
IMPACT OF INFORMATION TECHNOLOGY IN MEDICAL LIBRARIES (SCTIMST)

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The interdisciplinary nature of research has broadened the scope of medical sciences and increasing quantities of information is one of the vital components for effective health care systems. It no longer matters where the information physically resides. It only matters that access to information is provided quickly on demand.

The access to health information has been made easier with the emergence of information technology, and the medical libraries all over the world are on the way to become "dynamic centers of knowledge where traditional information and curatorial roles are covering with modern information technology to spring forth new services previously unimagined" [1].

While the above is the achievements in developed countries, one of the most important issues facing the developing countries is access to medical information to support their health care activities. The Medical libraries in developing countries are in a "transitional stage confronting philosophical and economical issues associated with preserving emphasis on collection development while adapting new operational procedures related to electronic publications and printing on demand" [2].

Indian Scene upto Eighties

The pace of development of medical libraries in India was terrible slow till the nineties with the result that they have not been able to create any visible impact on the delivery of health care. These libraries were working in isolated environments without taking any step in improving the access to health information. The libraries tended to think of their role as being primarily one of collecting, cataloguing and storing information. The libraries could not provide quality information services due to lack of facilities and had no access to computers and other latest information technology and were not participating in national or

international networks.

In India there are more than 500 medical and biomedical libraries and information centres. These libraries and information centres have to cater to the information needs of medical professionals engaged in 3 major areas of health and family welfare are

1. Research
2. Health Education
3. Medical Care [5]

This paper takes specific instances of study form Kerala which is noted for its commendable performance in the field of disease control and eradication and in the family welfare program. The study tries to evaluate the impact of Information Technology in the performance of medical libraries in Kerala in relation to access to information. The focus of the study is the medical library in Sree Chitra Tirunal Institute for Medical Science and Technology (SCTIMST), Kerala.

Performance of SCTIMST Library Before 1990's.

It is essential to analyze and evaluate the quality of medical information service offered by SCTIMST library before the application of Information Technology to assess the impact of Information Technology on the library service.

Since its inception in 1975, the SCTIMST library supported the academic and research programmes of the Institute. The library's major activity was collection development, circulation of books and periodicals, occasional reference service and bibliography compilation. The only means to access to information sought by the users was the conventional catalog and classification for inhouse resources which was efficiently prepared and maintained. The keys to information were author index, title index and detailed subject catalog prepared using the medical thesaurus MESH. The secondary journals were also used for providing access to information. They were Excerpta Medica sections on Neurosciences, cardiac sciences, Index medicus, current contents in life sciences, Engineering sciences, on Physical, Chemical and Earth Sciences. The clientele of this library formed a heterogeneous group comprised of academicians, clinicians, researchers and postdoctoral medical students, Biomedical engineers of the institute and the neighbouring Medical college of Trivandrum. The users were satisfied with the resources of the library which was of a conventional type but consisted of an excellent collection of current periodicals. Library was mainly visited for borrowing books

and journals and for passive reading. The library had no computer facility and was not participant in any national or international network. The library occasionally depended on National Medical Library and INSDOC for photocopies of articles.

The remarkable advances in modern medicine and medical practice have intensified the information needs of health care professionals to stay abreast of ever expanding knowledge in the health disciplines. To support the academic program of the Institute, it was not enough that the library used conventional methods of providing access to information. It involved time consuming and cumbersome techniques and very often could provide only incomplete information.

Strategies for Adopting Information Technology

The Management of the Institute realised that given the necessary infrastructure, with modern information and communication technology, the SCTIMST library can play an integral part in the academic activities of the institute and can create an impact on the health information needs of the health care professionals, not only of the institute but also of the State of Kerala.

The management got convinced that it is no longer possible to collect and store everything that is needed. On the one side there is the highly rich information sources in medical science supported by all latest information and communication technology for easy access and on the other side, the Indian medical libraries unable to cope with the escalating costs of flooding publications unsupported by any technology still pursuing the old conventional methods unable to provide better access to information [4]. Application of Information Technology in SCTIMST, for improved access to information became a necessity.

