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Medical Websites: Potential Tools for Education, Research and Patient Care in India

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Abstract

Medical scenario has changed dramatically in the last decade and it will continue to change in future as well. Earlier immediate access to all medical literature was a dream of doctors and now the World Wide Web i.e. search engines have made this dream a reality. Recently health related websites are frequently accessed on the Internet for education, research and patient care. The Internet represents significant advancement for retrieval and dissemination of medical and related literature. The quality of medical information and Internet has become a subject of great concern to the doctors, information specialist and consumer of health care. Many organizations are committed to improve access to knowledge based medical information for the doctors. Their goal is to make health information ubiquitous available to doctors, wherever and whenever it is required without regards to geographical locations and cost. In the developing nations like India, medical professionals face problems in accessing the required information due to inadequate infrastructure available in medical institutions. Health professionals are keen to know the current information on the different topics for preventing and managing diseases, providing health care to the diseased and for medical research. Medical websites are beginning to have an impact on many information activities and it could proved to be potential tool for the doctors in providing health education, research and patient care for all.

Introduction

Retrieval of medical information from biomedical databases is important for the medical professionals, since it is a scholarly need, an accordance requirement and means of updating oneself professionally. Now a day, information technology, communication

locations, languages and cost can access the medical websites. The National Library of Medicine (NLM) USA is playing a significant role in providing the biomedical literature of NLM's MEDLINE database to medical professionals all over the world free of cost. In India, medical professionals are

networks, Internet and medical websites offer the medical professionals, the timely and convenient access of the required information from biomedical databases.

The health science librarians have realised that there is a need to organise the information available on the web so that medical professionals can easily find information to enrich the education process, facilitate the basic research and improve the patient care. The internet has provided the new ways for the medical professionals to interact with machine and communicate with the fellow colleagues in their day to day clinical care services like diagnosis, treatment plan and decision making. The doctors irrespective of geographical

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websites which can be used as a potential tool for the benefits of the medical education, research and patient care.

Medical Databases on the Web –PUBMED

National Library of Medicine located in Bethesda (USA) is the world's largest research library in a single specific and professional field. The NLM provides global access to some of the best on-line sources in the form of searchable database. The NLM. databases and electronic information sources provide a wide variety of resources related to the bio-medical and health science which has access to 12 million MEDLINE citations record and indexes. It has around 4500 different titles taken from over 70 countries, which covers back to mid 1960's onwards. The information comes from US National Institute of Health and other federal agencies, professional associations and non-profit health organizations. In addition to health topic MEDLINE plus also connects the users to medical dictionaries, hospitals directories of physicians and dentists, and extensive medical encyclopaedia and consumer information about thousands of prescription drugs. NLM provides free access to all its databases and users have been encouraged to look towards the Websites. A complete list of MEDLARS databases can be found on the websites.

solely dependent on the institute library for current information. With availability of Internet, medical professionals get the required information from NLM, MEDLARS databases. Keeping in view the ever-increasing requirement of current information by the medical professionals, the Indian MEDLARS Centre (IMC) was set up in 1996 at New Delhi. This database indMED, is accessible free of cost from IMC's website within and outside the country.

Objectives of the Study

The main objective of the present study is to know how the medical professionals can explore the medical

nutrition and health service management.

MEDLINEplus is web-based consumer health information resource made available by NLM. MEDLINEplus directs consumers to dictionaries, directories, organizations, libraries and clearinghouses for answers to health questions in addition to full-text resources. The site has been designed to match consumer's language to medical terminology and is updated daily.

Clinical Trials.gov

The National Institute of Health provides information for patients about clinical research studies.

DIRLINE

<http://dirline.nlm.nih.gov>

Directory of information resources online from NLM about the description and location.

LOCATORplus

<http://www.nlm.nih.gov/locateplus>

Catalogues of books, journals, and audiovisuals and access points to other medical research tools in the NLM collections.

NLMGateway provides a single engine to simultaneously search journals citations from PubMed, Books from NLM's online catalogue, databases from HSRPROJ (Health Service Research Projects in Progress) and MEDLINE links health and

All users will need to use one of NLM's web-based search engines PubMed

(<http://www.ncbi.nlm.nih.gov/PubMed>)

Or

Internet Grateful Med
(<http://igm.nlm.nih.gov>)

At present PubMed provides access to MEDLINE, PREMEDLINE, and publisher supplied citations. Internet Grateful Med also provides access to the following databases.

MEDLINE/PubMed (MEDLARS online) is the largest biomedical bibliographic databases, incorporating the printed Index Medicus. It covers almost 4,500 international journals from 1960 to date and is updated weekly. This journal covers all medical and surgical specialties and preclinical sciences in addition to dentistry, nursing, pharmacology, connectivity, but also facilitates globalisation of medical and scientific literature. The use of Internet is growing very fast in the world of health arena. The Internet has become a source of medical information for the medical professionals all over the world. For the medical professionals, the Internet has increased efficiency of patient care and has enabled collaborative research among investigators who are scattered geographically. The growing use of e-mail and world wide web (www) by the academicians, clinicians and patients –as well as the increasing availability of high quality and timely information on the www – made the Internet very powerful and potential and useful tool. The effective use of the Internet for the professional purpose requires an understanding of the best strategies to search the www as well as compendium of online resources including journals, textbooks medical portals and sites providing high quality patient information. The challenge is now not to get online but to keep both professionals and patient abreast of latest developments in the Internet technology and health information and to make the most effective use of them.

