



# Health Knowledge Discovery and Learning Development Resources in Leading Health Institutions Libraries in India: A Study of NIRF Ranking Medical Institutions

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## Abstract

Health science libraries are the libraries which are established to provide various specialized services to help and support readers and researchers. Library resources offer comprehensive assistance to healthcare professionals as they grow in their field, aiding in the exploration and enhancement of their understanding of health. This paper aims to examine the resources available for the exploration and advancement of medical knowledge in the health facility libraries of top NIRF institutions within the medical category. During the initial stage, this study examines the development of health information sources and health education tools and resources in AIIMS, New Delhi. Furthermore, steps are being taken to outline future paths to upgrade top medical libraries in India into world-class hubs of knowledge in comparison with the National Library of Medicine, USA.

**Keywords:** Health knowledge resources, Medical knowledge learning resources, NIRF Medical Category, Library learning and assessment tools, Medical libraries.

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## 1. Introduction

The development of computer technology combined with information and communication technology has drastically transformed the research methodologies. It has completely transformed how health science libraries assist researchers. Now, researchers have the benefit of strong electronic tools to assist in the development of research concepts. The integration of computer technology has transformed every aspect of the medical libraries. The idea of ICT and web 3.0 has transformed health science libraries. Health researchers have great hopes from health libraries simultaneously. Health librarians are librarians who have received special training in order to cater to the needs of researchers. The field of health sciences is continuously developing through the use of cutting-edge research tools and techniques. Health science clinicians and scientists are constantly feeling the need to stay updated with the nascent knowledge in their fields. Nowadays, health librarians have an evolving and challenging role in assisting the individual reader or researcher.

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## 2. Objectives

This study is organized to identify the following trends:

- Health knowledge discovery tools in health science libraries of India.
- Health knowledge learning development directions in India's top rank health science library.
- A comparison of resources availability in India's top health science library and National Library of Medicine, USA.

## 3. Review of Literature

Traditionally health science libraries are the rich collections of medical and paramedical literatures in print format. Matheson (1982) identified that the electronic information revolution can significantly improve medicine and biomedical research, but academic health science centres have not benefited from it. Their information systems are disorganized and are unable to share data effectively. There is a lack of focus on improving academic information systems, which are essential for scientific knowledge. Libraries also need transformation to better manage electronic information. He reported how libraries can evolve from mere custodians of knowledge to active partners in managing biomedical information. Fuller (1999) provided a case study of librarian involvement in the development of institutional information systems.

Mac Eachren et al (1999) observed that the medical literature is large and rapidly growing, making it even more difficult to find the best treatment or test. New information products are constantly emerging to provide up-to-date, high-quality information. An upcoming product is Clinical Evidence, which collects evidence for treatments. There are also electronic resources for searching multiple databases. Physicians need to be informed about search strategies and resources. Miller (2000) has noticed transformation of resources from print to electronic format and its effects. Tenopir (2003) has minutely analysed needs and information seeking behaviour of various discipline specific readers. He also reported advantages of electronic resources and users preferences. Franklin (2004) has discussed usages patterns of readers for digital libraries in a networked environment. Jaguszewski (2013) has uniquely identified services dimensions of research libraries. He also identified four measure key points of research libraries services as management of resources, user specific reference services, reader's orientation programs and effective use of library professionals. In words of Parker R (2012), Library support services are standardized as a combination of activities performed by the professionals to enhance research outputs and scholarship. Xiaolin (2012) has shown in his study that libraries are required to reanalyze services and support for researchers' needs. Esfandiari, N. et al (2014) observed that conventional data techniques face challenges with different data types and massive datasets, leading to the increase in data mining. Its usage is increasing within the field of medicine, having a substantial effect on human health and achieving positive results in various other industries. Data mining has a wide range of applications in various medical fields, including both prevalent and uncommon diseases. The author emphasized the significance of working together across various fields throughout this procedure. Stiglic (2020) emphasized on interpretable machine learning models are essential

for better understanding. They improve service quality by helping end users understand predictions and supporting healthcare professionals in making informed, personalized decisions. Grosjean (2024) elaborated access to reliable digital health resources is crucial. Lack of search engines for non-English languages is a major obstacle. Khalid (2024) concluded that Knowledge graphs organize structured knowledge but face challenges in automation and completeness. Gaps in connectivity persist despite efforts and expert ontologies.

