

Electronic information for physicians

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The lay and medical press bombard us all with articles about advances in information technology and what computers and their sources of electronic information can do, but somehow the bonanza of information on offer rarely seems to be of much value to the practising physician, other than when he asks his friendly librarian to search the literature for references to articles in the printed journals.

This impression was largely confirmed when the College commissioned a small survey of physicians' attitudes to electronic sources of information. The overall impression was that physicians were well enough satisfied with their present sources of information and were not particularly interested in accessing the sort of new information that is presently available on commercial and other medical databases. Furthermore, they were unenthusiastic about the possibility of being able to access more sophisticated evaluated material on their own or other subjects, and they were even less enthusiastic about the idea of paying for it.

Because it seemed possible that this reluctance to embrace a new technology might lie in the quality and presentation of the information currently on offer, rather than a Luddite attitude on the part of physicians, the College survey went on to explore and catalogue the available electronic information. This resulted in a 56-page review of 'Computer Based Sources of Information in Medicine' compiled and written for the College by Ann Cowie and Pauline Duckitt of Vital Information Ltd. This report was distributed to those who came to the recent College conference on 'Computers for Physicians' and is now available from the College, price £2.50 per copy.

The Report not only makes useful reading for anyone interested in setting up their own system for accessing databases directly, but also provides an excellent directory of databases of medical interest, summarising their contents and how to get at the information in them.

The Report makes it clear that there is a plethora of medical databases, many providing similar information and some providing information of dubious value. However, in the field of information technology, information that may seem inconsequential to most people may be perceived as a priceless jewel by someone somewhere.

At the present time, the main formats for the delivery of the information held on databases are on-line or videotex, the difference between the two formats being in the visual presentation. On-line systems generally provide text only, whereas videotex systems provide colour

and graphics as well as text. Information is retrieved in different ways in the two formats. Videotex systems tell you what they have got and you select what you want; with on-line systems, you tell them what you want and they then tell you if they have got it.

Some database information, in the form of text only, can now be purchased on conventional floppy discs or the new optical compact discs, to be used for searching on a local microcomputer with the appropriate floppy disc drive or compact disc reader. In the USA, database information is becoming available on the even newer interactive compact discs which allow the presentation of pictures (not just graphics) as well as text and in an interactive mode.

On-line databases

Of the on-line databases, those for bibliographic reference are the most used, largely by librarians. The two best known are Medline and Embase which contain citations, most with English abstracts, of the printed literature such as journals, theses and conference proceedings. The printed equivalents are, respectively, *Index Medicus* and *Excerpta Medica*. There are, however, no printed equivalents of Premed or Medical and Psychological Reviews which cover, within a few days of their publication, articles in all the important medical and psychological journals. The information is held for about four months and then is incorporated into the databases with written equivalents. Premed and Medical and Psychological Reviews do, therefore, provide a service that is only possible on an on-line computer system and have no written equivalents.

Other reference databases are directories, such as the 'Medical Research Directory'; ease of updating the information offered is the advantage they have over the printed word.

Source databases are those that contain original source data or the full text of original source information. Printed equivalents, where they exist, include journals, textbooks, handbooks and dictionaries. Examples of such source databases are the Comprehensive Core Medical Library which contains the full text of five medical journals and 25 medical textbooks and Martindale On-line, which corresponds to the text of *Martindale: The Extra Pharmacopoeia* and contains evaluated information on drugs, and TRECS (Registry of Toxic Effects of Chemical Substances), a collection of toxicity data.

It has to be said that the advantage of obtaining source

information from a computer as opposed to a book is not immediately obvious. Books are still cheaper sources of information, they feel and look good and are nice to have, besides providing both text and pictures. With a computer you get no pictures, just text, and rather dull utilitarian text at that.

