

# Access to Electronic Health Knowledge in India

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## INTRODUCTION

- Universal access to health knowledge is essential to improve the living conditions of the people
- Information and communication technologies has brought a revolution in publishing and dissemination
- The World Wide Web has changed the way we conduct, communicate, share and evaluate research
- Health science is a research intensive discipline that demand currency, relevancy, adequacy, accuracy, accessibility, acceptability and timeliness
- Absence of access affects researcher and research

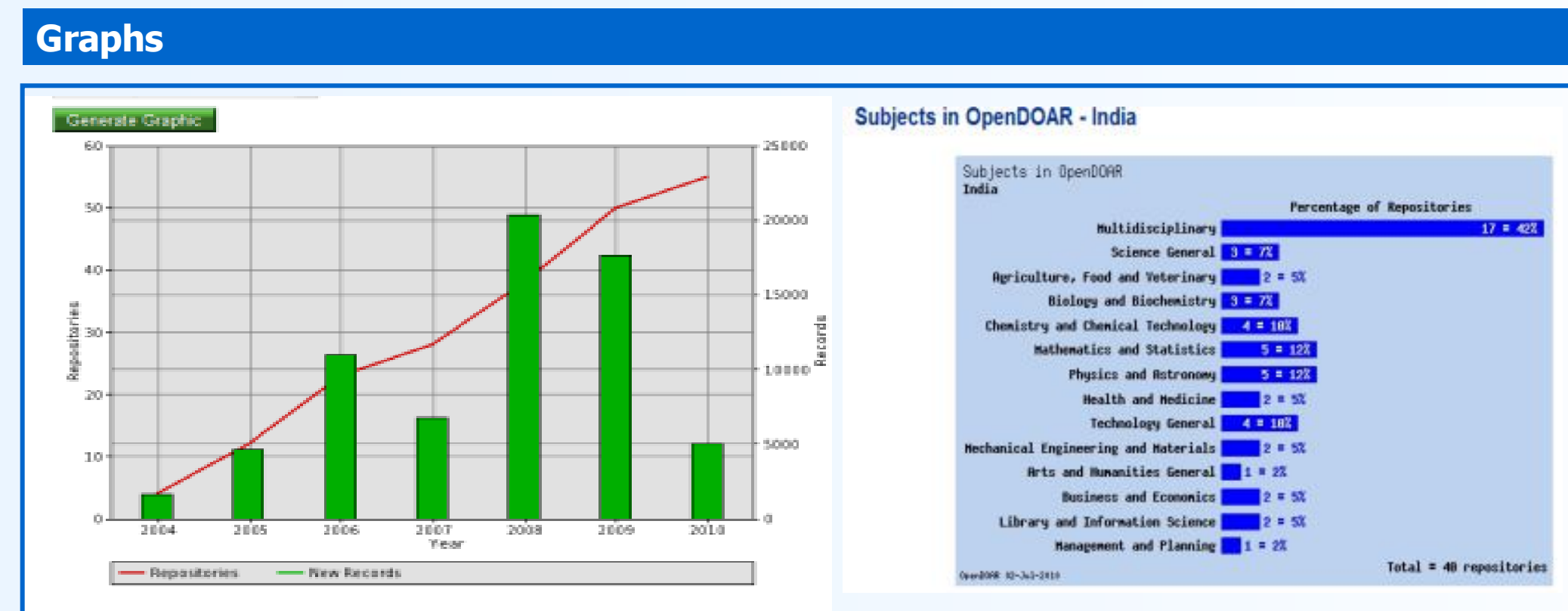
## METHODOLOGY

- Sources for this paper were obtained by searching through search engine Google using the terms like electronic resources in health, consortia, open access, electronic journals, electronic databases and from visits to related linked websites
- The organisations known to be working in the areas of health knowledge dissemination pertaining to India were studied along with other key repositories of the world

## ACCESS MECHANISMS (From Lock Key to Open Access)

- Subscription based resources
- Institutional Repositories
- Subject Repositories
- Open access journals/portals
- Publisher websites

