

Selected Web Resources on Medical Sciences

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ABSTRACT

Web is becoming a major source of health information also. Computer networks in general and the Internet in particular are likely to play more important roles in many aspects of medicine in the future. But for the healthcare professional and the health consumer, accessing accurate information on the web is not easy. There is a growing supply of medical resources for teaching and learning available on the world wide web. Most large medical centres have put information on public domain and some large organisations, such as the National Institutes of Health, have extensive databases and services that can be used by medical researchers, clinicians, and educators. This paper makes an effort to list the selected web resources on medical sciences which are useful for learning, teaching, patient care and research activities of the medical institution.

Keywords: Web resources, medical sciences, medical information, medical libraries.

1. INTRODUCTION

Advances in telecommunications technology have fostered the development of computer networks that allow access to vast amounts of information and services. Of the many computer networks that have been developed, the most prominent is the Internet. The amount of information available on the Internet is already enormous. There is an explosion of literature on medical sciences on the Internet also.

Today, the medical literature is confronted with proliferation of knowledge with the exponential growth of information, eruption of new journals and electronic databases. The target recipients of health information are broadly grouped into five main categories; "researchers, teachers and students, health care workers, health administrators, and planners and the public". Medical information is mainly served for

creating awareness among common people about health, for providing better medical service through improved patient care and teaching, and for research and planning purpose. The web resources have revolutionised the delivery of medical information.

Medical libraries play a central role in information dissemination for their institutions by selecting the most useful and authoritative biomedical publications and making them available to faculty, students, and staff to support patient care, research, and education. Over the last two decades, changes in technology have transformed the way biomedical information is created, communicated and accessed. From their desktops using a web browser and an Internet connection, medical professionals now have access to data that include thousands of electronic journals and hundreds of electronic books. Many medical libraries have set up remote access to their collections, allowing

medical professionals to use online resources from their campus office, hospital workstations, and off-campus computers, whether the physical library is open or closed.

2. OBJECTIVE OF THE STUDY

The main objectives of the study are:

- ✘ To list the selected web resources available on medical sciences, which are useful for learning, teaching, patient care and research activities.
- ✘ To identify bibliographical and full-text databases, open access journals and drug information databases.
- ✘ To provide information on the selected web resources on medical sciences.

3. METHODOLOGY

The methodology employed in this study is review of literature to know the various web resources available on medical sciences. Review of databases helped to list the selected web resources, which may be beneficial for doctors, and medical students and faculty. Medical students and faculty members of Kasturba Medical College, Manipal, and Kasturba Medical College, Mangalore as well as literature review helped in selecting the web resources. Discussions with faculty members, health professionals and postgraduate students of these medical colleges helped in finalising the list of selected web resources on medical sciences.

4. SELECTED WEB RESOURCES ON MEDICAL SCIENCES

Following are some of the selected bibliographical and full-text databases, open access journals and drug information databases for medical science users for their teaching and learning activities. These resources are starting points for librarians and for the general public searching for health-related information.

4.1 Bibliographical Databases

4.1.1 PubMed

PubMed(<http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?tool=cdl&otool=cdlotool>), a service of the US National Library of Medicine (NLM) includes over 16 million citations from MEDLINE and other life science journals dating back to the 1950s. PubMed includes links to full-text articles and other related resources and provide access to citations

from MEDLINE, PreMEDLINE, other journals in the field of medicine and life sciences, and links to NCBI's (National Centre for Biotechnology Information) integrated molecular biology databases including nucleotide sequences, protein sequences, 3-D protein structure data, population study data sets, and assemblies of complete genomes in an integrated system.

4.1.2 Embase.com

Embase.com (<http://www.embase.com/>) is an integrated web-based service providing access to current, comprehensive and validated biomedical and pharmacological information. It provides:

- ✘ Comprehensive, timely access to pharmacological, biomedical literature
- ✘ More than 18 million records
- ✘ More than 11 million Embase records from 1974 and more than 7 million unique Medline records from 1966 till date
- ✘ The most current version of Embase available with records online on average within 10 working days
- ✘ Daily updates with more than 2,000 records added every working day
- ✘ More than 600,000 records added annually
- ✘ More than 7,000 journals from over 70 countries indexed; close to 2,000 more journals than covered by Embase or Medline individually
- ✘ Comprehensive international coverage
- ✘ Easy-to-use interface
- ✘ Select search options that best matches users requirement include forms, quick search, advanced search, field search, drug search, disease search, and article search
- ✘ Organise searches or entire sessions into named folders for future use
- ✘ Navigate from citations to full text from the world's leading Science, Technical and Medical publishers including: Elsevier Science Direct (including Cell Press), SpringerLink, KargerOnline, Thieme-connect and CrossRef (via DOI).