Videotex databases

While an on-line format is suited to large quantities of monochrome text as exemplified by the bibliographic databases such as Medline, the videotex format is better suited to smaller amounts of colour and graphics and for information that changes very frequently. It can also be interactive so that information can be transferred both ways. This makes it possible for the information provider to get responses from the user and also allows videotex to be used for collecting data.

Unfortunately, many of the databases on Prestel, the best known public videotex system, fail to exploit the special features of the system. Many of the databases contain static information which would be better distributed in print. Several have printed equivalents and it is hard to see why they are in videotex format at all. In addition, many contain out of date information and others are little more than computerised advertising. When the information providers finally realise that this format is not suited to their information they stop maintaining it and this leads to a constant change in the available database information.

On the other hand, there are a few hopeful developments. The pharmaceutical company Squibb is using videotex technology to keep track of a large-scale study of one of its drugs. GPs are provided with Videotex terminals so that they can input data on patients taking the drug and the recording of certain symptoms immediately triggers a message to Squibb's medical director. The publishing company of Kluwer is running a pilot version of its 'Treatment' information in videotex format. This contains evaluated drug information that can be retrieved by proprietary or generic drug name or by following a tree structure which leads to particular diseases grouped by organ system. Then there is the Medic-Alert Foundation which is keeping its members' medical history and personal information on a videotex system, thus allowing both quick access in case of an emergency and quick updating of the records.

What do physicians want?

It seems, therefore, that the reason physicians, as a whole, are not much interested in taking the trouble (and it does take trouble,) to access the sort of electronic information that is available, is because there just is not anything special enough about what is offered to make the extra effort worthwhile.

What is needed are databases providing evaluated and summarised up-to-date information that is relevant to UK practice and is specially conceived to take advantage of the electronic format. Information needs to be present on the same database about, as far as possible, the totality of any subject and, of course, in an interactive mode. Furthermore, there must be diagrams and pictures as there are in books, as well as the moving graphics that the computer can conjure up.

There are two obvious examples of needed databases—one for an on-line format and one for the distributed interactive compact disc format. A database providing up-to-date and evaluated information about AIDS would need to be on-line because of the frequency with which new material would need to be added to keep it up to date. On the other hand, a database providing evaluated information about the diagnosis and management of problems like poisoning or cardiac arrhythmias in the accident and emergency department would be much better suited to a distributed interactive compact disc format with three-monthly updates. Indeed, there is already a database (Micromedex) that is distributed on compact disc in the USA and provides information about poisoning and intensive care problems. Subscribers received a new updated compact disc every three months and, before long, the interactive compact disc will be introduced.

The essential question is, of course, who should provide such a service for UK physicians and who should pay for it? Surely the answer is the DHSS who could contract out the actual selection and evaluation of material to the appropriate Colleges. Such an arrangement would give the DHSS a powerful tool for exerting a guiding influence on doctors' activities in a similar, but possibly much broader and effective, way than that achieved by the distribution of the National Formulary. It will be interesting to see if and when the DHSS will be enterprising enough to seize this golden opportunity.

Further reading

1. Cowie, A. and Duckitt, P. (1986) *Computer-based sources of information in medicine*. Royal College of Physicians of London.
2. Glover, W. (1986) *Medical Databases 1986*. Aslib.
3. Jenkins, S. R. (1984) Literature searches by computer. *Medical Teacher* 6, 64.
4. Macgillivray, F. and Asbury, A. J. (1983) Computers in the medical library. *British Medical Journal*, 287, 544.
5. Re'em, D. and Brown, C. (1985) Switched on. *Personal Computer World*, 8, 186.
6. Strickland-Hodge, B. (1985) Videotex in medicine: discussion paper. *Journal of the Royal Society of Medicine*, 78, 315.
7. Welsh, J. and King, T. A. (1985) *Searching the medical literature: a guide to printed and on-line sources*. Chapman and Hall Medical.
8. Wertz, R. K. (1986) CD-ROM: a new advance in medical information retrieval. *Journal of the American Medical Association*, 256, 3376.