## FINDINGS



## REFLECTIONS ON KEY KNOWLEDGE ACCESS REPOSITORIES: WORLD

| Repository                                                                                                                                            | Description                                                                                                                                                                                                                                                                              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| National Library of Medicine<br><a href="http://www.nlm.nih.gov/index.html">http://www.nlm.nih.gov/index.html</a>                                     | The National Library of Medicine (NLM), on the campus of the National Institutes of Health in Bethesda, Maryland, (US) is the world's largest medical library. The Library collects materials and provides information and research services in all areas of biomedicine and health care |
| PubMed/MEDLINE<br><a href="http://www.ncbi.nlm.nih.gov/pubmed/">http://www.ncbi.nlm.nih.gov/pubmed/</a>                                               | PubMed comprises more than 19 million citations for biomedical literature from MEDLINE, life science journals, and online books. Citations may include links to full-text content from PubMed Central and publisher web sites                                                            |
| PubMed Central (PMC)<br><a href="http://www.ncbi.nlm.nih.gov/pmc/">http://www.ncbi.nlm.nih.gov/pmc/</a>                                               | PubMed Central (PMC) is the U.S. National Institutes of Health (NIH) free digital archive of biomedical and life sciences journal literature                                                                                                                                             |
| Directory of Open Access Journals (Lund University, SWEDEN) <a href="http://www.doaj.org">www.doaj.org</a>                                            | It is financed by The Scholarly Publishing and Academic Resources Coalition (SPARC), an alliance of Academic and Research Libraries It has more than 5120 journals in the directory, around 250 are health science journals                                                              |
| Highwire Press (Stanford University)<br><a href="http://highwire.stanford.edu/lists/freetext.dtl">http://highwire.stanford.edu/lists/freetext.dtl</a> | HighWire Press is the largest archive of online publication of free full-text articles                                                                                                                                                                                                   |
| Public Library of Science<br><a href="http://www.plos.org">http://www.plos.org</a>                                                                    | US based PLoS is a non-profit organization committed to making the world's scientific and medical literature a freely available public resource. It was launched in 2003                                                                                                                 |
| BioMed Central<br><a href="http://www.biomedcentral.com/browse/journals/">http://www.biomedcentral.com/browse/journals/</a>                           | UK based, BioMed Central publisher has more than 200 journals that are 'Open Access'                                                                                                                                                                                                     |
| FREE MEDICAL JOURNALS<br><a href="http://www.freemedicaljournals.com/">http://www.freemedicaljournals.com/</a>                                        | It is a free services by the generous unrestricted educational grants provided by pharmaceutical companies                                                                                                                                                                               |

## REFLECTIONS ON KEY HEALTH KNOWLEDGE ACCESS REPOSITORIES: DEVELOPING COUNTRIES

| Repository                                                                                                                                                                                  | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bioline International<br><a href="http://www.bioline.org.br/">http://www.bioline.org.br/</a>                                                                                                | Bioline International is developed with the collaborative efforts of the University of Toronto Libraries, Canada. It is a not-for-profit scholarly publishing cooperative committed to providing open access to quality research journals published in developing countries                                                                                                                                                                                  |
| Health Access to Research programme (HINARI)<br><a href="http://www.who.int/hinari/en/">http://www.who.int/hinari/en/</a>                                                                   | WHO established the Health Access to Research programme (HINARI) in 2001 to enable developing countries to gain access to the world's largest collections of biomedical and health literature<br><br>It provides online access to more than 7000 major journals in biomedical and related social sciences to non-profit institutions in 108 developing countries. HINARI has a wide range of open access and local publishing partners                       |
| Traditional Knowledge Digital Library (TKDL)<br><a href="http://www.tkdl.res.in/tkdl/langdefault/common/Home.asp?GL=Eng">http://www.tkdl.res.in/tkdl/langdefault/common/Home.asp?GL=Eng</a> | TKDL is a collaborative project between Council of Scientific and Industrial Research (CSIR), Ministry of Science and Technology and Department of AYUSH, Ministry of Health and Family Welfare, and is being implemented at CSIR<br><br>It gives legitimacy to the existing traditional knowledge and enables protection of such information from getting patented by the fly-by-night inventors acquiring patents on India's traditional knowledge systems |

## REFLECTIONS ON KEY HEALTH KNOWLEDGE ACCESS REPOSITORIES: INDIA

| Repository                                                                                                                                    | Description                                                                                                                                                                                                                                                                                                        |
|-----------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CONSORTIA<br>National Medical Library (NLM'S)<br><a href="http://www.nlmind.in/">http://www.nlmind.in/</a>                                    | ERMED is an initiative taken by Director General of Health Services, Ministry of Health and Family Welfare. 72 Government Medical Colleges/Institutes across the country are ERMED members. ERMED is providing over 1600 medical journals from 9 leading medical journal publishers                                |
| Indian Council of Medical Research<br><a href="http://icmr.nic.in/icmrnews/e_consortia.htm">http://icmr.nic.in/icmrnews/e_consortia.htm</a>   | ICMR has been subscribing to the e-journals in a consortia mode available to its 28 labs in the country                                                                                                                                                                                                            |
| Rajiv Gandhi University of Health Sciences<br><a href="http://www.rghu.ac.in/">http://www.rghu.ac.in/</a>                                     | HELINET stands for Health Science Library and Information Network conceived by the University. The consortium was started in early 2003 with a vision to improve the quality of education and research in the Health Science institutions of the State through enhanced access to high quality medical information |
| National Institute of Science Communication and Information Resources (NISCAIR)<br><a href="http://www.niscair.res.in">www.niscair.res.in</a> | NISCAIR collect/store, publish and disseminate S&T information through consortia, mix of traditional and modern means, which benefits different segments of society                                                                                                                                                |

