gough DB, Donohue JH, Schutt AJ et al (1994) Pseudomyxoma peritonei – Long-term patient survival with an aggressive regional approach. *Ann Surg* **219**(2): 112–19

Murphy EM, Farquharson SM, Moran BJ (2006) Management of an unexpected appendiceal neoplasm. *Br J Surg* **93**(7): 783–92

National electronic Library for Health (2006) Using NeLH and NHS Core Content. http://www.nelh.nhs.uk. Accessed 8 July 2006

Novara G, Ficarra V, Al Rabi N, Baldassare R, Artbani W (2006) An unusual inguino-scrotal presentation of disseminated peritoneal adenomucinosis. *Urol Int* **76**(2): 189–91

Pelican Cancer (2006) www.pelicancancer.org/cancercare/pseudomyxomaperitonei/pseudomyxomaperitonei.html. Accessed 2 August 2006

Rosenberg W, Donald A (1995) Evidence based medicine: an approach to clinical problem solving. *BMJ* **310:** 1122–6

KEY POINTS

- Evidence-based medicine is the process of systematically finding, appraising, and using contemporaneous research findings as the basis for clinical decisions.
- Evidence alone is insufficient. Combining and integrating individual clinical expertise with the best available external clinical evidence from systematic research ensures optimum outcome.
- Knowledge of where and how to locate relevant information is essential when instigating a new project.
- The internet is the modern resource to obtain the majority of medical resources. Search engines can direct the user into accessing the most useful medical/scientific journals.
- Athens passwords are essential when retrieving many electronic journals. Discuss availability of this system with the librarians in individual institutions.