An Overview of Health Science Information System in India: Librarian's Point of View

by

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Advent of computer and communication technologies, particularly with regards to biomedical and health science information have opened up exciting possibilities to intervene and influence the control of several diseases. New publishing models, Open access concepts, and Institutional repositories have revolutionized the delivery of biological and health science information. The resulting explosion of this scientific information in this mass media has evolved many more challenges for information providers. Access to quality health information for clinicians and scientists has become more strenuous because of enormous growth and robust nature of information gateways. The usage trend is inclining more towards electronic information formats but, the clinicians and scientists are not well-informed about the developments and the existing infrastructure in India is not really geared up to address the situation. The intermediary of this scientific knowledge and end user the so-called, Librarian find it difficult to cope up with the situation in this area of specialization right from finding an article to identify a journal of high impact factor for a scientist in his focused discipline. Library and Information science schools in India are not well equipped to take up the challenges of Medical Librarians. An attempt has been made in this paper to identify various challenges of Medical librarians and the organizations that are specialized in training individuals for Medical Librarianship. It also summarizes on few resources those are providing health science information and overall scenario of health science librarianship in India.

1. Introduction

Human resource capacity for health research is one of the most important measures of country's capacity and capability to enhance the existing and emerging health concerns of the state. Access to and use of quality health information is critical for research and health care, wherein success of a research output is based on timely access to relevant information and data. Thousands of case reports, research findings, medical reports, survey reports, evidence based

practices, practical guidelines, hospital policies and documents are produced every year. Many of these do not come in the realm of formal literature or available to medical fraternity limiting its accessibility to only the authors and their affiliated institutes.

Advances in Information and Communication Technologies (ICT) have revolutionized the scope of health science disciplines and emerged as a great potential to surpass the conventional barriers such as time and space that one time inhibited the communications for patient care. Telemedicine, Health Management Information System (HMIS) are some of the concepts evolved for health care professionals in the recent times. Online databases, Open Access journals, Digital libraries, Institutional Repositories, are the few new concepts that have emerged in library and information science after the emergence of Internet. In both the cases need of strong infrastructure with IT support and expertise in implementing these concepts was felt. Both the professionals have heavily relied on IT personnel in implementing their ideas.

In this enormous growth and flow of health science information, intermediary of this scientific knowledge the so called Librarian find it difficult to cope up with the situation of different formats of documents based on different platforms. The challenges faced by library professionals in health science libraries are more daunting as compared to those in libraries of other disciplines. This is because the nature of health information required at various stages of decision making on patient care viz., preventive measures, preliminary tests, diagnosis, treatment, research, evidences, complications, follow up procedures and so on differs considerably. At every stage clinicians need comprehensive and current information with strong evidences in connection to a patient whose status is unique. In this study an attempt has been made to review the status of Information and Communication Technology (ICT) infrastructure with respect to health science and medical libraries in India to assess and address the situation with recommendations. Also major health science information resources available in India are identified. Moreover, training courses conducted and workshops organized by few agencies for health science librarians to take upcoming challenges in India are highlighted.

2. ICT Infrastructure in India

ICT industry in India has poised for growth and in the past few years it has grown in manifold in diverse disciplines. In recent years various Government of India ministries and departments have initiated on e-governance, the development of which is visible on their websites. National Knowledge Commission of India (http://www.knowledgecommission.gov.in/) under the Chairmanship of Sam Pitroda has proposed comprehensive programs ranging from education to e-governance with five focus areas - access, concepts, creation, application and services includes Health Information Network and Knowledge Networks as major recommendations(1). There is enough evidence available on developments of e-

governance (2-5), rural development plans (6-13) and people-centric knowledge societies (14,15) in India. Information Library Network (INFLIBNET) (http://www.inflibnet.ac.in/) an autonomous body under University Grants Commission (UGC) has enhanced the creation of infrastructure for sharing library and information resources among university, academic and research institutions.

Telemedicine in the country has been initiated by Department of Information Technology, Ministry of Communications and Information Technology(16-18). There are evidences and implementation of ICT in health sector with respect to e-Health, Telemedicine and Health Information Management System (12, 17, 19-24) and so on.