## NATIONAL INFORMATICS CENTRE CONTRIBUTION:

| Repository                                                           | Description                                                                                                                                                        |
|----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Indmed <a href="http://indmed.nic.in/">http://indmed.nic.in/</a>     | This database indexes 77 peer-reviewed biomedical journals from more than 200 journals                                                                             |
| Medind <a href="http://medind.nic.in/">http://medind.nic.in/</a>     | It provides access to 40 full text journals<br>This medIND database is accessible free of cost to the medical community in India as well those outside the country |
| Open Med <a href="http://openmed.nic.in/">http://openmed.nic.in/</a> | Openmed@NIC is a discipline based International Archive. It accepts peer-reviewed documents having relevance to research in Medical and Allied Sciences.           |

## PUBLISHERS

| Publisher                                                                                                        | Description                                                                                                                                                                                                                                                                                                                                 |
|------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Medknow <a href="http://www.medknow.com/">http://www.medknow.com/</a>                                            | Medknow is a publisher for peer-reviewed, online/print-online journals in the area of STM. It is the largest open access publisher publishing on behalf of learned societies and associations. It pioneers in 'fee-less-free' model of open access publishing and provides immediate free access to the electronic editions of the journals |
| Indian Journals<br><a href="http://www.Indianjournals.com">www.Indianjournals.com</a>                            | Indianjournals.com hosts few of the medical journals along with other journals                                                                                                                                                                                                                                                              |
| Informatics India<br><a href="http://informindia.co.in/about_us.html">http://informindia.co.in/about_us.html</a> | Informatics was promoted 27 years ago with a vision to pioneer the business of e-information in India, with scholarly and research content being the prime focus. Headquartered at Bangalore, Informatics has come a long way in promoting e-information usage culture in the academic and corporate world                                  |

## INSTITUTIONS / ACADEMIES

| Institution                                                                                                                      | Description                                                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| All India Institute of Medical Sciences (AIIMS)<br><a href="http://www.aiims.edu/index.html">http://www.aiims.edu/index.html</a> | AIIMS was created in 1956. It serve as a nucleus for nurturing excellence in all aspects of health care. It is an institution of national importance with the objective of developing best patterns in (i) teaching - Undergraduate and Post-graduate (ii)Research (iii) patient care. |
| Indian Institute of Sciences (IISc)<br><a href="http://www.iisc.ernet.in/index.php">http://www.iisc.ernet.in/index.php</a>       | Indian Institute of Sciences publishes Journal of Indian Institute of Sciences. (IISc) since,1914,that is available open access It has a repository of research theses and research publications                                                                                       |
| Indian Academy of Sciences<br><a href="http://www.ias.ac.in/">http://www.ias.ac.in/</a>                                          | Indian Academy of Sciences was founded in 1934. The journal Current Science, founded in 1932 is published by the Current Science Association in collaboration with the Indian Academy of Sciences                                                                                      |
| Indian National Science Academy<br><a href="http://insa.ac.in/html/home.asp">http://insa.ac.in/html/home.asp</a>                 | INSA plays crucial role in promoting, recognizing and rewarding excellence. It publish journals, organize scientific discussions and bring out proceedings and monographs. It publishes open access journals                                                                           |

## VISIBILITY OF INDIAN JOURNALS

Many of the Indian journals are open access that have found place in the global market

| Year | Journals indexed for Medline | Indian journals indexed |
|------|------------------------------|-------------------------|
| 2004 | 4,098                        | 28 ( 0.683%)            |
| 2008 | 5,246                        | 38 (0.696%)             |

This shows that there is fractional increase in number of published and indexed journals in Medline of Indian origin whereas there are 25,000 peer-reviewed journals as per Ulrich directory

Three Indian journals with impact factor more than one are open access

| Journal                                                                                                                                                     | Impact Factor |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| National medical journal of India (NMJI)<br><a href="http://www.nmji.in/the%20Journal/the_Journal.htm">http://www.nmji.in/the%20Journal/the_Journal.htm</a> | ~2.0          |
| Indian journal of medical research (IJMR)<br><a href="http://www.icmr.nic.in/ijmr/aboutijmr.htm">http://www.icmr.nic.in/ijmr/aboutijmr.htm</a>              | ~1.5          |
| Neurology India<br><a href="http://neurologyindia.com/aboutus.asp">http://neurologyindia.com/aboutus.asp</a>                                                | ~1.2          |

