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**EDITOR  
B. O. OSOTIMEHIN**

**ASSISTANT EDITOR  
A. O. UWAIFO**

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## Medical resources on the Internet: the role of the medical librarians

HO Komolafe

*Medical Library, College of Medicine, University of Ibadan, Ibadan, Nigeria*

### Summary

The usefulness of the Internet to the medical profession is growing rapidly. As the use of the Internet connectivity spreads, accessibility to more medical and biomedical resources is facilitated. This device if properly used can offer, free of charge, a large number of programs in the realm of health sciences. In this article, efforts are made to highlight some of the medical resources on the Internet, as well as review the new roles of medical librarians.

**Keywords:** *Medical resources, role Internet, medical librarians, connectivity*

### Résumé

L'utilité de l'Internet à la profession médicale grandit rapidement. Comme l'usage du connectivite de l'Internet s'étend, l'accessibilité aux ressources plus médicales et biomédicales est facilitée. Cet appareil, si correctement employé peut offrir a gratuit, un grand nombre de programmes dans le monde de mettre en valeur quelques-uns des ressources médicales sur l'Internet, aussi bien que la révision des nouveaux rôles de bibliothécaires médicaux.

### Introduction

The Internet is a network of networks. It is the linking together of a large number of computers of all kinds to directly communicate and share service [1]. The Internet began with the US Army in 1969, and grew to include academic and government computers. Until, in the 1990s that it became accessible to anyone who owned a computer, a modem, an account with an Internet provider[2].

Through the Internet, users can send electronic mail anywhere in the world, gain access to numerous information banks, down load files containing all sorts of materials published electronically, pursue hobbies, argue

politics, or debate any number of topics through discussion groups or meetings[3].

On connection, one could access the stored resources on the computers that make up the many networks. These resources are informational text files, journal articles, video clips, electronic magazines, texts and the like.

In early 1995, the Internet linked nearly five million computers on more than 46,000 computer networks. More than 30,000 of these, offer free information and services to the general public [4]. Current projections indicate that over 150 million computers have been connected to the Internet by the year 2001[5].

### Medical databases on the Internet

There is quite a handful of medical databases on the Internet though the MEDLINE, EMBASE and the Cochrane Database Systematic Reviews (DSR); address the information needs of most health professionals. However there are times and needs to search other subject-specific databases like CancerLit; PsycINFO WISDOM.

**MEDLINE:** It originates from the National Library of Medicine(NLM). The MEDLINE is the world's premiere biomedical database with the current growth rate put at over 500,000 references annually [6]. The MEDLINE site offers free service with citation drawn from around 3,500 biomedical journal [7]. Some important offshoots of the MEDLINE are sites like the PubMed and MEDLINEplus. The MEDLINE is accessible on: <http://www.ncbi.nlm.nih.gov/medline>

The PubMed provides access to over 12million MEDLINE citations, back to the middle 1960s. This web site provides means of linking up many other web sites providing full text articles in other related resources [8]. PubMed could be accessed on: <http://www.ncbi.nlm.nih.gov/PubMed>

The MEDLINEplus has an extensive information from National Institute of Health and other sources on over 500 diseases and condition [9]. There are also lists of hospitals and physicians, medical dictionaries and directories, drug information and links to several clinical

trials. MEDLINEplus is updated daily and accessible on : <http://www.medlineplus.gov>

#### *EMBASE*

It is the Excerpta Medica database; another comprehensive source of biomedical information with more than 15 million records drawn from international literature. It is a comprehensive source of information in pharmacology and psychiatry, though with some overlap with the MEDLINE. Information is not totally free on this site, as detailed citations attract a small amount of about \$1.50 per citation [10]. There are links to other databases, including full text content on Science Direct from Elsevier Science; Gene Sequence information, deposited in ENTREZ databanks. This site is accessible on <http://www.EMBASE.com>

#### *Cochrane Database of Systematic Reviews (CDSR):*

This database has been accredited as the best simple source of reliable evidence about the effects of health care results of controlled trials. CDSR provides clear and unambiguous evidence based research results that are highly structured and systematic. Full text access to this database is not totally free, but available on the Internet. Web site address is <http://www.CDRS>

#### *Subject-Specific Databases*

Though the Medline, EMBASE and CDRS address the information needs of health professionals, yet, there are occasions when subject specific databases need to be searched. Some of such subject databases are Bioethicsline, CancerLit, PsycINFO and WISDOM

#### *BIOETHICSLINE*

As far back as 1973, BIOETHICSLINE has been providing health professionals a comprehensive one-stop source to the world's bioethical literature<sup>7</sup>. Information on this site covers newspaper articles, court judgement and books. This kind of source materials are not indexed in MEDLINE. Site address: <http://www.healthgate.com/HealthGate/search.shtml>

#### *CancerLit*

CancerLit originates from the National Cancer Institute(NCI). It is a database of references to journal articles, conference proceedings, government report and monographs that relate to cancer. Considering the vast information on cancer, the NCI created "Topic Searches" in the database. Within each topic search, focus could be on specific aspects such as, surgery, radiotherapy or

chemotherapy. Site address: <http://cancerlit.shtml/cnetdb.nci.nih.gov>

#### *PsycINFO*

This database is created by the American Psychology Association. It deals more with psychological aspect of medicine. The collection on the site is unique, more like what you find in Bioethicsline. Detailed information from the database attracts a fee. Site address: <http://www.psycinfo.html>

#### *WISDOM*

It is a database indicating sources of Biomedical Research Funding produced by the Wellcome Trust. This database cites hundreds of funding schemes offered by some United Kingdom organisations that support biomedical research. To search this database browse <http://www.grantsnet.org/>

#### *Medical Current Awareness Services on the Internet*

Keeping abreast of new developments in medicine could be time consuming. If one considers that an average of 50,000 new citations are added to the MEDLINE database monthly, there is the need for patience and diligence in accessing the vast current information available [3,6,7].

