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# Computers in psychiatry

## Computer communications in psychiatry: literature searching and bulletin boards

CARL S. LITTLEJOHNS, Senior Registrar, Academic Sub-Department of Psychological Medicine (North Wales), The University of Wales College of Medicine, North Wales Hospital for Nervous and Mental Disorder, Denbigh, Clwyd, LL16 5SS

Much of the information generated in the practice of psychiatry is manipulated by microcomputer. Program packages allow text to be structured and viewed before it is printed, information to be filed so that it can be accessed from several parameters, and columns of figures to be manipulated and displayed graphically.

The above aspects capitalise on the fact that computers store their information as electrical codes. Having encoded the information, it is a simple task to transmit it over long distances using the telephone network. This is the technique of 'computer communications', and it is now developed to the point where it is usefully available without the need to understand how it all actually works.

Large computer systems have provided communication links for some time, one example being the Joint Academic NETwork, licensed by British Telecom/Oftel to link academics associated with universities, polytechnics and government research centres. At the Burden hospital, Bristol, computer programs on a theme of cognitive rehabilitation can be transmitted electronically to microcomputers in patients' homes, the results being fed back centrally for monitoring. In the USA there are over 250 linked bulletin boards (computer based message stores) with a medical theme that users can call from their home computer, and these host a wide range of multidisciplinary discussions. A handful of medically orientated systems now operate in the United Kingdom.

It is two general aspects of microcomputer communications that this article addresses. Firstly, a communications link can enable access to large quantities of organised information on demand. Secondly, computer communications can be used for a 'two-way' exchange of information, between large numbers of people, over a wide area.

As an example of the former, I shall take the technique of medical literature searching using a microcomputer communication link. The latter aspect being explained with reference to a bulletin board in Wigan, linked in with the American BBSs mentioned above, and indeed with thousands of others world-wide. Both systems require the same investment in equipment, and while it is not important to understand the technology in detail, I will briefly mention the necessary equipment.

### *Communications equipment*

Telephone lines were designed to carry electrically represented speech, so it is necessary to convert computer signals into similar tones before transmitting them. Equally the received signals need to be changed back. This *mo*dulation and *demo*dulation is performed by an additional device called a *modem*, which connects between the telephone socket and the computer.

Modems have various features. Cheaper modems have fewer (and slower) transfer speeds, and need to be connected after the number is dialled on a telephone. More modern modems auto-dial telephone numbers and connect if a recognised signal is received.

A communications program completes the package by directing any typing at the keyboard to the distant computer, and displaying received data onto the screen. It may allow modem settings to be adjusted and received information to be captured onto a disc file for permanent storage. The majority also have built in file-transfer protocols, the commonest called Xmodem, which allow computer programs to be exchanged over a noisy telephone connection without error.

### *On-line literature searching*

Computer databases were set up for large organisations, but many companies package access cheaply for individual 'casual' users. One such company, Dialog Information Services, allows access to their databases via their *Knowledge Index* (KI) service. This out-of-hours service happily coincides with

cheaper telephone rates in the UK. Registration incurs a small one-off payment, and additional charges are made according to the duration of time on-line. Medline and other databases (medical, current affairs and the arts) are accessible. The data are held in California, but call charges are less than standard UK long-distance rates because of British Telecom's packet data network, full details of which come with the registration handbook which also contains detailed instructions and techniques for making use of the databases.

Recently many libraries have installed literature databases stored on compact disc to avoid on-line 'working hours' charges. However if access to the library is difficult, or the subject to be searched is obscure, the on-line service provides a much more flexible search, and accesses many more databases than most libraries install.

## *Bulletin board systems in psychiatry*

A Bulletin Board System (BBS) is a computer program, usually on a microcomputer, which can answer the telephone and connect with calling computers. The BBS asks the caller for their name, and if they have called before, their password, thus regulating which caller is allowed to see what information.

Early BBSs provided a meeting place for computer-centred discussion and distribution of advice and programs. Increasingly, newer BBSs have non-computing target audiences. UK-Healthlink (UKH) is a BBS for healthcare workers, run very professionally, but as a hobby by the system operator (sysop) David McKendrick. (A contact number for further information is below.)

Once connected, a list of options appears in the form of a menu. Whichever key is pressed controls what information the BBS transmits down the telephone line. There is an important difference of emphasis on a BBS compared to an on-line database. Firstly the BBS is by its nature much less formal, and secondly a BBS relies heavily on input from its callers to keep the information 'fresh'.

## *BBS messaging*

One option at the main menu of UKH is to enter the message area. A message area is a cross between an electronic notice board, and an array of personal pigeon-holes for messages. You can leave a message to 'ALL' (i.e. all callers) or named individuals. Named messages can be 'private' (i.e. for the eyes of the named person – and the sysop) or alternatively may be read by anyone entering that message area. Messages addressed to you in person whether private or not, are announced when you first tell UKH who you are.

