Challenges of Bridging the Information Literacy Gap for the Practice of Evidence Based Healthcare In India

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Abstract:

Evidence Based Healthcare is a concept spreading steadily in India. To practice EBHC, healthcare professionals need to know how to search and retrieve literature from the top rung of the Evidence Pyramid, and then to critically appraise papers. Teaching of both these skills is limited to a few institutions where self-motivated individuals have learnt these skills themselves, and are willing to teach others. In practically all these programs, the emphasis is more on Critical Appraisal skills, and next to nothing on searching. The need to have searching skills in the curriculum is just beginning to be felt. The Government of India's National Informatics Centre conducts programs in literature searching, but the reach across the country is still not adequate. The challenges of bridging the gap in information skills searching are discussed. These include budgetary constraints, lack of well-trained and or poorly motivated medical librarians, and the absence of the need for accreditation. Some recommendations to tackle these, and also to handle the problems of access to full text articles are proposed. The author's efforts in reaching out to institutions to train professionals are also discussed.

Introduction:

Evidence Based Medicine (EBM) is a combination of processes. It involves searching for the best evidence - by searching the "right resources" using "best search methods", evaluating the evidence using critical appraisal skills, and finally using one's clinical expertise to apply findings, in the local context and specifically to the patient. In order to find the best evidence, one needs access to various information resources and then know how to get the best evidence, using good search techniques. In countries like the USA and other developed nations, there are trained clinical librarians and medical librarians who teach the art of literature searching. There are strong Inter-lending and document supply systems like Docline. Librarians and health professionals are aware of Copyright laws, and apply the Fair use clause with care to serve their patrons. There are regular courses in the practice of Evidence Based Medicine and Critical Appraisal Skills. In contrast, in developing countries like India, practically all of this is lacking, for various reasons. In addition, there is the digital divide and the knowledge divide between the large cities and small towns and rural areas.

The critical need now is training in a) Searching b) Locating articles c) Evaluation / appraisal of articles and d) High quality medical writing. Currently only the National Informatics Centre, in Delhi offers training in searching the literature, but they do not reach large number of professionals. Critical appraisal and medical writing skills are taught occasionally in pre-conference workshops, and in some institutions. The first initiative to tackle all these issues – especially the infrastructure related parts, under one umbrella was the Health InterNetwork (HIN) India pilot project thanks to which some excellent results appear to have emerged from The Rajiv Gandhi University of Health Sciences, Karnataka (with their HELINET network), and some institutions in Orissa [1,2]. With these excellent initiatives, we are still overall at the tip of an iceberg. All these needs must be recognized as mandatory and implemented across the country.

The challenges for India

The challenges in the practice of EBM in India and other developing countries can be described under the broad heads of a) Inadequate infrastructure and b) Lacunae of awareness cum training programs. Under "Infrastructure" we could include IT, related systems and high quality information resources. Awareness and training includes awareness drives / programs needed for medical librarians, health professionals (users) and decision makers in Institutions.

INFRASTRUCTURE

Technology infrastructure:

In India, computers made their way into medical libraries in the early 1990s. At that time most libraries had a bare minimum number of computers – very often only a single machine that had a combination of packages – the library system, word processors, CD-ROM based sources etc. This meant that librarians and end-users had to use the same machine for various computer-based activities! Internet access was made public in India in the end of 1995 and it was 2 – 3 years later that libraries started getting dial-up access.

Today in 2005, many libraries are still on dial-up, while a number of libraries do have broadband access. Again, the number of libraries having a gamut of IT facilities like telephone, fax, scanner etc is relatively low. In many medical colleges, the number of computers is inadequate to serve the entire student population.

Access to Journal articles / Evidence based publications:

In the last few years there have been two types of development. On one hand, some of the large libraries have formed consortia and have subscribed jointly to a good number of journals. One such experiment is the HELINET Consortium of the Rajiv Gandhi University of Health Sciences, Karnataka in South India. This enables health professionals employed in any institution under this University to have access to a very large number of journals. Another very recent interesting development has been the creation of an Open Access Archive – OpenMED, by the National Informatics Centre [3]. OpenMED should hopefully attract a lot of good papers being archived.

<u>The problems that still persist</u>:

Budget cuts / delayed renewals:

While Consortia developments have made things great for a number of institutions, there are others that are still reeling under budget cuts resulting in reduction of subscriptions to journal titles. Very often the budget cuts are down to zero. [4] Also some of them have unpredictable funds availability and with such a problem, subscriptions do not get renewed in time. In such instances, the other trade off is that they are never in a position to implement IP based access to subscriptions. One medical college library got funds to renew its subscriptions only in April. By the time they processed all payments, and then worked on corresponding with publishers for IP based access, it was time for next years renewals!