4.1.3 BIOSIS Previews

BIOSIS Previews (<http://scientific.thomson.com/products/bp/>), one of the leading abstracting and indexing databases in the life sciences, serves the

need for finding extensive research into the life sciences and biomedical sciences literature through complete coverage of traditional biology, interdisciplinary subjects, and related areas. Researchers, librarians, and students worldwide use BIOSIS Previews to stay current on topics from botany to genetic engineering. BIOSIS Previews currently contains almost 15 million citations from 1969 onwards, adding some 5,60,000 new citations each year from over 5,500 sources. BIOSIS Previews on ScienceDirect is updated weekly. Over 90 per cent of records include author-written abstracts.

4.1.4 Scopus

Scopus (<http://www.scopus.com/scopus/home.url>) is the largest abstract and citation database of research literature and quality web sources. It is designed to find the information scientists need. Quick, easy and comprehensive, Scopus provides superior support of the literature research process. Scopus offers over 15,000 peer-reviewed titles from more than 4,000 publishers, 500 open access journals, 700 conference proceedings, 600 trade publications, 29 million abstracts, 265 million references, added to all abstracts, Results from 265 million scientific web pages, 18 million patent records from 4 patent offices, seamless links to full-text articles and other library resources, innovative tools that give an at-a-glance overview of search results and refine them to the most relevant hits, alerts to keep users up-to-date on new articles matching their search query, or by favourite author.

4.1.5 Cancerlit

Cancerlit (http://www.cancer.gov/search/cancer_literature/) is a bibliographic database that contains more than 1.8 million citations and abstracts from over 4,000 different sources including biomedical journals, proceedings, books, reports, and doctoral theses. The database contains references to cancer literature published since 1960s.

4.1.6 IndMed

The ICMR-NIC Centre for Biomedical Information (Indian MEDLARS Centre) has designed and developed a bibliographic database (<http://indmed.nic.in/>) from Indian biomedical literature. To start with 75 prominent Indian journals have been selected to build up the database entitled IndMed. The coverage of database is from 1985. IndMed database covers prominent peer-reviewed Indian biomedical journals. Database is designed to provide medical professionals/researchers/students and the medical library professional quick and easy access to Indian literature.

4.1.7 Union Catalogue of Biomedical Serials in India

Union Catalogue of Biomedical Periodicals (<http://uncat.nic.in/>) has been compiled by India Medical Council. The catalogue is a database of the Serials holdings of major medical libraries in the country and serves as an important information tool for locating journals of interest in any library in India. The database of 180 libraries is regularly updated and can be accessed by users free of cost.

4.2 Full-Text Databases

4.2.1 ScienceDirect

ScienceDirect (www.sciencedirect.com) is one of the largest online collections of published scientific research in the world. Elsevier's full-text platform, ScienceDirect, now offers over a quarter of the world's STM articles integrated with a growing range of authoritative books, including reference works, handbooks and book series. More than 2,000 journals and hundreds of books from Elsevier Science including prestigious titles such as *The Lancet*, *Cell*, *Tetrahedron Letters*, the *Handbooks in Economics Series* and the *International Encyclopedia of the Social and Behavioural Sciences* are available on ScienceDirect. Its Backfiles program also offers the ability to search an electronic archive of millions of articles, back to Volume 1, Issue 1.

4.2.2 MDConsult

MDConsult (www.mdconsult.com) brings the leading medical resources together into one integrated online service to help physicians efficiently find answers to pressing clinical questions and make better treatment decisions.