#### 4. Methodology

This research began by identifying NIRF ranking institutions under the medical category to gauge the first objective. Further best identified top institution is considered for study. The health knowledge discovery services and learning development resources are investigated in the top rank NIRF medical category institution for second objective. Third objective is developed by deep website investigation by comparison.

#### 5. National Institute Ranking Framework (NIRF) of India

The National Agencies Ranking System (NIRF) was approved by MHRD, and the Minister for Honorary Human Resources launched it on September 29, 2015. This ranking method is a nationwide system established based on the core committee's proposals to create parameters for universities and institutions, covering teaching, research, examination results, inclusiveness, and perception. NIRF 2024 has 182 participant institutions under the medical category. List of top ranked 10 institutes of NIRF (Medical Category) 2024 is marked in figure 1.

**India Rankings 2024: Medical**

Show  entries Search:

Institute ID	Name	City	State	Score	Rank
IR-D-N-15	All India Institute of Medical Sciences Delhi <a href="#">More Details</a>	New Delhi	Delhi	94.46	1
IR-D-U-0079	Post Graduate Institute of Medical Education and Research <a href="#">More Details</a>	Chandigarh	Chandigarh	80.83	2
IR-D-C-45654	Christian Medical College <a href="#">More Details</a>	Vellore	Tamil Nadu	75.11	3
IR-D-U-0236	National Institute of Mental Health and Neuro Sciences, Bangalore <a href="#">More Details</a>	Bengaluru	Karnataka	71.92	4
IR-D-U-0368	Jawaharlal Institute of Post Graduate Medical Education and Research <a href="#">More Details</a>	Puducherry	Pondicherry	70.74	5
IR-D-N-33	Sanjay Gandhi Postgraduate Institute of Medical Sciences <a href="#">More Details</a>	Lucknow	Uttar Pradesh	70.07	6
IR-D-U-0500	Banaras Hindu University <a href="#">More Details</a>	Varanasi	Uttar Pradesh	69.54	7
IR-D-U-0436	Amrita Vishwa Vidyapeetham <a href="#">More Details</a>	Coimbatore	Tamil Nadu	68.81	8
IR-D-C-7242	Kasturba Medical College, Manipal <a href="#">More Details</a>	Manipal	Karnataka	67.42	9
IR-D-C-49008	Madras Medical College and Government General Hospital, Chennai <a href="#">More Details</a>	Chennai	Tamil Nadu	64.12	10

Figure 1: India Rankings 2024-Medical

All top 10 institute library websites are investigated for health knowledge resources and learning development tools. It observed that most of the listed libraries have resources subscribed from 25 publishers as listed in Figure: 2.

Sl.no	Publishers	Sl.no	Publishers
1	ACP	14	IOP Publishing
2	Americal Society of Microbiology	15	JAMA journals
3	AAAS	16	Karger
4	American Society of Nephrology	17	NEJM
5	Annau Review	18	OVID Collection
6	APS Journals	19	Oxford University Press
7	ASM	20	SAGE Journals
8	Bentham Science Journals	21	SLACK
9	BMJ E-package	22	Springer Core
10	CSIRO	23	Springer Nature
11	Elsevier Journals	24	Thieme
12	Emerald Publishing	25	Wiley Journals
13	Informa (T&F)		

Figure 2: Leading Publishers

Medical libraries in India have resources accessed by two sources. Most of the Indian medical libraries have access of ERMED consortium. ERMED consortium is a consortium managed by National Medical Library, New Dehi under Ministry of Health and Family Welfare, Govt of India. ERMED consortium has subscriptions of around 239 electronic journals. Around 75 medical libraries have access from ERMED consortium. While leading medical libraries have process of their own subscription licenses.

Indian medical libraries have very diverse resource availability. The Indian government declared One Nation and One Subscription (ONOS) on 25 November, 2024. ONOS is an effort to provision 13000 electronic journals belonging to 30 leading publishers to the Indian academic and research domain. It is also notified that around 1.8 crore users will be benefited in India.

NIRF ranking denotes All India Institute of Medical Sciences New Delhi is ranked 1 under the medical institutions.