As a result in April 1990, the library was equipped with a PC/AT to demonstrate the various capabilities of the system. The first activity to be computerized was the creation of inhouse database of library documents. Software used was CDS/ISIS Ver 2.3. For this purpose NISSAT supplied the software free of cost and gave the necessary training and technical support. The current cataloguing was under taken along with retrospective conversion in machine readable form. Nearly 12000 records of library documents and 800 records of library's holdings of periodicals were created. The task was completed in Dec 1990. This formed the 1st phase in the application of Information Technology in SCTIMST Library.

This enabled library to introduce computerised SDI service. Bibliography compilation and Current Awareness Service bringing out the Monthly Addition Bulletin with "Contents" of each book purchased in the library. In the meanwhile developments in CD-ROM technology made available many renowned medical databases in Compact Disc. Developments in medical field led to new demands for information which only the power of Information Technology could provide. This led to the second phase in the evolution of SCTIMST Library into an Informatin centre.

In 1992, to enhance the information capabilities of the library, the system was upgraded into a LAN based Information Network with a dedicated file server and three terminals and two CD-ROM drives. The Medline database in CD was procured and installed in 1992 July. The potential of CD-ROM databases raised great expectations among the library staff as well as the users. The biggest advantage was the ability of the user and librarian to perform multiple and repeated searching at no additional cost beyond the initial purchase price due to the absence of communication charges.

The impact of introducing CD-ROM databases to the clientele of the SCTIMST was quite obvious. The transition of the library from its quiet and passive mood to an active information centre busily interfacing the users with their information was an exciting experience.

Availability of Current Contents on Diskette is another major development which improved the information service of the library. It is published weekly by Institute of Scientific Information, Philadelphia and is available in seven multidisciplinary editions and totally covers more than 254,000 journals. Each edition covers a group of interrelated disciplines, designed to provide the most comprehensive coverage possible. The editions presently available in the current contents on Diskette with abstract are Life Sciences (LS1200); Agriculture, Biology and Environmental Sciences; Physical, Chemical & Earth Sciences and Clinical Sciences. IN 1993 library started subscribing to Current Contents on Diskette which covered sections on Life Sciences (With abstract) and Engineering & Applied Technology (Without abstract).

Subscription to Excerpta Medica Neuroscience section in CD was started in 1994 and Excerpta Medical Cardiac Sciences in 1995. The increasing availability of CD-ROM databases proved every bit as exciting and far reaching as developments in medicine itself.

The introductin of medical databases on CD and current contents

on Diskette with abstract gave a boost to the information services of the library. In the past the library could offer only bibliography compilation on demand and occasional SDI services. But Information Technology changed the scene. The SDI service and retrospective searches became the major services being offered by the library. The table below shows the increase in the number of searches conducted and SDI profiles serviced by the library.

	1976-90	1991	1992	1993	1994
SDI Profile	3	8	23	37	45
Number of searches conducted	22	184	765	1231	1564
Number of abstracts retrieved	231	1152	4843	7621	8425

SCTISM Library as NICNET User Centre

In 1993, the SCTIMST library was designated as a NICNET node for Medlars operation in Kerala State. This marked the 3rd phase in the evolution of SCTIMST library as a full fledged Bioinformatics Centre. Medlars services are provided by NIC through its nation wide satellite based computer communication network NICNET. Initially the library started to function as a NICNET node through a dialup line to the Micro Earth Station installed at the Kerala State Unit of NIC. The system was later upgraded by installing a Micro Earth Station at the SCTIMST library for direct access to the Medlars databases available at Indian Medlare Center at New Delhi. This facility enhanced access to information to a great extent and enabled the library to extend the services to the other health professionals throughout Kerala.

As a means of fully exploiting the capacity of the Micro Earth Station installed at the SCTIMST, one of the two ports of the Controller was connected to a modem and telephone to give connectivity to the Biomedical Technology wing of the Sree Chitra Institute and Regional Cancer Center, Trivandrum. There is also a proposal for giving connection to the Medical College of Trivandrum in the near future.

Medline data from 1986 onwards is available for direct access to all the NICNET users. Medline data prior to this as well as information from all other Medlars databases is available on request from Indian Medlars Center. Other databases available on interactive access through NICNET are AIDS DRUGS, AIDSLINE, AIDSTRIALS, NIC also provided CLINICAL TRIALS information from National Institute of

Health, (NIH) USA funded clinical trials, on paying the actual On-line searching cost. This is full text data.

AIDS DRUGS gives descriptive information about the agents being tested in Clinical Trials, AIDSLINE is bibliographic citations of literature published on AIDS since 1980 and AIDS TRIALS gives detailed information on Clinical Trials.