A service of Elsevier, a world leader in health care and medical science publishing, MDConsult operates a family of electronic information resources that meet the clinical content needs of physicians and other health care professionals. MDConsult was founded in 1997 through a unique venture of the world's leading medical publishers that included Mosby and W.B. Saunders. Elsevier's flagship online product, the MDConsult Core Service, quickly earned acclaim for its select content offering and intelligent design. A favourite of primary care physicians and specialists alike, MDConsult now serves over 2,80,000 users and is licensed by more than 1,700 health care organizations worldwide, including nearly 95 per cent of the US medical schools. Subscribers search extensive contents 1.5 million times per month and view more than eight million pages of

clinical contents, primarily during daytime practice hours. MDConsult is designed to meet the exacting needs of clinical practitioners, providing practical and time-saving features that let them quickly access the precise information they need. It provides:

- ✂ The complete text of over 50 leading medical reference books. Users can search the entire collection simultaneously to pinpoint the specific information needed. Also, available is over 50,000 high-quality images
- ✂ Full-text articles are available through a powerful search engine that includes the complete contents of over 80 journals and Clinics of North America articles
- ✂ Simultaneously search of the full text of MDConsult online journals and millions of Medline abstracts
- ✂ Access to collection of more than 1,000 peer-reviewed practice guidelines, which are regularly updated and organised by topic and organisation for easy browsing
- ✂ Nearly 10,000 customised printable, patient handouts, be with space to add notes, patient instructions, and contact information.

4.2.3 EBSCO

EBSCO (<http://www.epnet.com>; <http://www.ebsco.com>) is a worldwide leader in providing access to information and management solutions through print and electronic journal subscription services, research database development and production, online access to more than 150 databases and thousands of e-journals, a full-featured OpenUrl link resolver, and e-commerce book procurement. EBSCO provide interconnected web-based products and services to allow users seamless access to services from EBSCO's integrated divisions. Through EBSCO host Web interface, users can access full-text databases (such as Biomedical Reference Collection) via EBSCOhost with links to e-journal subscriptions via the EBSCO host Electronic Journals Service. Many secondary databases (such as MEDLINE) are also available via EBSCOhost with links to full-text articles in e-journals. EBSCO host now offers more than 100 databases, including some of the world's best known secondary databases, such as CINAHL, MEDLINE, PsycINFO, SPORTDiscus and many more.

4.2.4 Ovid

Ovid Technologies (<http://www.ovid.com/site/index.jsp>) is an internationally recognised leader of electronic medical, scientific, and academic research information solutions. By providing a customisable

suite of contents, tools and services, Ovid supports the diverse research needs of its 13 million users worldwide academic, medical, corporate professionals, and students seeking fast, accurate answers to important questions. Ovid helps make research smarter, faster, and more effective by providing powerful information search and discovery platforms (Ovid Gateway and SilverPlatter) to access premier electronic content, including a list of 1,200 journals, over 500 books, and more than 200 databases, with innovative technology tools and specialised services to browse, search, retrieve, and analyze critical information. It is used across the globe by librarians, researchers, clinicians and students from leading colleges and universities; medical schools; academic research libraries and library consortia; hospitals and healthcare systems; pharmaceutical, engineering, and biotechnology companies; and HMOs and clinical practices.

4.2.5 ProQuest Medical Library

ProQuest Medical Library (<http://proquest.umi.com/login>) contains full-text articles from more than 600 health science journals, annual reviews, and back volumes. Abstracts and indexing from MEDLINE database are also covered in this database. The journals cover all major health care specialities including Pharmacology, Neurology, Cardiology, Physical Therapy, Dentistry, Nursing and others. Topic-wise and journal-wise search can be made using this database.

4.2.6 PsycARTICLES

PsycARTICLES (<http://psycinfo2.apa.org/psycarticles/>) is an online database containing more than 26,000 entries from 49 peer-reviewed journals published by American Psychological Association and allied organisations since 1988. Full-text articles covered in it are available for price.

4.2.7 MedIND

MedIND (<http://medind.nic.in/>) is a single point resource of peer-reviewed Indian biomedical literature covering full text of IndMED journals. It has been designed to provide quick and easy access through searching or browsing.

