Contemporary Themes

Computerised information retrieval services in a teaching hospital

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The Wessex Medical Library of the University of Southampton is one of an increasing number of institutions that now provide online information retrieval for its medical, research, and teaching staff. The British Library Automated Information Service (BLAISE) is not the only system that provides medical publication citations online, but my aim is merely to give medical and paramedical readers an overview of today's facilities and a glimpse of tomorrow's potential.

Plugging in for information

In common with numerous other institutions of learning or research, computerised information retrieval services have been in operation at this library since the UK MEDLARS system—supplied by BLAISE—became available in Britain in April 1977. Availability at that time was the culmination of a two-year experiment that used a few online operators, sponsored by the British Library Lending Division in conjunction with the National Library of Medicine in Washington—where the MEDLARS files had originated as long ago as 1963. MEDLARS is, of course, the online application of *Index Medicus*, the use of which has been described and illustrated in a tape-slide programme.¹ Anyone who remembers the old MEDLARS I batched retrieval system—when response time could be from two weeks to two months, with results which were often unsatisfactory anyway—would be contemptuous of it today, though we thought it pretty advanced at the time. Those concerned in this experiment were accessing the MEDLARS files at Elhill via satellite, which would have been cripplingly expensive for us had we been paying. As soon as the National Library of Medicine MEDLARS data bases were mounted at Harlow, Essex (on an IBM 370 series computer), the transatlantic link became unnecessary and BLAISE was born. The Elhill 3C package which made up the BLAISE programs had been developed by the National Library of Medicine over 15 years and, as a result, the system was trouble-free and has remained so.

The system that BLAISE provides is known as MEDLARS II, though many people refer to it as MEDLINE—which is the name of the major file put up by BLAISE. Although only one of an increasing number of files, it is the most heavily used by those who have general medical or paramedical requirements. Certainly, 70% of the demand for searches at Southampton General Hospital are satisfied by searches on the MEDLINE (its span is 1966 to the current month), though the data bases with a highly specialised and narrower content would obviously be selected preferentially or exclusively by small research units

with a specific need—such as teratogenesis or environmental pollution.

Another heavily used file at Wessex Medical Library is TOXLINE, a composite data base consisting of 10 separate collections of secondary information on toxicology, pharmacology, mutagenesis, teratology, and pollution. This file is particularly fruitful for workers in occupational medicine, toxic effects of chemical substances, pesticides, and so on. Strongly associated with it is the Registry of Toxic Effects of Chemical Substances (RTECS), which not only supplements TOXLINE but also provides “hard” data, so that it is invaluable for the user who wants factual information on such things as threshold limit values, recommended standards in air or water, worker protection standards, chemical status of compounds, and control limits.

To exploit to the full both TOXLINE and RTECS the CHEMLINE data base generally needs to be accessed. CHEMLINE is unlike any other National Library of Medicine file, in that it does not provide bibliographic citations, which even RTECS—the “hard data” file—does. The purpose of CHEMLINE is to enable users of TOXLINE or RTECS to define chemical substances before beginning a search. CHEMLINE provides the Chemical Abstracts Registry number (which alone is enough to identify a substance), the preferred chemical name (which is usually the systematic name used in the subject and formula indexes of Chemical Abstracts), synonyms, molecular formulae, various nomenclature and structure fragments, ring information, and Wiswesser line notations. The principal role of CHEMLINE is finding registry numbers and synonyms to set one off on a search of TOXLINE.

The comparatively recent addition of CANCERLINE has been a tremendous supplementary source for research workers in cancer and tumorigenesis, and is the result of collaboration between the US National Cancer Institute and the British Library Lending Division. It consists of three files, the largest of which, CANCERLIT, provides abstracts in English of material from journals, books, reports, monographs, conference proceedings, and theses that have been screened. CANCERPROJ, perhaps the most interesting of these three files, describes unpublished cancer research projects in progress over the last two years. These projects are being researched by governments and industrial scientists from over 50 countries. All the abstracts are in English and the file is regenerated or updated as work either ceases or the objectives change. CLINPROT is a highly specialised file designed for clinical oncologists. It contains summaries of clinical investigation of new anticancer agents and methods of treatment, and includes any treatment still being evaluated in clinical trials. All three of these files presuppose the fact that the searcher is looking for information on aspects of cancer. Were you to key in “colon” and “cytotoxic” and nothing else, you would retrieve articles on cytotoxic drug therapy of colonic neoplasms: if you keyed in “nose” and “child” the result would be citations of articles on nasal cancer

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in children. It is manifestly unnecessary to emphasise the importance of having these CANCERLINE files available online.