Non-affordability of articles:

When it comes to articles not available free, or in one's library or in neighbouring libraries, the usual choices are Inter-library loan or downloading from the publisher's site. Most articles available for direct downloads cost around $20 - $30. In India salaries of most doctors range from $100 per month (juniors) to about $400 per month in Government run hospitals. Spending $30 for an article is obviously something they would not do and neither would their libraries. In fact they would be reluctant to pay the range of $10 - $15 that most US libraries would charge for ILL. It is not just salaries and the capacity to pay. In India, a library would charge the equivalent of $1 - $2 only if they need to courier an article to another city. If one visits a local library, one could get a copy of an article for as little as about 20 – 25 cents. So, the idea of spending $20 - $30 is considered sacrilege, and only Pharmaceutical companies spend that kind of money on procuring articles, and that too, only if it is not available for a lower fee. Most doctors are willing to pay up to about $5 for an article, once they understand the processing costs involved.

International initiatives like the Health InterNetwork Access to Research Initiative (HINARI) [5], the International Network for Availability of Scientific Publications (INASP) [6], and Program for the Enhancement of Research Information (PERI) [7] have been established to support developing countries. Again HINARI concessions are not applicable to India. PERI includes India in its list of eligible countries, but since a country coordinator has not yet been appointed for

India, many resources seem to be inaccessible [8]. Even when accessible, private practitioners and professionals in small hospitals who form a huge percentage of health care providers in India will not have access to these, as access is restricted to non-profit, and academic institutions

No formal ILL systems:

India is again at an "in-between level", when we talk of ILL systems. We have Union Catalogs by different Indian Institutions and organizations - the National Informatics Centre's UNCAT, the CSIR's Union Catalog of Serials, NISCAIR's NUCSSI and the IMLA's union catalog. Another initiative is J-Gate. The NIC's UNCAT and the IMLA's catalogs are restricted to medical library collections, the rest are of broader coverage. However, the last mile of getting an article is still restricted to sending an email and waiting for a library's response, at the best. There is no equivalent of the US Docline. In most instances, Interlending and document supply implies getting help from other librarians on an informal basis. Very often, users have to personally go to other libraries and get articles by themselves. There may be some libraries that have more formal systems; but what has just been mentioned is true for a majority of libraries.

In 1990 the Directorate General of Health Services (DGHS) had funded the National Medical Library Delhi, to be networked with many other Indian medical libraries for resource sharing. This effort though commendable, and even getting further funding in later years, apparently ran into several problems [9].

The above scenarios deal with situations in medical libraries and institutions. Doctors in private practice / attached to small hospitals or health centers are in a much worse situation. They do not have library access at all. The academically inclined people subscribe to one or more journals. Otherwise they depend almost entirely on drug company representatives for updates. Even if they do have a medical library not too far away, their practice takes up too much of their time, and libraries have cumbersome procedures for membership for private practitioners, if they do offer it at all.

TRAINING

Search Skills And Training Programs

The author's experience since 1992 has been as follows:

1. Many doctors believe that if one has learnt how to use a computer, he/she should know how to use medical information resources. The seniors think that younger doctors could manage information retrieval simply because they have learnt to use a computer.

2. The doctors who are "computer / Internet savvy" do manage to find a good number of useful resources and references. This comes with their basic intelligence and practice in using computers and information resources. But again, except for a handful who have spent time mastering MeSH etc, a majority do not know about intricacies of information searching, till they have seen the author demonstrate these. Many still believe that searching Google is more than enough.

3. Many "net-savvy" doctors who initially wondered what was so special about searching, and then on watching demonstrations of correct search techniques, admitted that they were not aware of these. They subsequently invited the author to conduct awareness, training and workshops.

4. Most people who use PubMed, simply type in keywords, go through a maximum of three pages of results (if they have patience) and select articles that appear relevant. With luck, some of the "relevant ones" may be high quality reviews or trials. But some may just be case reports. Case reports may be very interesting, but do not count for evidence.

5. Access to full text being a problem, those who learn how to restrict a search to free articles, do so, and

choose only references that will give them full articles. Again, these may be editorials, case-reports etc. and not evidence based articles.

6. Another popular limit is by number of years. Most people limit searches to the last 2-5 years, and one wonders how much of evidence they may miss.