4.2.8 Cochrane Library

The Cochrane Library (<http://www3.interscience.wiley.com/cgi-bin/mrwhome/106568753/HOME>) contains high-quality, independent evidence to inform health care decision-making. It includes reliable evidence from Cochrane and other systematic reviews, clinical trials, and more. Cochrane reviews host the combined results of the world's best medical research studies,

and recognised as the gold standard in evidence-based health care. It indexes journal articles, reviews, and bibliographies that provide evidence-based effects of health care, as well as a register of economic evaluations of health care interventions and information on health care technology assessment from seven databases such as the Cochrane Database of Systematic Reviews, Cochrane Controlled Trials Register, and the Database of Abstracts of Reviews of Effectiveness.

5. OPEN ACCESS JOURNALS

5.1 Free Medical Journals.com (<http://www.freemedicaljournals.com/>)

This site provides links to more than 1,300 medical journals available on the Internet for free. This collection of medical journals include materials for the scholarly researcher and for the general public.

5.2 FreeFulltext.com (<http://www.freefulltext.com/>)

FreeFulltext.com provides direct links to over 7,000 scholarly periodicals and some or all of their online content to be viewed by anyone with Internet access for free (though some may require free registration).

5.3 Priory Medical Journals (<http://www.priory.com/>)

Priory Medical Journals and are the world's first web-based medical journals. The first of their medical journals was Psychiatry On-Line. Each medical journal is available free to all. This is an independent set of medical journals devoted to research papers, review papers and other original works.

5.4 Public Library of Science (<http://www.plos.org/>)

Public Library of Science is a non-profit organisation of scientists and physicians committed to making the world's scientific and medical literature a freely available public resource.

5.5 BioMed Central (<http://www.biomedcentral.com/>)

BioMed Central is an independent publishing house committed to providing immediate free access to peer-reviewed biomedical research. All original research articles published by BioMed Central are freely and permanently accessible online immediately upon publication. BioMed Central views open access to research as essential in order to ensure the rapid and efficient communication of research findings.

5.6 Directory of Open Access Journals (<http://www.doaj.org/>)

Directory of Open Access Journals (DOAJ) covers free, full text scientific and scholarly journals. There are now 2618 journals in the directory. Currently 788 journals are searchable at article level. As of today 130014 articles are included in the DOAJ service.

5.7 PubMed Central (<http://www.pubmedcentral.nih.gov/>)

PubMed Central (PMC) is free digital archive of biomedical and life sciences journal of National Institutes of Health (NIH) of the US. Full-text databases of biomedical and life sciences are available through the US National Library of Medicine.

5.8 MEDLARS Databases (<http://www.nlm.nih.gov/databases/>)

Medical Literature Analysis and Retrieval System (MEDLARS) of the National Library of Medicine (NLM), US has over 40 databases. The subjects range from clinical medicine, oncology, population, dentistry, toxicology to nursing. These databases are accessible through the Internet, free of cost. Important amongst these are MEDLINE, AIDSLINE, AIDSDRUGS, AIDSTRIALS, TOXLINE, CANCERLIT, POPLINE, BIOETHICS and Clinical Alerts. MEDLINE, with over 9 million citations from 1966 onwards, can be accessed through NLM's PubMed or NLM Gateway. Specialised Information Services of NLM also provide information on toxicology and environment health. MEDLINEplus database provides access to extensive information about specific diseases and conditions with links to consumer health information.

Latest information on cancer diagnosis, treatment, prevention can be accessed from the resources available at the National Cancer Institute (NCI). Genome analysis, DNA and protein analysis data can be accessed from the National Centre for Biotechnology. IMC provides guidance/assistance in how to retrieve relevant information from the MEDLARS databases. Information from any of the NLM databases is also provided on request.

5.9 Bioline International (<http://www.bioline.org.br/>)

Bioline International (BI) is a not-for-profit electronic publishing service committed to providing OA to quality research journals published in developing countries. BI's goal of reducing the south to north knowledge gap is crucial to a global understanding

of health (tropical medicine, infectious diseases, epidemiology, emerging new diseases), biodiversity, the environment, conservation and international development. With peer-reviewed journals from Brazil, Cuba, India, Indonesia, Kenya, South Africa, Uganda and Zimbabwe, BI provides a unique service by making bioscience information generated in these countries available to the international research community world-wide.