The development of infrastructure, technologies, and trained manpower with respect to health science information in Indian libraries needs momentum. National Knowledge Commission in its recommendations has emphasized on the need of well structured health informatics curriculum as an integral part of medical education at all levels. Basic ICT facilities, such as good quality access to Internet and e-Journals, need to be made compulsory for all medical colleges in the country.

3. Online Health Information Resources from India

Health Science Information System is one of the major concerns in India, the second highest populated country in the world. The libraries of medical colleges and health institutes need an improvement to attain a certain benchmark level in terms of infrastructure, databases, resources and services. Steps towards resource sharing and networking of these libraries help in improving the accessibility of health information. Success of such developments is seen in centrally funded and financially sound research institutes and hospitals in India. However, similar expansion in health care centers in smaller cities and rural areas seems to be still far off.

Indian Council of Medical Research (ICMR) and National Informatics Centre (NIC) have taken initiatives on improving the access to national health information. Biomedical Informatics Division of National Informatics Centre (http://indmed.nic.in/) provides access to medical databases to researchers as below.

3.1 MedIND – It is a one point resource (http://medind.nic.in/) of peer reviewed Indian biomedical literature covers full text of 40 Indian biomedical journals. It has been designed to provide quick and easy access through searching and browsing.

3.2 IndMED – Bibliographic database (http://indmed.nic.in/) covers around 95 prominent peer reviewed Indian biomedical journals. Database is designed to

provide easy access to Indian biomedical and health science literature with search options.

3.3 OpenMED - OpenMED@NIC (http://openmed.nic.in/) is an open access archive for Medical and Allied Sciences. Authors can upload and self-archive their scientific and technical documents. User need to register once in order to obtain a user id in OpenMED@NIC system. However no registration is required for searching the archive or viewing the documents.

3.4 Union Catalogue of Biomedical Serials in India

National Informatics Centre (NIC) provides document support services to the users through the Union Catalogue of Biomedical Serials in India (http://uncat.nic.in/). The database serves as a tool for identifying Serials holdings of major medical libraries in the country and has been compiled for locating journals of interest in 188 libraries in India. The database is open and accessible to all.

4. Initiatives on Access to Health literature by Government agencies

There are projects underway to enhance infrastructure facilities to strengthen the accessibility of scientific literature in India. National Institute of Science Communication and Information Resources (http://www.niscair.res.in/) has taken initiatives to network the science and society. To improve the access of global health science literature in Indian medical institutions efforts have been made by few agencies to bridge the gap of digital divide. Following are the few initiatives by government agencies to access health science information in India.

4.1 Electronic Resources in Medicine (ERMED) Consortium

National Medical Library's Electronic Resources in Medicine Consortium (http://www.nml.nic.in/Brochure.htm) is an initiative taken by Directorate General of Health Services (DGHS), Ministry of Health & Family Welfare (MOH & FW), Government of India to develop nation wide electronic information resources in the field of medicine for delivering effective health care. 39 centrally funded Government Institutions including 10 DGHS libraries, 28 ICMR Libraries and All India Institute of Medical Sciences (AIIMS) library are selected in its initial stage as core members. The MOHFW aims to provide fund required for the purchase of electronic journals under the NML-ERMED consortium project. The consortium is coordinated through it's headquarter set up at the National Medical Library.

4.2 MedInfo Guide – A unique e-learning platform (http://www.medinfoguide.net/) developed with the support of Health InterNetwork and World Health Organisation (WHO) provides both self education and trainer education in accessing and searching biomedical information on the

web. The platform covers national and international sites on wide variety of content categories spread through out world on medical information.

Indian Journal of Medical Research (IJMR) the premier Medical journal was made available free with full text access on the website (www.icmr.nic.in) from 2004.

A commercial online database ProQuest which contains over 550 medical journals has been subscribed by Indian Council of Medical Research (ICMR) and is available and accessible in all affiliated laboratories.

Journal Custom Content consortia JCCC@ICMR initiated by the Indian Council of Medical Research (ICMR) covers 864 journals received collectively at 28 institutions/centers of ICMR.

JCCC@NTI, is a customized product for National Tuberculosis Institute (NTI), Bangalore, initiated to enhance access to full text of medical journals by collaborating libraries.

JCCC@HELINET, a network of all Health Sciences Libraries under Rajiv Gandhi University of Health Sciences, Karnataka is initiated to maximize the usage of resources.