Interestingly, there are doctors who are very good at critical appraisal, and are very keen to teach these skills to anyone who wants to learn. These doctors pay insufficient attention to the issues relating to skills in information retrieval, as well as those that still exist in accessing information. Many believe that having Internet access means that information is available. They agree that there is the problem is of overload, but feel that it can be solved if one learns how to evaluate papers quickly, in order to keep up with the volume of literature. They do not focus on how to handle the overload by good filtering at the time of searching.

A literature survey on these issues corroborates most of what the author has experienced.

Diane Schwartz [10] in a study done in 1992 reported that physicians in India (in the Institutes that she surveyed) learnt literature searching on their own or with help from colleagues. There were no trained health science librarians to train them formally. She found that even though these doctors did not know some essential facts like MeSH and its role, they still believed that what they did was adequate. This is a classic case of "They did not know what they did not know". In the study she also mentions that there was a lack of variety of resources in most places.

In 1996, there was a recommendation to set up Medical Education Technology Units in every medical college. These units were recommended with the objective of strengthening medical education, and quality of teachers in several ways. One of the points made under its several envisaged roles was: "Today in the world of knowledge explosion, emphasis should be on the processes for information retrieval and its appropriate use". The paper describing this also goes on to mention that in the year 2000, when a follow up was done on the status of the MET units, several were non-functional. [11]

Inamdar and Rotti, in a study conducted in 2002, still discuss "computer and internet skills" – this is not related to medical information skills. The study was done in a premier Medical School, and it revealed that students were using computers for more generic purposes, and they were willing to undergo specialized training [12].

In 2004, Sarbadhikari states Indian policy makers are yet to realize the importance of medical informatics (including tele-health, which comprises e-Health and Telemedicine) in delivering healthcare. In the medical curriculum also, nowhere is this treated as a subject or even as a tool for learning [13].

In the year 2005, more than 10 years later – things have changed a lot in some ways, and yet in many ways they have not. Issues related to infrastructure and access, have begun to be addressed, but not a core problem - and that is "User-education". Informal and semi-formal interactions with most libraries, librarians and end-users, have revealed that most users have no avenues for formally learning literature searching, and library use. As a result several problems arise with respect to finding and locating information.

The National Informatics Centre (NIC)-conducts programs approximately three times a year for about 20 participants, and mainly only to people employed by the Government. They offer to do it in other cities too. The country however needs many more programs, and on a regular basis. Postgraduate students actually need librarians who could help them whenever they need, and till they become comfortable with searching. One institution – the Amrita Institute of Medical Sciences, Kochi, Kerala has introduced EBM in its curriculum.

Librarians of medical institutions do not have adequate opportunities to learn search skills either. In fact there is no formal course in medical librarianship or any specialization in

this field in a Masters' Degree program. With no or minimal avenues of learning, librarians are not in a position to train end-users the way their counterparts in the developed world do. The National Medical Library used to run a Medical Librarianship course earlier. This course was last run in 1998, due to lack of availability of trainers at the NML as people had retired and vacancies were unfulfilled. A report on proposed modernization of the NML recommends the running of a 6-9 months PG diploma in Health Library and Information Management [6].

Critical Appraisal / Medical Writing

Training programs in these areas are also sporadic. While India has many excellent medical authors, if one considers the number of patients and doctors, the number of trials we conduct and high quality publications we produce are really low. Some of the reasons are:

a) Lack of training in high quality medical writing. Lack of training in Critical appraisal feeds into this too. If health professionals know how papers are critically appraised, then they would do research and write papers with these criteria in mind.
b) Lack of knowledge of correct referencing (this can be traced back to lack of search skills, where many health professionals have not learnt how to use PubMed's citation matcher for verifying references)
c) Language barriers
d) Lack of time (our doctor patient ratio is a difficult equation; most doctors in India see far more patients in a day, than their Western counterparts do)
e) Lack of good facilities for conducting trials

These are points that doctors as well as this author have observed. Overall, India's share in the medical journal literature is not only much less than that of many other countries, both advanced and middle level, but also much less than that of India's share of the literature in physics, chemistry, mathematics and engineering [14].

Recommendations for going ahead

The Medical Council of India and other equivalent bodies need to recognize the urgent need for the recommendations proposed. Health professionals and health science librarians also need to liaise with such bodies to ensure following these recommendations. They may add or modify these, but quick implementation is what is important.

