

# HEALTH SCIENCE LIBRARIES: THE CHALLENGE OF THE FUTURE

By Derek G. Law

**Abstract:** The global village has certainly arrived and as more and more people travel ever more widely there is both the opportunity to assist each other in the treatment of disease and disease itself is more easily transmitted round the globe. There is therefore a matching need for a global system of health information and as health information professionals it is our role to create the network. Technology offers new opportunities and new challenges, but we must be aware of the need for appropriate technologies and not simple high technology which might create two worlds of the information rich and the information poor. The other great challenge presented by technology is the direct delivery of information to the end user. If this is to be effective, health information professionals must have an increasingly prominent role in training their present users in the skills of information management.

Although much work has been done there will also be an increasing need to meet the legitimate information needs of staff working in health sciences allied to medicine - laboratory, nursing and therapeutic staff - an often neglected group. At a crossroads one option is always to refuse the challenge of the way ahead and return back down the path, in our case to simple collections of books. The challenge facing librarians is to choose the more difficult paths which lead into a future of daunting technical complexity, but a future of great excitement.

It is twenty-five years since Marshall McLuhan, the Canadian philosopher, proclaimed that "Ours is a brand new world of allatonce. 'Time' has ceased, 'space' has vanished. We now live in a global village ... a simultaneous happening."<sup>1</sup> Everything that has happened since the mid nineteen-sixties has turned that concept of the global village from a revolutionary message to a rather banal cliché. Almost equally clichéd is the notion that we have moved to the third

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great age in the development of man. First came the agrarian revolution which applied technology to the production of food and made its provision relatively secure. Secondly, the industrial revolution produced a whole range of tools and goods through the creation of engines of mass production and brought populations together in large cities and their factories what has proved as much a social as a technological change. Now we are at the dawn of the information age, which will be driven by networks and the computers which are linked to them. To quote McLuhan again "Electronic technology is reshaping and restructuring patterns of social interdependence and every aspect of our personal life. It is forcing us to reconsider and re-evaluate practically every thought, every action and every institution formerly taken for granted"<sup>2</sup>. We have reached a point in history where, in theory, individuals can acquire and process great quantities of information simultaneously at opposite ends of the earth.

Diseases too has become almost universal. The growth of mass rapid transport systems has allowed disease to spread in a way which prevents us saying that any disease "belongs" to any one part of the world. As large bodies of people move, as populations shift and merge, they take their illnesses with them. On the other hand, the eradication of smallpox, surely of the great triumphs for modern medicine, shows that the world community can achieve major medical goals when it acts in concert. But this should not be overemphasised, there are fundamental differences in health care as between the Western world and developing countries. In the richer developed world problems are associated with having too much; too much smoking, too much drinking, too much eating and too much stress. Developing countries have problems relating to nutrition and parasitic disease. Curiously, each can benefit from the experience of the other group, where medical research can demonstrate why these differences exist. Throughout the world, the water supply is unsafe for one in three people, while the diet of one quarter of the world's population is inadequate. Each year there are one billion cases of acute diarrhoea in children under the age of five<sup>3</sup>. Ever more developed, ever more expensive technology allows the medical profession to perform astonishing feats of diagnoses, of surgery and of medicine wherever dedicated teams work in hospitals. However, underlying each advance is information and knowledge of what has gone before.

Given all of that background, what then are the challenges facing health science libraries as we approach the turn of the century. Let us look first at our users and potential users, beginning with that major client group, the hospital doctors. They form a generally intelligent and literate group who recognise the value of information and whose professional bodies insist on career long training and retraining. But it may be that our medical schools are so concerned with the very necessary

task of imparting basic knowledge and factual information, that they lose sight of the need to teach information gathering and analysis skills. This presents at least some libraries with the first signpost to the way ahead. It is my firm belief that the concept of information management will gradually come to be seen as central to all disciplines. The trite fact of the information explosion is that there is simply so much more information around and in every sphere, assessing and capturing the information necessary to the work in hand will become a vital skill. Medicine will not be exempt and libraries can follow a more pro-active role in disseminating the skills of medical informatics. The concept of "navigating" through information is beginning to develop. Some work centres on the creating of so-called "knowbots", knowledge robots which will tirelessly scour the networks for relevant information. However, the traditional skills of the librarian are equally appropriate to this activity.

The same needs will be evident for our paraprofessional colleagues, whether nurses, technicians or physiotherapists. Some of these groups are moving down the road of becoming graduate professions and almost by definition this will lead to closer involvement with libraries. Again, we have the choice of being little more than bulk providers of undergraduate reading list material from short loan collections or we can examine what role we might play in the imparting of information skills and of gaining access to the literature - much of it grey literature - which these groups need. The development of databases such as CINAHL on CD-ROM, aimed at nursing staff demonstrate that the sheer numbers in this part of the sector more than compensate for their smaller ability to raise funds for library support.