A developing asset

A variety of reasons for needing an online scan may be given by users—remember, these users are medical staff from both Southampton University and the National Health Service, and may be from any part of the Wessex Health Region. A doctor may be writing a paper or chapter and needs articles to read as well as to cite; a research scientist may be reviewing all aspects of intestinal flora; more realistically, a doctor may require to see if the files contain a "match" for a combination of symptoms or complications that are baffling and worrying. Frequently the hoped-for result will be negative; this is particularly so when a drug is being checked for side effects and may lead to the decision to administer a certain drug in the knowledge that no adverse effects have been reported in relation to the condition in question.

As it exists at present, the BLAISE network permits users to log in to the system at their nearest centre or node. Remote centres

exist at London, Birmingham, Manchester, Boston Spa (Yorks), and Edinburgh as well as Harlow, and with the prospect of future developments in telecommunications, costs should be agreeably modified, although this may be offset by a general overall increase in online charges which is being suggested by the systems suppliers.

At the General Hospital branch of Wessex Medical Library an average of five online searches are executed every working day. At the current charge of £30 an hour connect time (that is, for every hour one is connected to the computer), plus extra charges for the number of pages printed offline, updates, supplements for the use of TOXLINE and CHEMLINE, and postage for offsearches, users of the system do not seem in the least inhibited about demanding these expensive searches. Obviously they find them cost-effective. Or, perhaps, there are as many users again who are deterred by the costs, in which case I wonder whether the demand could be met should charges be reduced appreciably.

Reference

- ¹ Welch J. Using *Index Medicus*. Southampton: Dept of Teaching Media, University of Southampton, 1977.

Lesson of the Week

Total knee replacement in unsuspected tuberculosis of the joint

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Total knee replacement is accepted procedure in treating rheumatoid arthritis and osteoarthritis, but when there is infection in the joint it should not be done. A patient who had an infected knee and had the knee replaced illustrates the hazards, though fortunately what could have been a disaster was eventually a success.

Case report

A 65-year-old man had had pain in his right knee for several years. On three occasions injection of intra-articular steroids had given him some relief. When he was admitted his knee was extremely painful; he had a slight effusion; the joint was in fixed flexion of 20° and flexion was limited to 110°; and movement was painful. He used a stick. X-ray films showed degenerative changes of all the articular surfaces of the knee joint. An Attenu-borough total knee replacement was performed routinely. The synovium was red and hypertrophied. At the time this was thought to be a rheumatoid change. He progressed well. A specimen sent for histology showed that the synovium was infiltrated with tuberculous lesions. Antitubercular treatment was started and routine mobilisation of the knee joint continued. There was never any evidence of inflammation of the knee joint. One year after operation he had no complaints and was pain free.

Frequent intra-articular injections of steroids may induce tuberculous arthritis, which may resemble other arthritic conditions.

The knee joint was cold; there was no effusion; flexion was 0-120°; and x-ray films were normal.

Discussion

The patient showed all the symptoms of a degenerative arthritis of the knee and was treated by total knee replacement. Nevertheless, at operation the synovium showed that in fact he had a tuberculous synovitis. After operation he was given anti-tuberculous therapy and there is now no evidence of infection in that knee. He has made an excellent recovery.

Such a "mistake" is possible, as tuberculous synovitis has been called the great imitator,¹ and the fact that he developed this condition might well be attributed to the steroid injections he had had before he presented on this occasion.²

References

- ¹ Stanish W, Hyndman J, Forsythe M. Skeletal tuberculosis: the great imitator. *J Bone Joint Surg* 1977;59B:511.
- ² Peterson CA. Tuberculous arthritis following intra-articular steroids. *J Bone Joint Surg* 1976;58A:279.

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