General health news could be accessed through notable sites like **Reuters Health**. This provides a daily digest of health stories from all over the world. It is accessible on this site: <http://www.reutershealth.com/>.

Another way of keeping abreast of new medical information is to be registered with Web sites like **Medscape**, **Medpulse** or the **Doctor's Guide** to the Internet.

*Medscape* focuses on key articles published within the past one week. It features medical journal articles, free MEDLINE search, case reports, news, major conferences coverage and comprehensive drug information. Site address: <http://www.medscape.com>

*Medpulse* reports result or outcome of medical research. Information on this site is authentic and informs subscribers to this site by e-mail the latest article journal and topics available on Medscape site. Site address: <http://www.ifms.org.uk/medpulse.html>

*Doctor's Guide* concentrates on any health stories that made the news and at the same time provides other internet sites for more health relates information [7,11]. Site address: <http://docguide.com/mednews.htm>

*The Communicable Diseases and Prevention Control (CDPC)* reports and summaries of infectious and communicable disease are available from this sight. The information on this site originates from the Communicable Disease Reports, centers for Disease Control, World Health Organisation (WHO). Site address: <http://www.cdpc.com/>

*Other Medical Resources and services on the Internet* Information provided on the Internet range from less serious or entertaining to scientific and technical. The information or resources on the internet are accessible using application programs (Internet Servers). The most commonly used services are the File Transfer Protocol (FTP), telenet, gopher and the World Wide Web (WWW). From the preamble it is evident that the Internet does not have a central controlling outfit or agency, There are no official registries of Internet resources as well, thus making information retrieval on the Internet very tasking. Under-listed are some Internet services available to Internet users.

*The User's Network (USENET):* This is entirely a discussion group accessed by using a software package called 'newsreader'. A user could subscribe to a newsgroup through the software package and can read, post, or answer messages. The Internet service provider has to subscribe to quite a sizeable number of medical discussing newsgroups.

*The Mailing List:* The mailing list is a community of persons with like interest. The mailing list makes it possible to discuss with a well-defined group of persons. There is always a list owner who founded and maintains the list. Information or messages sent to the electronic mailer, are in turn distributed to all members on the mailing list. The mailing list provides some of the most varied and specific medical information on the Internet [12]. in form of digest, electronic journals and discussion group. A search through Tile Net <http://www.tile.net/> found 197 medically related lists [7].

*The Medical Gopher Services* freely serve medical centres, institutes and organisations. Gopher servers help in locating medical information because such information is categorised by subjects with provision of linking with other gopher servers in their respective institutions or medical centres.

The main menu of the gopher consists; the Health Sciences directory, with the sub-directories as Funding Resources, Resources by Organisation, Medical and Health related Electronic Periodicals, Centres for Disease Control and Prevention, Morbidity and Mortality Weekly

Report. Resources by subject consist of sub-directories like AIDS, Cancer, Drug Information, etc. Resources by organisation consist directories like Food and Drug Administration, the National Institute of Health, World Health Organisation and the like [12].

*The Medical Subject Guide:* This guides Internet users to a well-defined medical subject guide. Information in these guides is arranged by subject and not by location. Resources in these guides are categorised mainly by disease and medical speciality. There are also areas on medical education, medical libraries and the like.

*Medical World Wide Web (WWW) Servers:* In contrast to the traditional medical publishing industry, there are no widely known 'authoritative' WWW publishing houses. The range in quality of information is greater than what is seen between paper-based medical books and journals. As more medical information finds its way into the Web; it has the potentials to develop into a 'virtual medical textbook'. It will share the best of an institution's knowledge and teaching skills with the best of others [14]. At the Medical WWW, a user would also find sites that deal with advertising and recruitment, clinical cases, clinical pharmacology, commercial.

### **Medical librarians' roles**

One primary role of the medical librarians is to provide leadership and expertise in the design and development of knowledge based information systems. This is to meet the information needs and obligations of the patrons. Electronic information provides medical librarians with challenges that are not quite new, but as the nature of the librarians' roles changes, so do the challenges to professionals' codes and ethics [15].

With information technology, the medical librarians would not only collect, organise and teach patrons about available resources in the library. They will also teach and guide patrons on how to access the vast information on computers or the Internet.

The Internet has also forced the medical librarians to take on the role of arbitrary gate-keeper to information Web sites. Medical librarians should be ready for the role of 'information professional' in the connected world. To be an information professional, medical librarians would have to acquire additional skills, to make them successful in their new roles [16].

Librarians need to know and recognise that technology offers tools. These tools interact in complex ways and they are not ends in themselves. The roles of medical librarians will continually evolve, as they have to initiate new programmes and services in response to

development in computer technology and user demands [17].

### Conclusion

With the new trends in information technology and increased availability of medical information in electronic format, retraining of librarians and re-packaging information is pertinent.

Lastly, the Internet has created communication opportunities that are removing the traditional boundaries of time and location in accessing information. The least one could do is to join others in participating to make the whole world, truly, a global village.

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