Outside the hospitals there is another large band of trained medical staff ranging from local doctors to community midwives. They are often badly provided for, when it comes to information support. It seems to me that changes in technology, particularly communications technology, could allow fairly routine access via telephone networks to information databanks which can support their work in the field. Such concepts are already being applied in countries such as the UK where the development of a national datasets policy specifically includes the need to include medical staff outside academic institutions and teaching hospitals. In some parts of the world we can see doctors' surgeries acquiring powerful personal computers to manage their practice. It is a very small step from keying in patient information to using communications packages to assist in diagnosis or the selection of drugs for treatment. Again the library has a choice. We can continue as we are and leave such developments to the medical and computing professions or we can act as information pioneers, showing that outreach services are a viable adjunct to our in-house library services. There is a slow dawning amongst administrators of

the value of information and an increased readiness to purchase information services which are relevant to health care.

Nor should we forget the patients. There are very different traditions in different countries, but it is probably fairly common for medical and patient libraries to be separate. Whether or not that continues to be the case, it does not logically follow that the staff and services should be separate, even if the collections are split. In some countries the balance of care is shifting from hospitals to the community, for example in areas such as mental health and geriatric care. In others, the patients, better informed and better educated than ever, wish to understand what is happening to them and to have a more informed say in their own treatment. These areas of information provision could be left to others, ranging from consumer groups and hospital shops, to "rival" non-medical libraries, such as the public libraries. Again however the choice is there for us to make.

In all of the areas I have been describing the questions is a simple one. Medicine is expanding and changing. Not only does this mean new demands for information, sometimes information which only the power of the computer can provide, but it also means that groups are emerging with new or expanded information needs. These new needs and new opportunities for information provision mean that either we explore and fill the gaps or we leave some areas of information provision to others.

Turning now to the technology, we are presented with development every bit as exciting and far-reaching as those in medicine itself. Although compact disk has captured the imagination of libraries, I suspect that it will be the next generation of mixed media disks which will be the most influential tool in our new libraries. As we begin to see the integration of pictures, bibliographic and factual data, and sound on a single disk, it is possible to imagine the development of the most powerful new information source for a generation. Even in its early stages of development the potential of CD-ROM has raised great expectations in both developed and developing countries. The big change, is of course, the ability of the user or librarian to do multiple and repeated searching at no additional cost beyond the initial purchase price, due to the absence of telecommunications charges.

Medicine is also hosting the first serious experiment in mounting a major electronic journal. The new Online Journal of Clinical Trials is an ambitious experiment designed specifically for on-line access, making it very different from a traditional printed journal in quite fundamental ways. Thus the journal is no longer driven by time, with the frequency of issues dictating how and when articles are published. They are simply added to the database when approved, on a

continuous cycle. The journal constantly grows in size as "old" articles are not removed; indeed subscribers are encouraged to add annotations or rebuttals as appendices to articles but it remains to be seen whether this will work in practice. The entire journal can be accessed by text, paragraph, page reference, table etc. and formatted for paper output. Every subscriber can be notified of additions to the database since the last log-on or can restrict that to specific subject areas.

The technology also affects the medium in which information is presented. Media which have a physical existence - books, tapes, disks, learning packs - are all more or less susceptible to the traditional skills of the librarian. Even the grey literature needed by many of the groups mentioned above can be managed by traditional methods once acquired. But a whole new class of information is appearing which does not exist beyond the life of the question asked. For example, a researcher can take census data on magnetic tape, map that on to geographical and meteorological data, say on proximity to nuclear power stations and areas downwind of them, mix that with epidemiological data on the incidence of leukaemia and use a statistical package to analyse this. What used to be a major research project can be checked in half an hour, if one has the skills. And yet the library has no catalogue record or reference work which answers the question, it only has access to the building blocks of information. And the answer is truly ephemeral; unless printed out, it disappears when the computer screen changes and all record of it vanishes. This is a quite new and in some ways quite disturbing world.

Then there is the development of satellite communication which means that there is almost nowhere on earth where it is possible to claim to be out of touch. The fact that such communications and other technologies exist does not, of course, make them affordable and certainly not by libraries. However, I am optimistic that this can change and/or that we can give end-users the illusion that services are either free or very low-cost. At the moment most of us pretend that libraries are free, when, in fact, our parent organisations spend large parts of their budgets in financing them. The important point is that in book based libraries the user is not presented with artificially imposed time and cost constraints in the search for information. There is no real reason for that principle to change simply because the medium carrying the information changes. Numerous experiments are going on with campus or regional database provision of services such as Medline. Some central source makes a single annual payment which allows users unlimited access to the data. At the user's end of the chain we see ever cheaper and ever more powerful computers appearing. Despite all the worries which have been expressed over raising even small sums of money to give those in developing countries who need it access to such computers, the growth in their availability is quite phe-

nomenal. I am optimistic that this will continue and that satellite rather than landline communication will remove another obstacle to reliable communication. An inevitable and logical next step is the creation of commercial or quasi-commercial document delivery services aimed at the end-user rather than the library.