E-Journals The www as the most revolutionary development in publishing arena since the printing press. It is evident that electronic version of journals has some

drug information. The user for the Gateway includes physicians and other health care providers, researchers, librarians, students and increasingly patients' families and the public.

PubMed Central is a digital archive of life sciences journal literature managed by the National Centre for Biotechnology Information at the NLM. Access to PubMed Central is free and unrestricted.

TOXNET <http://Toxnet.nlm.nih.gov> Databases on Toxicology, environmental health, and hazardous chemicals. It is a computerised system of freely available files regarding toxicology and related fields.

Internet

The Internet not only offered global electronic journals. There are few medical websites, which provides free medical journals to the medical professional.

<http://www.freemedicaljournal.com>

<http://www.phorum.com>

E-Textbooks: -It is believed that unrestricted and free access to scientific knowledge will be the pattern of online education in the years ahead. In context of medicine, such a scenario will have a major impact on medical education and practice. The recently introduced site FreeBooks4Doctors at

<http://www.fb4d.com>

<http://www.freebooks4doctors.com>

is available on the web.

It offers links to more than 400 books, sorted in nearly 100 specialties and sorted by title alphabetically, with the added promise of new books everyday. This site has been specifically dedicated to the promotion of free access to medical books over the Internet. The site also has section on recent entries and Book Alert, which is free e-mail subscription feature that periodically gives details about new free books.

E-mail: -It is the most effective way to keep up to date with journals, which are often sent before print publication. Some

inherent advantages over print version such as incorporation of multimedia, liberal use of colours, elimination of delay in manuscript processing, news alerting, instant real time online discussion. Online repositories for articles, such as BioMed Central and PubMed central have embraced the ideal of free access for all the medical literature. PubMed central provides free access to some print journals already offering their entire contents online in addition to the purely electronic journals in BioMed central. The main advantage of online publication is the speedy dissemination of information. In e-journals, articles can be made available on the web as soon as they are ready. The Web browser and hypertext link provide easy to use tools to view documents and to move between them. Hyperlinks to references and related articles are also available in Health professionals practising medicine in remote areas i.e anywhere in the world can potentially have access to vast amount of updated clinical knowledge through online journals and medical books. With this, medical professionals can participate in online continuing medical education courses. With the advent of the user friendly World Wide Web and the Internet is no longer a curiosity for the computer savvy. In fact, it has exploded into a new instrument for teaching and learning. Recently, a growing number of medical schools have begun to implement web-based curricula. As more and more material relating to medical information is published on the Internet, traditional learning pattern and practice are being disappearing. Now a day the lecture notes are published on the Internet, where they can be downloaded as and when it is required. In this way students are not dependent upon the library only as various medical books and journals are available on the website. The large amount of medical information demands changes in the teaching techniques used to teach the medical students.. The web-based learning promotes the development of self-directed learning strategies. Many universities in USA and UK are offering postgraduate degrees in health and other related fields as online courses. The university of London is offering M.Sc course

publishers offer an additional alert services so that you can get the table of contents of your favourite journals via e-mail. Many professional associations websites also provide the information about conferences and seminars.

Use of Medical Websites for Medical Education

It is believed that unrestricted free access to medical knowledge will be the trend of online education in the recent times .In reference to medical education field, such a scenario will have a deep impact on medical education and practice. There are several websites offering online continuing medical education. The outcome of this concept is being studied online

<http://www.cme.center.com>

may be a valuable resource for researcher, to know about the different fields of research being carried on in the world .The accessibility of knowledge for analysis and the anonymity of the internet allow researchers to analyse text and narrative on websites, to use newsgroups as global focus groups. There are three different research methodologies for qualitative research on the Internet distinguished as

Passive analysis,

Active analysis and

Interviews and surveys **Passive analysis:** For example studying information on web sites or interaction in news groups, mailing lists, and chat rooms-- without researchers actively involving themselves.

Active analysis: Also called participant observation; the researcher participate in the communication process, often without disclosing his or her identity as researcher. For example, he/she may ask questions in a patient discussion group implying that he/she is fellow patient.

Interviews and surveys;

Internet based surveys may be conducted by means of interactive interviews or by questionnaires designed for self-completion. Electronic one to one interview can be conducted via e-mail. In addition to the possibility of searching

in epidemiology, Infectious diseases and health management. Recently Bloomberg School of Public Health in USA has started Master in Public Health as an online course. Many universities in the developing countries are also in the process of introducing such type of courses. In India Indra Gandhi National Open University is offering many such type of courses.

Use of Medical websites for Research

The use of Internet in the research process begins from identifying research issues, through using the web for survey and clinical trials, to pre-publishing and publishing results. The literature searches using different databases such as Medline are obviously an important and integral part of every research process. Material published on the Internet government, medical organizations, other institutions, medical journals, patient support groups and pharmaceutical companies as well as through medical web directories.

