IndMED and medIND: NIC’s Online Biomedical databases

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Abstract:

Very few Indian biomedical journals have found place in international databases due to various reasons like delayed / irregular publishing, lack of quality articles, etc. The National Library of Medicine’s (NLM, USA) MEDLINE database covers approximately 50 Indian journals. As far as the full-text of these journals are concerned, MEDLINE has only covered three Indian journals. The ICMR-NIC Centre for Biomedical Information, the 17th International MEDLARS Centre has been catering to the biomedical information needs of the medical professionals since 1986. One of the tasks undertaken by the Centre is to meet the glaring and obvious “unavailability” of Indian biomedical research literature. Hence, the Centre took up the challenging task to develop databases of Indian biomedical journals and provide a platform for making this literature available to the Indian as well as international medical community. One such database developed is the IndMED, which covers the bibliographic details from 75 peer reviewed Indian biomedical journals. IndMED has received a lot of recognition and the Centre strives to keep this database at par with the MEDLINE database. The 2nd database being developed is the Online full-text database of Indian biomedical journals, medIND, which would cover the full-text of IndMED journals and serve as one vital resource for all Indian biomedical literature.

Background:

National Informatics Centre (NIC), a premier Information Technology organisation in India is committed to provide state-of-the-art solutions for the IT needs of the Government of India at all levels. NIC carries the distinction of being the largest IT organisation in the country and has set up a satellite based nation-wide computer communication network called NICNET having over 1400 nodes connecting the National Capital, the State Capitals and the District Headquarters to one another. The IT services of NIC range from consultancy, software design & development, office automation and networking services to training, video conferencing, CAD, EDI, multimedia and internet services including web site development and hosting. NIC has a nation-wide presence with its offices spread all across the Country, from Leh in the north to Andaman & Nicobar Islands in the Bay of Bengal in the southeast.

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For the medical professional gathering information involved hours of scanning for literature from medical college/institution libraries and lack of IT in these libraries made the task more laborious. The National Informatics Centre (NIC) and Indian Council of Medical Research (ICMR) jointly set up the ICMR-NIC Centre for Biomedical Information in 1986 to assist these medical professionals by saving them their time in information gathering and compilation. Since then, the Centre has been striving to meet the information needs of the professionals by providing biomedical information from MEDLARS (Medical Literature Analysis and Retrieval) databases of National Library of Medicine (NLM), USA and other resources accessible over the Internet. Initially, information was provided from MEDLINE - CDROM databases; in 1990, the Centre was recognized as the 17th International MEDLARS Centre and came to be known as the Indian MEDLARS Centre (IMC). At present, IMC provides information from NLM’s MEDLARS databases, Internet resources and CDROM databases. The bibliographic information services are backed by document support services, training programmes and other value-added services, over the net, such as indigenously and locally developed databases - IndMED, Union Catalogue of Biomedical Periodicals and medIND (under development).

The Centre’s website (http://indmed.nic.in) was launched in August 2000 highlighting the services that were being provided to the medical professionals. Access to IndMED and other IMC databases have been provided from the site and in addition links to NLM’s MEDLARS databases and other important Internet resources are provided. This website serves as a portal to over 100 biomedical and health resources available over the Net and e-journals. This site received several awards for its design and content and was also nominated for the 2002 Stockholm Challenge Award; the Google Directory ranks IMC’s site amongst the first five Indian health websites and amongst the first ten “MEDLINE” resources international sites. With these web-interfaced services, IMC has brought in the “human” touch to the technology enabling the medical professionals to have access to Indian as well as international biomedical information at a click of a button.

**IndMED:**

Based on the poor coverage of Indian biomedical literature in international resources, the Indian MEDLARS Centre took up the onus of filling this gap by developing an indigenous database with bibliographic details taken from 75 Indian biomedical, peer reviewed journals, since 1985 onwards. When the database was developed, only non-MEDLINE journals were covered. However, over the years some of these journals got included in MEDLINE, but these continued to be included in IndMED, keeping in mind NLM’s changing policies. IndMED has been designed and developed on similar format used by NLM’s MEDLINE database using Medical Subject Headings (MeSH) for indexing purposes. It has been named as IndMED to reflect its scope of covering Indian biomedical literature. The aim of this database is to provide exposure to articles published in learned biomedical journals from India.
The database can be searched using simple and advanced search engines and is free-text searchable plus keyword searchable. This is searchable free of cost from the webpage (http://indmed.nic.in) to users in India, as well as those outside India. Its Web interface provides three levels of searching and three levels of display of the search results. The display of references also provides hypertext links in case source journal is available on the Internet.

In 1997 it was felt that there should be one “national” database and a decision was taken to merge the Neurology, Tuberculosis and Oncology databases. It was also decided that this single database should be subject generic and hence all other biomedical topics were also covered. However, the decisive factor for designing this database was the “poor” coverage of Indian biomedical literature in international resources, which led to the selection of journals being limited to non-MEDLINE peer reviewed Indian biomedical journals.