A consortium with a country license initiated and funded by ICMR enables online access to Cochrane library from 27 January 2007. Cochrane Library is freely available to all residents of India who has internet access.

National Health Information Collaboration (http://www.nhicindia.org) initiated one-point source of authentic and relevant health information on different Information types for all health topics. The portal is targeted to serve doctors, health workers, nurses, medical students, health service providers, researchers, policy makers and allied professionals. The portal has been facilitated by the Ministry of Health and Family Welfare, Government of India under Heath InterNetwork India Pilot project in collaboration with WHO.

The Government of India on 28th October 2008 launched the Health Management Information System (HMIS) portal to convert local health data into real time useful information, management indicators and trends which are displayed graphically in the reports. (http://www.nrhm-mis.nic.in)

5. Health Science Publishing Industry and Aggregators in India

The developments in content creation, online submission, image management, review and refereeing tools in publishing industry has made the industry operations much easier and faster than before. 'In press', 'in process' and 'forthcoming papers' are available online. Professionals in Indian scenario are

yet to experience and use these effective tools as there are very few publishers existing and publishing the journals in health science discipline.

5.1 Medknow Publications is a publisher (http://www.medknow.com) for academic, scientific, medical, peer-reviewed, print and online open access journals. The publishing house is committed to improve the visibility and accessibility of science from developing world. Medknow, with over 80 print and online journals, is the largest open access publisher of print journals with 'fee-less-free' model of open access publishing which provides immediate free access to the electronic editions of the journals without charging the author or authors' institution for submission, processing or publication of the articles. Each journal published by Medknow has its independent website. The websites use the OpenURL standard, making it easy for libraries to link users as directly as possible from citation to the full text of the article.

5.2 Indian Journals.com

IndianJournals.com is an e-publisher (http://www.indianjournals.com) publishing vast collection of interdisciplinary Indian Journals and Research Publications in 17 disciplines with 124 journal titles. The publisher provides global exposure to Indian journals and caters to societies, institutes and individuals connected with Indian Journal. The publisher has covered 15 journals in Biology and 13 journals in Medicine disciplines under subscribed and free full text models.

5.3 Open J-gate

Open J-Gate (http://www.openj-gate.com) is an electronic gateway to global journal literature in open access domain. Launched in 2006, Open J-Gate is the contribution of Informatics (India) Ltd to promote Open Access Initiatives. Open J-Gate provides seamless access to millions of journal articles available online and under the domain of biological and health sciences it has indexed 1706 open access journals, with links to full text at Publisher sites.

6. Institutional Repositories

Institutional repositories are the gateways to full text contents of scientific literature. Most of the contents accessible on these gateways is free unless it has restrictions by copyright laws. Through OpenDOAR it is realized that out of 35 Indian registered repositories only four repositories are existing in the domain of health sciences or biological sciences. These have been listed below.

Central Drug Research Institute (CDRI), Lucknow
DKR@CDR, http://dkr.cdri.res.in:8080/dspace

National Informatics Centre (NIC), New Delhi
OpenMED@NIC, http://openmed.nic.in/

National Institute of Immunology (NII), New Delhi
ePrints@NII, http://eprints.nii.res.in/

School of Biotechnology (SBT), Madurai Kamaraj University,
Eprints@SBTMKU, http://eprints.bicmku.in/cgi/oai2

7. Major National Premier Health Science Libraries

Two major health science libraries of national importance are located in New Delhi and are mentioned below.

7.1 National Medical Library (NML)

The NML library was initially conceived as a departmental library having a small collection of books for the use of officers of the erstwhile Directorate General of Indian Medical Services (DGIMS).

The DGIMS was later merged with the Office of the Public Health Commissioner in India in 1947 to form the Directorate General of Health Services (DGHS) and the library became DGHS Library. Realizing the need for a Central Library to support academic, research and clinical work of Biomedical Professionals in the country, the DGHS library was gradually developed and declared as Central Medical Library in 1961 and as the National Medical Library on 1st April 1966. The National Medical Library of India aims to provide wide and efficient library and information services to the health science (HS) professionals in India.