The medical professionals are able to retrieve the information from the medical websites in order to make a better decision of diagnostic test or procedure. After obtaining the information the physicians develop the treatment plan of the patient accordingly. The suitability of treatment plan and clinical consultation with outside expert is being increasingly exploited through the use of telemedicine, which is now available in many developing countries including India. It allows physicians to determine and know whether their treatment plan has been used previously and with what effects or reveals a lack of evidence of the efficiency of a proposed therapy; thus leading to a decision against its use. Many medical professionals have started communicating with their patients through e-mail. The potential usage of such interaction includes better time management for physicians and enhanced patient satisfaction. Communication among physicians around the globe through e-mail and through discussion groups is a reality. The health on the net foundation www.hon.ch is not for profit but is an organization to guide patients and medical professionals to useful and reliable online

literature databases, there are also specialised services on the web that can assist in the research, such as Methods Finder and the Technical tips online

The potential areas or topics for medical research can also be accessed on the websites as most of the research organization are indenting their main areas of interest in the research on their websites.

Use of Medical websites for Patient Care

Many health professionals remain unaware of how the medical websites can be used to enhance their clinical capabilities and how to gain access to this powerful tool. Information regarding any diseases or treatment can be readily accessed from thousands of websites developed by the

Indian MEDLARS and medIND

The main aim and objective of setting up the Indian MEDLARS Centre (IMC) was to provide access to health related information to the medical professionals. It has been designed to provide quick and easy access through searching or browsing. IMC was established in 1986 with the collaboration of Indian council for Medical Research (ICMR) New Delhi and National Informatics Centre (NIC) New Delhi to provide biomedical information services from the MEDLARS databases of National Library of Medicine (USA).

IMC developed a database of the peer reviewed Indian biomedical journals and it was developed keeping in view the poor coverage of Indian journals in international databases. At present only 75 journals from 1985 onwards are covered in this database. IndMED : a bibliographic database covering prominent peer reviewed Indian biomedical journals. Databases designed to provide medical professional/researchers/students and the medical library professionals quick and easy access to Indian literature. IndMed has been designed and developed on the similar pattern of format used by NLM's

health and medical information. Possibly the best web sites for providing patients with information about the whole range of medical conditions are

www.patient.co.uk

www.healthsites.co.uk

and www.medicdirect.co.uk

in the United Kingdom

and www.healthfinder.gov in the United States of America and in India

www.gynonline.com

www.doctorsofindia.com

Many good medical institutions are now having medical records of the patients on the websites for research and consultation purposes. This helps them in review of the cases, effective follow ups and in provision of quality medical care.

- NLM's resources.
- Lectures by medical specialists.
- Details of IMC's services (CDROM databases, training, etc.)
- Downloadable Training Manual (PDF).
- Search Request forms (which can be submitted directly from the webpage) as well as a feedback form.

Links to internet resources on diseases that are prevalent in the country (Malaria, Japanese Encephalitis, Cholera and Typhoid). The IMC took up the task of providing full text of selected Indian journals. An online database of full text of IndMed journals was launched in August 2003. The medical professionals can access independent site MEDIND (<http://medind.nic.in>) within and outside India free of cost.

Conclusion:

Thus traditional library services are quite affected due to the emergence of new technologies i.e. Internet and medical websites for the dissemination of medical information. The health science librarians and medical professionals are well aware of the usefulness of the medical websites for accessibility of timely and required information. Medical websites are global source of information and it revolutionised the way whereby researchers and medical professionals access information.

MEDLINE database using MeSH for indexing purpose. The database can be accessed by using simple advanced search engines. This is searchable free of cost from web page to users in India as well as outside India. IMC's web page provides an easy access to medical information available from the centre and from other biomedical Internet resources. The main features of the web page are

- Access to IndMED database.
- Access to medIND database.
- Access to Union Catalogue of Biomedical Periodicals.
- Links to Internet biomedical/health resources/e-journals (both for the professional and the consumer, nursing professionals, health librarians).

This includes links to the medical websites during the last five years it has become a comprehensive, dependable and indispensable tool for the medical professionals for medical education, research and patient care throughout the world. In India and other developing countries, the printed publication takes a long time to reach the libraries whereas medical websites and Internet provides the latest information to the medical professionals immediately. Towards the end of the last millennium, the traditional way of accessing the medical information has radically shifted to an era of free and paid services of online access to medical information on the medical websites and databases.

It is concluded that medical websites are being increasingly used in the developing countries including India. The medical websites has the potential of becoming a potential tool for the better medical education, research and patient care in the future.

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The medical websites provides huge amount of information even from the remote corner of the world.

Medical professionals are able to get the latest information on the net with help of easily accessible medical websites. The medical professionals can discuss diagnosis and treatment plan of the patient with fellow professionals based at any place in the world through e-mail. It also helps in maintaining doctors-patient relationship, such as to seek the appointment online and show the test results online. It is concluded that medical website are being increasingly used in the developing countries including India. Medical website has the potential of the becoming an important tool for better medical education, research and patient care in future.

Due to impressive advances made by

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