One of the dangers of the great advances in communications technology is that it is available to everyone and not just to libraries. There is therefore a possibility that libraries could be by-passed by users going directly to the information source. There is ample evidence that if they do so they fail to acquire all the relevant information.<sup>4</sup> So there is yet another choice to be made. We can attempt to fight this growth of direct end-user access to information and reserve it to librarians as intermediaries - as many libraries have done fairly successfully with on-line services - or we can accept it and follow a different path from our crossroads. We can work with users helping them to gain full advantage from the services which exist, but as trainers rather than intermediaries. Again, I at least find the choice simple, and part of the thread woven through this paper. I am convinced that the single biggest challenge we face in the coming decades is to move from being a repository of information to winning acceptance as the natural group which can both gather the right information for the user at the right time and, more importantly still, show our users how to develop their own information skills.

An equally plausible danger is that libraries could lose their primacy as information providers. Various types of information brokers and of computer and communications personnel are dimly aware that they could have a role to play in the information chain. Where libraries have historically been isolated islands, they may now be seen as one island in an archipelago of information providers. To pursue the simile, the organisation which controls the transport links between these islands in the archipelago of information will be enormously influential in future and there is absolutely no reason why that should not be librarians. We must develop Ranganathan's five rules so that instead of being book-based they are information based. Among his many wise dictums was the statement that wherever people habitually congregate, that is a site for a library<sup>5</sup>. Technology means that wherever people habitually congregate, that is a place for the librarian and information worker. Laboratory, hospital ward, dispensary or tea-room: we can now take unimaginable quantities of information to all of those places and show our medical colleagues how to take advantage of it. We can show our ability to act as a proper filter to allow manageable quantities of information to be fed into the work environment, whether for research or for clinical decisions.

Medicine has always been one of the few activities which reaches every member of the population at some stage in their life and this has always given a univer-

sality and distinctiveness to health care libraries. Medical informatics has always been amongst the leaders in the application of technology to its information needs. Doctors have always been scattered in small groups in hospitals rather than in large clusters such as universities, and the pioneering work of such organisations as the National Library of Medicine has ensured a free flow of information. That of course is free in the sense of accessible rather than free as in costing nothing. Here perhaps is the final crossroads where we have to make a choice, if we wish to move ahead. Medical libraries have rarely been rich and their collections have usually been small. They are used to interdependence to meet the needs of their clients. There is an old but telling phrase that all one needs to run a medical library is a set of *Index Medicus* and a pad of inter-library loan forms. As financial difficulties continue to press, libraries have moved away from collection building, away from a holdings strategy to an access strategy, from "just in case" to "just in time". With the breakthroughs in communications technology, provision of information is no longer synonymous with its possession and we can build on the experience we have garnered over many years in developing and expanding networks of communication and inter-lending which seem to be our only defence against the inexorable growth in book and journal prices.

As a partial corrective to this gloom over finance we should always be alive to the possibilities of raising money. Library and information science has its own corpus of research, sometimes funded by the state, sometimes by international bodies. Services can be offered at a charge to commercial undertakings. Many drug companies have proved helpful in providing materials or funding to aid the libraries which support the clinical staff undertake drug assessment trials. For example, in the United Kingdom, a major drug company has helped to finance the acquisition of *Science Citation Index* for most of the British medical schools. We must explore these and other courses as ways of improving our financial position.

It would be wrong of me to finish without mentioning our own library staff. Many medical libraries are small and understaffed and find it difficult to release staff for adequate continuing education. But I have been talking of a great upheaval, a great change in information provision. At whatever cost, it is essential that our staff are properly trained, have the opportunity to attend conferences and learn or can come to meetings such as this to make the personal contacts which are at the very heart of cooperative networks. This applies also to our paraprofessional staff in the library, who are often in the front-line of customer service. If they cannot use the new generation of information tools, this will erect a needless barrier for library patrons. They too must be well trained. It has always been true that the staff are the most important asset of the library, now we must show that we do not

simply pay lip-service to this ideal, but actually ensure that they are capable of carrying the library service forward into new areas.

To summarise then, libraries are indeed at a crossroads. We can remain much as we are, with a limited but honourable role in the provision of the printed word - and I do believe that the printed word will continue into the indefinite future despite the advance of technology. Or we can choose the more daunting, the more difficult and the more uncertain technological path which concerns itself with information from all sources. That has the added burden of being a more expensive path, but that is not a reason to shirk it. I have tried to demonstrate the globalisation of medicine and the burden we should accept and should willingly accept is that we aim to create a world-wide network of information provision to match the global span of the medical profession. We must act together to ensure that medical libraries throughout the world have effective access to the information they need and that we play our part in the continuing advance of medical knowledge.

### **References**

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