## 6. Health Knowledge Discovery and Learning Development at Library of All India Institute of Medical Sciences, New Delhi

The health knowledge discovery services for the AIIMS, New Delhi library are identified in following categories:

### 6.1. Health Science Literature Search

A Literature search for the resources of a reader needs to start with the available collections. Health practitioners and scientists always need resources from Active Directory services. Usually the Pubmed database is used to search for articles. But AIIMS New Delhi Library has web-wide discovery services to search literature solutions. It has provided a single point search interface for all available full text resources in the library and other resources on the library webpage.

## **6.2. Anytime anywhere availability of resources**

AIIMS New Delhi library is committed to provide continued access to resources to their users. In this direction, the library has implemented various remote access solutions such as Open Athens and Knimbus with their mobile apps.

## **6.3. Web Page Information**

The library website is the basic entry point for the library to communicate with the readers. The AIIMS New Delhi Library website is in collaboration with the institute website. It is designed to be easy to use for beginners. A basic introduction to the library and information about resources and services are encapsulated in various modules. In addition to a remote access facility for users and a wide network of electronic resources, this library is open 24/7 for scholars, residents, faculty and other professionals. Information about various subscribed resources, single point search box, A to Z list of subscribed electronic journals, OPAC access link, guidelines for accessing resources, AIIMS New Delhi library Electronic Resources Fair Use Policy, and various important information of interest to the readers are compiled on this web page.

## **6.4. Readers' Orientation**

The BBD Library of AIIMS New Delhi has undergone rapid transformation in various areas over the last decade. As tenopir (2003) noted, readers still prefer to use printed resources or take printouts from electronic resources.

This library also has a large collection of printed volumes of books and journals. All the printed collections of back volumes of journals are now arranged in mechanical covered racks (compactors). Installation of compactors has significantly increased the space in the library for various user services and events. Readers orientation programs will be held regularly to inform the readership about the day to day developments in the library. New subscription resources and product education are available to faculty and trainees. Library, AIIMS New Delhi subscribed various services and resources after a testing and review process. Various reader programs are planned to encourage readers' feedback and communication on the library initiatives. It is very helpful to track your library's return on investment.

## **6.5. Analysis and bibliometric services**

Literature analysis and citation analysis are very important services to support the researchers and clinicians. Library subscribes to the leading citation analysis tools namely Scopus and Web of Science. Both are internationally acclaimed databases with comprehensive coverage of scientific literature. Web of Science offers researchers a variety of unique citation analysis features.

## **6.6. Acquisition services**

The development of the collections at BBD Library of AIIMS New Delhi is considered solely on the recommendations of faculty, residents and researchers.

Requests for acquisition of books, journals and other resources are processed with the approval of the Library Committee for final decision. Any genuine library reader can submit a subscription request for the required resources through HoD. Currently, AIIMS New Delhi library has a vast collection of books, journals, theses & dissertations, pamphlets and various databases and tools.

The BBD Library of AIIMS New Delhi has been acquiring the following e-resources:

### 6.7. E-Books collection

**Access Medicine:** McGraw Hill is a renowned academic publisher and AIIMS, New Delhi library has a subscription of more than 600 e-books collection in addition to the printed textbook of this collection. Now, readers may be benefited with the latest editions of the electronic version as it is being updated continuously. Almost all the health science disciplines are covered under this wide collection.

### 6.8. E-Journals collection

- **British Medical Journal:** Library has a collection of 29 e-journals from BMJ publisher.
- **Springer Link Online :** Library has subscribed collection of more than 100 titles of Springer journals
- **Nature Publication:** Library has subscribed institutional access to 54 online journals.
- **Thieme Publication:** Library has a collection of 41 online journals from Thieme publisher.
- **JAMA Network:** Library has a complete subscription of Journal of American Medical Association with archives.
- **Karger Publication:** Library has a collection of 16 discipline specific online journals subscription of S. Karger.
- **Wiley Online Library:** Library has 142 subscribed e-journals of Wiley publication. Most of the title has full archival coverage.
- **LWW Publication:** Library has subscription of Total Library Collection of LWW/Ovid technologies. This collection has more than 280 subscribed titles of different health science specialties.
- **ScienceDirect of Elsevier:** Library has 241 e-journals collection of Elsevier of various subjects on science direct portal.
- **Oxford University Press:** Library has the subscription of more than 75 e-journals of health science speciality.