Message areas are sub-divided into different themes. After registration (the 'sysop' of UKH confirms registration, which is free, by post) the registered user area is the main location for general topics, but there are areas on the NHS white paper, AIDS, general medicine, several computer makes and psychiatry among others. Most areas are local, that is messages are confined to the single BBS, but a few are *echo* areas. An echo area behaves as a standard message area, except that new messages are exchanged with other BBSs overnight, resulting in the discussion being available from the United States to part of Eastern Europe.

## *BBS: The UK-psychiatry message area*

The psychiatry area is an experiment that David McKendrick and I have been running for some eight months. David provides the space on UK-Healthlink, and I coordinate the area remotely by calling in twice a week. The aim is to provide a forum for items of interest and messages to or from mental health workers, reducing the need to search frequently what is a large array of information 'on-line'. The area has no fixed role, but as the medical echo often carries items of psychiatric interest I try and place a copy of most in the psychiatry area, before the medical echo messages are deleted due to their high turnover (often hundreds per week).

## *BBS: other facilities*

A second option from the main menu is the 'file area'. It is possible to exchange computer programs (subject to copyright) with the BBS, and UKH has a number of information text files and health related programs available for 'downloading'.

Where a centre has several potential users, instead of their calling in separately, a small sub-area can be set up on a local microcomputer, and this 'point' then telephones UK-Healthlink overnight and exchanges its new messages with new mail on the BBS proper. Thus many operators can answer messages at any time without having to worry about peak telephone rates.

## *BBS: pros and cons*

Disadvantages include the cost of setting up a system, and the terminals, together with the time used in initial training. Both these items are offset by the fact that the terminal equipment almost certainly would have other primary uses, and the on-line help available means that most training occurs during hands-on experience. Certain keyboard skills are helpful, although few users are expert typists. Of

course having to log-on to receive messages might appear tedious, but this can be fully automated to even a single keypress.

As a person to person messaging system, there are some advantages over the standard telephone message. Contact occurs at a time most convenient to the user, when he or she will therefore be most receptive. Messages received are written by the sender, and so less likely to be garbled, and they will wait on the BBS irrespective of the potential recipient being on holiday. Copies of previous messages can be reviewed and, very usefully, a caller can check if a particular message has been received (though not of course read) by the desired recipient.

## *BBS: the future in psychiatry*

A first priority is to educate potential users to the facilities, and build up the user-base. It would prematurely dilute the numbers of interested parties if systems become 'closed' (i.e. had detailed exclusion criteria) too soon. An additional stumbling block is that while BBSs are simple to use, they currently require a good deal of time on behalf of the sysop to establish and maintain. An unreliable or disorganised and neglected BBS is soon deserted of callers.

I would see value in BBSs linking up groups of community psychiatric services. It would function as a store of up to date textual documents (duty rotas, annual leave applications, policy documents) as well as providing both an informal 'chat' type of messaging service and formalised discussion areas, devoted to training, journal review, research supervision, suggestions etc. Such a facility would have use as a management tool and help small community units feel part of a team. Statistical data could be exchanged, and the process of drafting and re-drafting documents much speeded up.

The provision of 'echo' areas as above makes feasible the linking of specialist and primary care clinical and academic units world-wide, each accessing by their local BBS. The current network is extensive, but of course voluntary, as is the funding of the telephone charges for circulating echo messages. It would require consideration of the organisation and necessary financing to establish such links, which I believe would have to be outside (but parallel to) the current voluntary network. The point is that the technology has been developed.

When you log-on to a BBS, remember that though simple to use, BBSs are complex and costly to set up and maintain and that it is all voluntary. The current network of BBSs, is funded by sysops themselves. BBSs as currently exist are unsuited for any messages of a confidential or sensitive nature.

## *Comment*

Manipulating text and figures with a microcomputer locally in an office is a common occurrence. The logical direction for the future is in the linking of offices via a controlled medium such as the BBS provides for messaging, while being able to reduce reduplication of information storage, and improve access by a series of database links. Whatever takes place, it will require that potential users be on-hand to shape future development or else the technology may end directing future practice.

## *Further information*

Knowledge Index is one of several sources of database access. Information is available from: Learned Information Ltd/DIALOG, Woodside Hinksey Hill, Oxford OX1 5AU (telephone 0865 730-275).
UK-Healthlink, a BBS for health care workers, is on 0942 722984 (all speeds 8/N/1).
The sysop, David McKendrick, can be contacted on Wigan (0942) 712385.

The Computing Interest Group of the College can be contacted through: Dr Roger Bloor, Consultant Psychiatrist/Chairman, Royal College of Psychiatrists Computing Interest Group, SAU, City General Hospital, Stoke on Trent, ST4 6QG.