## TECHNOLOGICAL OPTIONS

- There are unlimited choices for open accessibility but we need acceptance of standards. For example: Open journal system (OJS) <http://pkp.sfu.ca/ojs/> of public knowledge project, Canada. It has more than 5000 journals that are using open journal system software
- Likewise there are repositories based open access softwares like D-Space, E-prints, Greenstone etc

## RESULTS

- The Indian MEDLAR Center of National Informatics Centre' s (NIC) New Delhi has strengthen the backbone of our country in health knowledge dissemination and access
- Medknow publishers, Mumbai has provided a platform for many open access journals
- Informatics India, Bangalore has facilitated in the formation of Consortia and in providing electronic services
- ERMED consortium of National Medical Library, New Delhi has provided access to electronic resources in various medical institutes and colleges.
- Other publishers indianjournals.com, indmedia.com, Indian Medical Sites (Q Med Initiative) has brought visibility to Indian research.
- All India Institute of Medical Sciences (AIIMS) New Delhi library has a repository of institute publications and many research publications are available online through its website.
- Few medical Institutes, universities /college libraries in the country are visible on the web. It seems that most of the health science librarians are unable to harness ICT systematically

## DISCUSSION

- Ministry of Health and Family Welfare under the government of India has a pivotal role in policy making, planning, guiding, assisting, evaluating and coordinating the work of state health ministries so that health services cover every part of the country and no state lags behind for want of these services. Uniform standards in teaching, research and patient care in each state has to be regulated such that access to health knowledge is provided to all
- Researchers do not have complete access to WHO-HINARI database that influences their research in spite India has Gross Domestic product (GDP) below the threshold agreed upon by WHO
- Quality control of research, peer reviewing, editing, integrity are important before Knowledge is reflected on public domain since right health information can save the life of patients
- Various Medical Schools in United States, United Kingdom, have institutional repository of research papers and thesis
- US National Institute of Health has a funder-mandate for public access like wise in UK Medical research Council has a funder mandate
- In India, too there is need to have such Institutional repositories and funder mandates that will enhance access to the knowledge

## BARRIERS

- Lack of Proper ICT Infrastructure: Among the key constraints are the lack of proper hardware, software , operational problems and Internet connectivity
- Lack of Proper Planning and Integration of Resources: Most of the resources in the library are scattered and distributed across a wide variety of publication types
- Shortage and Lack of Trained Human Resources: Skilled manpower in the libraries is not available and in much of the places librarians post is lying vacant
- Lack of Team Spirit: Decentralized Efforts: Fragmented approach has affected in development of better services
- Lack of Awareness/Interest: Librarians, researchers do not have much awareness about benefits of open access
- Lack of Institutional Support: Non-supportive administration at many places has brought frustration among the librarians and hampered their growth and has led to drop of excellence
- Meager Budget: Escalating prices of journals has led to subscription of limited resources since in many of the libraries budget has not increased and it is not possible to subscribe all the journals
- Myopic View: The myopic approach to competition and fear to connect with the rest of the world, to capture the potential of global markets and the innovative ideas within an organization has hampered access
- Copyright Issues: Granting exclusive rights to the author or publisher, including the right to copy, distribute and adapt the work has posed much of the problems to access knowledge

## SUGGESTIONS

- Librarians' should be competent to accept challenges like setting up Institutional Repository, developing dynamic library websites and in creating contents and integrating open access resources with core collection
- Librarians should create awareness among the researchers, suggest policy makers about various resources - open access
- There should be library networking to facilitate cooperation of resources, services and expertise
- Promotion and Advertising of health resources through websites, magazines and other communication channels.
- Conducting training programs and workshops to train the trainers
- Academic Institutes should make an open access mandate and should ensure that all publicly funded research is freely available to the researcher
- Essential to strengthen and upgrade the professional bodies like Indian Library Association, Medical Library Association of India

## CONCLUSION

Since, universal access to knowledge increases the productivity and visibility, there is a need to look at the far more in-depth advantages of open access and its potential within and outside organisations. This cross- fertilization of ideas and research will not only benefit the institution but the entire humanity

## REFERENCES

- The Directory of Open Access Repositories at <http://www.openoer.org/>
- Registry of Open Access Repositories (ROAR) at <http://roar.eprints.org/>
- <http://www.earlham.edu/~peters/foos/overview.htm>
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- Arunachalam, S., India's march towards open access. SciDev.Net, (2004) at <http://www.scidev.net/en/opinions/indias-march-towards-open-access.html>
- List of Journals indexed for Medline 2008 <http://www.nlm.nih.gov/tsd/serials/lji.html>