7.2 BB Dikshit Library

India's premier health science institute, the AII India Institute of Medical Sciences (AIIMS), established the 'BB Dikshit library' which is a treasure for health science information collection. The library basically serves the institute users and extends its services to others on request.

8. Training courses in Health Science Librarianship and Associations in India

Health science librarianship and Health Library Associations in India needs to show their endurance to update standard guidelines for its application, operation and services in consonance with the development in the fields of health sciences and advanced technology. There are very few organizations in India which are imparting training in the specialized domain.

8.1 Rajiv Gandhi University of Health Sciences is the only institute in India offers twelve months training program - Post Graduate Diploma Course in Health

Science Librarianship (PGDHL). The course was introduced in the year 2002 with an in take of 10 students per academic year and first batch of students came out in 2003.

8.2 Indian Medlars Centre a unit of Bibliographic Informatics Division of the National Informatics Centre organizes training program of 3 to 5 days for health science professionals with the theme - Biomedical Information Retrieval. The programs are organized twice in a year. Workshop on E-publishing and Digitization is organized for Editors and allied professionals.

8.3 National Medical Library being a national centre has been organizing training programs for medical/health science librarians since 1980. It has organized 17 Orientation Courses in Health Science Librarianship, each of 5-6 weeks duration and trained over 150 librarians in the country. Besides, it has also conducted several training courses on specific topics like MEDLARS Searching, Computer Applications, Library Management Software, Indexing and Abstracting and others in different regions of the country.

8.4 Digital Library of Tata Memorial Hospital has been organizing workshops every year from 2007 onwards with the focus on Knowledge Resource Management for the benefit of health science library professionals.

8.5 Medical Library Association of India is the only Association till recent times organized few events and workshops focusing on health science librarianship and is almost closed its activities.

8.6 Health Libraries Association of India is a new Association that evolved in 2008 and still is in its infancy which needs more time to take proper shape in the form of its mandate and mission.

8.7 QMed is a Trust working with an objective to enable Healthcare professionals and institutions in India to exploit the power of technology to get and produce the best of Medical information for better patient care and preventive health services.

9. Recommendations

The working group of 11th five year plan (2007-2012) set up by Government of India on Health Systems Research and Biomedical Research (http://planningcommission.nic.in/aboutus/committee/wrkgrp11/wg11_health.pdf) has strongly suggested the modernization of medical libraries in phased manner and train the library personnel on a continuing basis (25).

Access to Health Science literature in India is improved in the recent past. However, vast majority of medical schools, smaller research centers, state funded universities and libraries of unaided institutions are deprived of quality

biomedical information because of lack of infrastructure, cost of medical books, journals and online databases. Factors limiting information access in Indian Medical libraries are

- Need of proper infrastructure for library automation and Internet
- Limited fund allocation to medical / health science libraries
- Inadequate training courses in medical librarianship

Majority of the government and private health care centers are located in major towns and cities. But, the information covered on their web sites is too general and is in English. Also, full text information to professionals is limited. At the same time, health care community located in remote locations have limited infrastructure available to them to communicate and access these institutes. Hence, are deprived of quality information for taking appropriate decisions at the point of care.

To ease the access to health science information in India, following suggestions are made

- A special financial grant to be released by the Government of India to all important health science libraries to strengthen the infrastructure in terms of hardware, software and Internet facilities in libraries

- In association with WHO access to HINARI to be extended to empower health and biological institutions in India.

- A policy on establishing Institutional repositories to be designed making it mandatory to all health science institutes in India to share and archive scholarly health information generated from their respective institutes.

- Major health science journals and databases to be subscribed with countrywide license.

- Consortia model subscriptions should be eased and extended as per the needs of individual institute requirements.

- Advanced training in Health Librarianship to be introduced in all the Universities in LIS curriculum as an optional course to cater and strengthen the specialized discipline.

10. Conclusion

Facilities to create and access health information in India are restricted to centrally funded and financially sound institutions and available to affiliated users. These facility comforts are not visible in rest of the state governed medical

institutes and other smaller organizations. There is an urgency to bring a policy and guide lines on enhancing the access facilities to health information to every individual looking for it. The wealth of health science information content in the repositories should be multi-media, interactive and available in different regional languages. To attain health equity in the region, information and relevant technologies to deliver it must be made available in the interiors of states for good health care practices as the ICT has gone up to the villages.

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