Another database that can be searched interactively from any NICNET node is the Union Catalog of Biomedical Journals with holdings of over 150 biomedical libraries in India.

Training of Library Staff and Health Professionals

With the introduction of Information Technology, the training of the library staff and clientele of SCTIMST library - Health Professionals - became a looming question. New knowledge skills and abilities are needed immediately. Although individuals have the primary responsibility for their own professional development, the organisation gave the necessary support and encouragement through articulated policies and programmes for staff development by organising formal and informal training programmes in collaboration with other agencies.

The application of Information Technology in the library also led to a demand from the clientele of the library for training to operate the computers and learn the techniques of Information searching and retrieval. During the year 1992, library conducted NISSAT sponsored one month Training Programme on Computer Application in Library for library professionals of Kerala State including SCTIMST library staff. User Awareness Programme on MEDLARS Database and Two Training Programmes on MEDLARS search strategy for Medical professionals, Scientists and Library Professionals also were conducted in association with National information centre of Kerala State.

The marvelous possibility available through the global communication network created an awe on the potential users of health information. E-Mail Service available through NICNET made the concept of "Global Village" a reality. They realized that SCTIMST library is "on the move" that it is developing into an informatics with information technology to spring forth new innovative services. The clientele were made aware of the advantage of "Networking of libraries" through electronic networks such as NICNET, ERNET and INTERNET, high performance super computers and transmission of information in multiple format over high speed networks. The library continues to impart informal

training programmes to the clientele and now it is part and parcel of the library service.

Impact of Information Technology on Users

The services provided through the NICNET generated a positive response from doctors, research scholars and paramedical staff. With the introduction of Information Technology, the library is in a position to offer unique and innovative services to meet the needs of clientele. They liked the promptness of the service as well as the easy access to it. The type of patrons using the library also changed. In the past, the academicians and students were the primary users of the library. The library was created solely to support the Post Doctoral and Research Program of the Institute, Now Doctors, Clinicians, Students, lawyers, Research Scholars, Industries engaged in manufacture of biomedical devices, Administrators, Policy Makers are approaching the Institute library for satisfying their information needs.

The Medlars services through NICNET was opened to the public in October 1993. The table below shows the number of searches conducted, per month during the 1994 as well as the districtwise distribution of the clientele who are availing the service during the year 1994.

Table 1

The number of users retrieved	Number of references
Jan 33	1428
Feb 34	1445
March 21	1246
April 20	754
May 21	1120
June 25	994
July 47	1685
Aug 64	3252
Sept..... 26	2469
Oct 57	1926
Nov 51	2091
Dec 39	1248
Total..... 438	19658

Table 2
Number of Districtwise Distribution

SCTIMST	28	1196
Trivandrum	257	11424
Kollam	8	356
Alleppy	2	94
Kottayam	39	1448
Ernakulam	7	322
Trichur	12	864
Calicut	24	1288
Kannur	1	46
Outside Kerala	21	1072
Nagpur	39	1548
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Total	438	19658

The library framework is no longer confined to the library members. The service extends beyond its walls to reach out the total community. Users access information from almost anywhere at anytime. If reference is not available in local collection, library as Network facilitator provides access to databases of information at other institution or organization[3].

Prospects

The wide spread interest in communication networks and resource sharing has led the institute to try to establish INTERNET connectivity. The network infrastructure now available demonstrated the efficacy of the program. The use of familiar technology and existing equipments limited technical problems. The infrastructure now available can be expanded to bring educational resources to all in the state who need them. It is anticipated that broad access to information and resources through communication networks will support the teaching of health sciences and delivery of health care in Kerala State.

Conclusion

In the last few years, SCTIMST Library experienced several challenging and rewarding moments transforming a library with inadequate facilities to one with state-of-the-art Information Technology and systems tailored to the needs of the medical professionals. The most important lesson is that librarian, in order to fulfill their potential, must articulate and act upon a vision that involves them more fully in the work

of faculty and researchers. What is needed is for librarians to acquire the knowledge and skills to meet the needs of research and education in a technologically intensive and rapidly changing Information Scene. Agencies like INFLIBNET can play an important role to prepare the library profession to face the new challenges by providing opportunity to the senior librarians to acquire the necessary expertise in the applications of ITC for library and information systems.

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