The journals were screened and selected from over 300 Indian biomedical journals by an "IndMED Journals Selection Committee" (IJSC) using the following criteria for selection:

- Peer-reviewed journals.
- Journal published on time.
- Journal published at least twice in a year.
- Journal started at least three years prior to selection.
- Non-MEDLINE journal

IndMED was made publicly accessible in December 1997 through the web (World Wide Web) using BASIS+ web server. The data was converted from CDS/ISIS into BASIS+ by using writing special utility for this purpose. The WEB interface was later on improved and redesigned. It made use of a) three levels of search interfaces as front end; b) ISIS database file structure as the backend and c) web-database connectivity using CGI and implemented by PERL scripts (Sukhdev Singh, 2001).

Searching IndMED through web interface is relatively easy. Search terms can be entered in one of the three query forms i.e. simple form, minimal box or advance search form depending upon the complexity of the query. Minimal box is available at the top of most of the pages of the site. The simple form and advance form are available at IndMED page. Right truncation of the search terms is also available by using a dollar ($) sign. Single words can be combined with Boolean operators (AND, OR, and NOT) to form a complex query. For some fields "phrase searching" is also available. Further by using advanced search form, searches can be restricted to particular fields like authors, journals, article title, keywords, ISSN, etc.

Search results are displayed by generating dynamic HTML pages. The display has a top "manipulating tool bar"; middle portion-displaying references retrieved in response to the query and a bottom reusable search box showing the query. All or the selected references can be redisplayed by using different display formats. "Citation" format displays the author(s), address, title and source. "Citation +

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Abstract” format displays abstract along with the citation. “Full record” format displays keywords, other keywords and number of references, in addition to the elements displayed by “Citation + Abstract” format. In all the formats, the source journal is shown in hypertext if it is available on the Internet.

Online full-text database – medIND

With the successful launch and use of IndMED database it was decided to design a new database covering the full-text of articles from the journals covered in IndMED. The new online database of full-text of Indian biomedical journals is being developed with an aim of creating a one-point resource of all Indian biomedical journals. Till date no such resource exists in the country, which was one of the main decisive factors in designing such a database that would not only benefit the Indian medical professionals, but also those outside India who have limited resources to access the research information published in India.

For creating this vast database the consent of participating editors is being taken for inclusion of the full-text of their respective journals. Initially, only current issues of journals are being included in the database. The editors are not being charged any fee for web hosting and the access is also being provided free of cost. The medIND site has an independent domain name (http://medind.nic.in) with the home page giving details to the site, including participation information and terms of use. Journal articles are being scanned and after OCR (with correction of all possible errors) converted to PDF documents. These are then being made available on the website. The articles in the database can be accessed by:

**Browsing:**

A navigational aid has been provided wherein the user can browse from alphabetical or subject wise list of journals. Such hyperlinked lists would lead to pages giving details of selected journals such editors, instructions to authors contact address, parent body, etc. This would lead to listing of issues of the journal, years / volume wise. Clicking on an individual issue would lead to the table of contents of that issue. The content page would have links to the individual articles.

**Searching:**

Users would have the option of searching the database for a specific article/articles in a search box provided on the homepage. Searching options would also be provided through the bibliographic database IndMED with each record having a link to the full-text of the article.
**Display:**

Articles would be displayed in PDF format and the users would have two options for viewing/downloading depending on the Internet speed available.

The current issues of the following journals are being presently covered in the medIND database:

1. Endodontology  
2. Health Administrator  
3. Indian Journal of Aerospace Medicine  
4. Indian Journal of Allergy Asthma and Immunology  
5. Indian Journal of Anaesthesia  
6. Indian Journal of Clinical Biochemistry  
7. Indian Journal of Community Medicine  
8. Indian Journal of Medical Microbiology  
9. Indian Journal of Occupational Therapy  
10. Indian Journal of Otolaryngology and Head and Neck Surgery  
11. Indian Journal of Pharmacology  
12. Indian Journal of Thoracic and Cardiovascular Surgery  
13. Indian Journal of Tuberculosis  
14. J.K. Practitioner  
15. Journal, Indian Academy of Clinical Medicine  
16. Journal of Indian Association of Paediatric Surgeons  
17. Journal of Indian Society of Pedodontics and Preventive Dentistry  
18. NTI Bulletin

In the coming months, all the back issues of these 18 journals would be included in the database and in the long run it is proposed to cover all the IndMED journals. Negotiations are underway with the editors to contribute to this database enabling in creation of a single easy to access point for peer reviewed Indian biomedical literature. This would help not only the Indian professionals, but also professionals outside India, to access the literature that has for long being excluded from international view.

**Conclusion:**

The Indian MEDLARS Centre has shifted the focus of its services from “content provider” to “content generator” with the development of the two databases. These databases are going to serve the Indian medical community by providing free access to peer reviewed Indian biomedical literature. Information from the IndMED database would be complemented by the availability of full-text of information from medIND.