5.10 Medknow Publications (<http://www.medknow.com/journals.asp>)

Medknow Publications is the largest publisher in India for academic and scientific biomedical journals. Medknow pioneers in 'fee-less-free' model of OA publishing and provides immediate free access to the electronic editions of the journals without charging the author or author's institution for submission, processing or publication of the articles. Medknow, with over 40 print and online journals provides immediate free access to the full text of articles.

5.11 OpenMED (<http://openmed.nic.in/>)

OpenMED@NIC is an open access archive for medical and allied sciences. Authors/owners can self-archive their scientific and technical documents in OpenMED. For this they need to register once in order to obtain a user id in OpenMED system. However, no registration is required for searching the archive or viewing the documents. OpenMED is a discipline-based international archive. It accepts peer-reviewed documents having relevance to research in medical and allied sciences including bio-medical, medical informatics, dental, nursing and pharmaceutical sciences. These could be peer-reviewed preprints, post prints (refereed journal paper) and accepted theses. In case of non-English documents, descriptive data [author, title, source, etc.], abstract and keywords must be in English.

Submitted documents will be placed into the submission buffer and would become part of OpenMED archive on their acceptance. The aim of OpenMED is to provide free service to academics, researchers, and students working in the area of medical sciences.

5.12 Health Books (http://www.unifesp.br/universi_dade/english/dis/libraries/books.htm)

Health Books provides links to free electronic books available on different aspects of medical sciences.

5.13 FreeBooks4Doctors.com (<http://.freebooks4doctors.com/>)

Free Books is dedicated to the promotion of free access to medical books over the Internet.

5.14 World health organisation (<http://www.who.int/>)

World Health Organisation is the directing and coordinating authority for health within the United Nations system. It is responsible for providing leadership on global health matters, shaping the health research agenda, setting norms and standards, articulating evidence-based policy options, providing technical support to countries and monitoring and assessing health trends.

6. DRUG INFORMATION DATABASES

6.1 Iowa Drug Information Service (<http://itsnt14.its.uiowa.edu/>)

The Iowa Drug Information Service (IDIS/Web) is a database of index records of articles about drugs and drug therapy in humans taken from over 200 peer-reviewed English language journals. Among the areas covered are pharmacy and pharmacology, general and internal medicine, infectious disease and immunology, transplant, cardiovascular, rheumatology, microbiology, geriatrics, and endocrinology. The complete articles are also available online (1997 onwards).

This database is designed by the Division of Drug Information Service (DDIS), University of Iowa, USA to retrieve specific information concerning a drug and/or drug treatment of a disease state. Authoritative publications have been selected to provide broad coverage of both general and specialty areas of pharmacy and medicine.

6.2 MICROMEDEX Healthcare Series (<http://www.micromedex.com/products/hcs/>)

Micromedex Healthcare Series is unsurpassed in terms of scope and reliability when clinical information is needed. The actionable information provided by MICROMEDEX spans drugs, diseases, acute care, toxicology, alternative medicines, as well as a comprehensive tool to educate patients. Having all of this in a clutter-free, easy-to-navigate interface saves clinicians time and promotes best practices.

6.3 MedlinePlus

(<http://www.medlineplus.gov/>)

MedlinePlus from the National Library of Medicine, the US offers consumers accurate and current medical information about specific diseases and conditions, including drug information. Other offerings on this content rich site include health news, a dictionary, directories to find doctors, dentists and hospitals, interactive tutorials, clinical trials and surgery videos.

6.4 MedicinesComplete

(<http://www.medicinescomplete.com/mc/>)

MedicinesComplete provides online access to some of the world's leading drug and healthcare references. This also provides online access to American Hospital Formulary Service drug information; British national formulary; BNF for children; Clarke's analysis of drugs and poisons; dietary supplements; herbal medicines; Martindale: the complete drug reference; MeReC bulletins; pharmaceutical excipients; Stockley's drug interactions; Stockley's interaction alerts. MedicinesComplete is published by Pharmaceutical Press, the publications division of the Royal Pharmaceutical Society of Great Britain.

7. CONCLUSION

With so many web sites available on medical and health related information, it is impossible for any user to get the information he/she seeks in the shortest possible time. The URLs of selected web resources mentioned in the paper will help in locating health related information for medical professionals, students and librarians. However, in most of the cases, free access to the full text may not be possible as one has to be a paid individual or institutional subscriber.

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