### 6.9. BMJ case reports

It is a much liked case report journal from AIIMS fraternity. It has been considered after the long user trials. Many faculties and scientists of the institute have submitted the important case reports. It had been peer-reviewed by the editorial board of BMJ. Best cases were also listed and awarded.

### **6.10. Online Decision support tools**

**UptoDate tool:** It is a famous and much liked database for doctors. It is utilized by the health professionals to reference point of care. It has the latest research and findings for various health disciplines and recommendations.

**6.11. BMJ Best Practise:** Library also has a subscription to the British Medical Journal. It is developed to support clinicians to make decisions at point of care.

### **6.12. Health Science videos Collection**

**Acland's Video Atlas of Human Anatomy:** A unique collection of Human Anatomy videos for the medical students of UG & PG programs and researchers. This collection has a big storage of multimedia resources.

### **6.12. Dentistry and Oral Science Sources (DOSS)**

DOSS is an EBSCO product exclusively for the dental and oral health e-resources. AIIMS New Delhi has a dedicated Centre for Dental Education and Research (CDER). This collection fulfills the literary needs of dental health clinicians, researchers and professionals.

### **6.13. Research outreach**

Research output of the institute clearly depicts the research support services of the library. Library has created a wide collection of more than 10000 thesis and dissertations submitted to the different faculties of medical sciences. A bibliography of the Institute's scientific publications will be prepared and regularly published on the website.

### **6.14. Research Support tools**

Plagiarism detection is an important research support tool which directly affects the research output of the institution. The BBD Library of AIIMS New Delhi has an institutional subscription of the latest version of "i-Thenticate" software of M/s Turnitin LCC. The clinicians and researchers are getting the help in bibliographic and reference management tools like Zotero, Endnote etc.

### **6.15. BMJ Learning Tool**

It is a tool for online courses for healthcare professionals. There are around 900 courses related to health care specialities. BMJ Learning has proven to be an effective educational tool for a wide range of physicians and other healthcare professionals across a variety of specialties. A number of independent peer-reviewed medical publications publish evidence of its effectiveness in helping physicians and other healthcare professionals to learn and implement clinical guidelines.

### **6.16. BMJ Research to Publication**

It is a research methodology and publishing program designed specifically for clinicians and health researchers and delivered by BMJ in collaboration with the University of California, San Francisco (UCSF). The eight multimedia courses are entirely dedicated to health research.

## 7. International Perspective, Comparison and Recommendations

21<sup>st</sup> century library resources especially health science library resources are highly influenced from the latest development of Information and Communication Technology. Earlier resources are based on limited data while today's real time data is involved in medical procedures and knowledge resources. Technology has enabled the health researcher to deal with big datasets. Libraries are traditional and trustworthy established systems for sharing and preservation of knowledge resources. In this time of data age, researchers and universities are expecting more from libraries in terms of knowledge support services.

The National Library of Medicine is the origin of PubMed. PubMed is a free online resource that helps users to search and find bibliographical details of the biomedical and life science literature to improve their health related research. PubMed, established by the National Biotechnology Information Center in 1996 at National Library of Medicine, mainly contains quotes from biological and related fields. It consists of three main components: MEDLINE, PubMed Central (PMC) and Bookshelf.

The National Library of Medicine is a world leader in medical libraries. While B.B. Dikshit Library of AIIMS, New Delhi may be considered as a leader in medical libraries in India. Health knowledge discovery and learning development resources in AIIMS, New Delhi library are leading in India. However, the standardization up to the global level is necessary. NLM, USA, has over 5000 journals compared to that of Library of AIIMS New Delhi, which covers more than 1500 publications is far ahead. The library resources availability scenario may be changed after ONOS declaration.

## 8. Conclusion

Health science library of a hospital or research institute is one the core dimensions to achieve wonderful milestones for community health. AIIMS New Delhi library is presently providing all primary health knowledge resources to their health science fraternity. It is time to prepare for the latest transformation of health information resources. Presently institutes research output is generated in the forms scholarly publications, thesis and dissertations. But in near future AIIMS New Delhi library will deal with the necessity of a well-equipped institutional health data and research data repository to manage resources. Library resources availability in India are under massive transformation. National efforts like, One Nation One Subscription is an early efforts in this direction that may pioneer resources availability to medical libraries for academic and research fraternity of India.

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