Infrastructure and Access related issues

1. Study the need for number of computers in any institution and ensure availability for all users. Provide broadband Internet access wherever available. Ideally arrive at a recommended mandatory ratio for number of computers for number of information users

2. Study journal subscriptions closely every year and renew at least core titles well in time. Enable IP authentication for these, so that users can access journal articles from any computer on campus

3. Libraries need to have infrastructure for scanning and sending articles by email. Provide good copyright policies so that librarians find it easy to implement their services, and do not have to worry about violations

4. Study the feasibility of introducing a Docline equivalent in India – to be implemented over a reasonable span of time

5. Encourage submission of all local articles into Open Access Archives. Promote usage of Open Access Archives for literature searching, through library gateways.

6. Encourage Public-Private partnerships in strengthening infrastructure access – India's IT industry is very advanced and will be willing to help and support, if we prove that health professionals will exploit technology for the benefit of advancement in medical treatment

Library Professionals

1. Create standards for health science librarians

2. Offer training and accreditation programs in literature searching, basics of critical appraisal, library automation and related areas

3. Have accountability for continuous usage and upgrades in library services

4. Better pay scales to ensure availability of high caliber professionals

Health Professionals

1. Offer regular training programs in literature searching, library usage, critical appraisal and medical writing

2. Offer CME credits for the above. Examine the possibility of making these programs mandatory at the Postgraduate levels and for academic professionals first, and then for practitioners too

3. Private practitioners and those in small hospitals should have access to training programs, library facilities or information services. Librarians must find innovative ways to provide facilities to this large group of healthcare providers.

For both groups:

1. Continuous exposure to good copyright practices. The author has spoken to publisher representatives to check out the possibility of offering articles for downloading at lower costs. Publishers apparently do not believe that we have a high volume need for articles.

   This maybe because of several factors:
   a. High costs (making it a vicious circle!)
   b. Tendency to copy articles without a thought to copyright. (Again –often because of high costs). Unless we show seriousness in wanting to pay some copyright fee, it is difficult to prove a high volume need and ask publishers for lower charges. Of course, if the Open access movement gains ground, we will suddenly have things free, but that is going to take a while.
   c. Lack of usage of databases and identifying articles – this because of lacunae in search skills
   d. Lack of time and inclination to do research-based activities

2. Continuous attempt to strengthen each other's territories. Health professionals need to look at librarians as "supporting professionals with special skills", and help them by sharing domain knowledge when needed, and supporting their efforts. Medical librarians need to offer the best of services to health professionals and share their knowledge regarding information resources.

Finally both groups need to continuously teach more people all the skills that they do pick up. In addition, we need to have "Train the Trainers" programs to ensure quick spread of knowledge.

Publishers

1. Publishers need to recognize that while India has developed and reached far, the costs of articles as at present are still unaffordable. They need to consider an "in between pricing", if they do not wish to offer free access as they have done to some countries.

2. Encourage local printing of publications in India. Many have

started this, and this can make things more affordable for local people, and cost effective for publishers

HIN India

The most recent initiative in India that has tackled almost all issues above substantially is the Health InterNetwork India – a UN initiative led by the WHO and implemented with some UN agencies. HIN India was a pilot project that began in 2001. The goal was to "to test scalable, sustainable approaches to bridging the digital divide in the health information and between health research policy and practice". The project tackled all issues mentioned in the paper and the HELINET consortium was one result. The states of Orissa and Karnataka participated in this pilot project. Several organizations in other states were also involved in the project in some way [15].

The results and recommendations that came from this pilot project included among other things, strengthening infrastructure, access and training as recommended in this paper. The project has listed several dos and cautions / lessons learnt and overall emphasize the need to replicate it across other parts of India [16].

QMed's initiatives

QMed – of which the author is the Founder – Director is in the process of being registered as a Non-profit organization. QMed has taken the following initiatives to share expertise in the field of Health Information:

- Conducting training programs in literature searching
- Associating with doctors to teach EBM
- Providing literature search and document delivery services – for members at nominal membership fees, and to non-members
- Advising about copyright issues, and actively enforcing the same

QMed does its best to reach out to private practitioners who are in a way "information challenged" – they either need to spend their personal time hunting for information, or depend on drug company reps to provide them with abstracts and articles. Going ahead, QMed hopes to join hands with similar bodies like NIC in India, and global entities like WHO, INASP, HIN to complement and supplement their efforts. With the right collaborations, we hope to report a major leap in the practice of EBM in the 10th ICML!

Conclusion

EBM in India is a movement that is slowly catching on. There is an urgent need to train health professionals and librarians in searching the literature along with skills in critical appraisal. Infrastructure for ILL and subscriptions need strengthening. If the regulatory bodies as well as health professionals and librarians work hard at implementing recommendations made, modifying them suitably as necessary, India should do wonders in the coming years, considering that it has a pool of high quality medical talent.

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