Communication in the year 2000

A HUGE expansion in the power of computers has taken place in recent years — soon they will start to talk to each other and we will witness a quiet revolution. New opportunities will arise from communication between computers and planning for these now will prevent us from being taken unawares.

General practice has seen a rapid increase in computerization.[1] Overall, in 1993 79% of practices in the United Kingdom were computerized, although in some regions the figure was nearer 94%. General practitioners usually used computers for keeping registration details, printing repeat prescriptions, running call and recall systems and for medical audit. In addition, 63% of general practitioners used computers during the consultation to view clinical data and 58% to prescribe for acute illnesses. When asked what other features they would like to add to their systems, about 80% of general practitioners said they wanted links to hospitals for discharge summaries and pathology reports. In another survey, 74% of general practitioners thought it would be useful to be able to book hospital appointments with consultants by computer.[2] Several schemes have already achieved quick, efficient transfer of pathology test results directly from the laboratory to general practice computers.[3]

Conditions are ripe for further expansion of computer communication and high speed networks are developing in Europe and the United States of America.[4] Computers can be connected so that someone with a terminal in New York can use a supercomputer in Pittsburgh as if it were sitting on his or her desk. Stores of information can be 'published' instantly — a list of all bone marrow donors in Europe is planned that will allow centres all over the continent to search for matches.[5]

With increased communication power comes the ability to transfer images. Computer networks have been used for manipulating magnetic resonance images[6] and generating plans for radiotherapy treatment.[7] Image transfer has been used in cardiology to let experts all over Europe view the same images to generate consensus on diagnostic criteria for cardiac imaging.[8] More mundane uses include adding voice comments to x-ray images and storing them electronically for use in conferences and case reviews. Radiologists on different sites can then see the pictures and hear the comments simultaneously.[9] Similar technology has been applied to endoscopy.[10] It may be that the technology will become cheap enough to allow general practitioners to receive x-ray results as images on their computers together with laboratory results.

Computers have great potential for epidemiological research[11] and clinical trials.[12] The World Health Organization operates a European drug monitoring system that allows contributors to analyse data by remote connection to the computer.[13] The data collected routinely by general practitioners on their computers corresponds well with that collected by conventional methods.[14] A network has been set up to collect data from the major general practice computer systems in the UK to provide information for academic research (Steventon P, doctors independent network factsheet, 1993).

Despite the obvious advantages we need to look carefully for real benefits from computer communication, or 'telematics' as it is becoming known. Any consultant on a ward round knows that conventional x-ray storage and retrieval methods have their inefficiencies. Digital storage would allow the film to be viewed on the ward immediately it was taken. Pictures could be seen simultaneously on several wards and in the x-ray department. Escalating silver prices would pose no problem — indeed, there may be cost savings.[15] Financial savings have been demonstrated in a study in the Netherlands where a telematic system delivering laboratory results to general practitioners was compared with a paper-based system.[16]

In the developing world it may be cost effective to use international networks rather than buy books that quickly go out of date. Satellite telecommunication networks such as Internet can provide access to remote and widely distributed electronic databases.[17]

Studies showing that computer systems improve health outcomes are few. However, in the Mersey region a study was made of transmitting computerized tomographic images of people with head injuries to neurosurgical specialist centres. The study showed that transferring the image of the scan, together with the patient's history was reliable and quick. The previous system of transferring the patient was potentially hazardous and of course much more expensive.[18]

It is a measure of the importance of the subject that in the European Union substantial funds were allocated to the Advanced Informatics in Medicine (AIM) programme in 1992. Projects were funded that looked at how this developing technology could be applied to medicine. The Telegastro project for example will develop quality assurance systems for assessing the structure, process and outcome of medical care in the field of gastroenterology.[19]

We need to take advantage of this quiet revolution and with a critical eye identify those things that will make our work more efficient and improve medical care. These innovations will include faster, more reliable communication of text and images between doctors. Improved epidemiological surveillance will follow with opportunities for research. With the revolution will come the facilities for the evaluation of our activities that governments demand.

Much of the new technology for the year 2000 is already with us — sorting the wheat from the chaff now, will allow us to move forward with confidence into the future.

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Refusing to treat smokers: why this is untenable

EARLIER this year the *Sunday Express* published a quote by Dr Stuart Horner, chairman of the British Medical Association's medical ethical committee: 'When a patient has a complaint directly linked to their smoking, they need to be prepared to give up cigarettes before they can expect treatment... If that person is not willing to give up smoking, there is really no point in an operation being done.' The BMA underlined that 'it may be ethical to withhold that medical programme until the lifestyle is changed.'[1] A few days later, the BMA issued a press statement which emphasized that 'Given misleading publicity, it is of paramount importance that patients are not left with any impression that doctors — in advising them, for example, that they must give up smoking — are refusing to treat them. For some conditions giving up smoking can be the best immediate treatment. If patients are suffering from heart disease, for instance, quitting smoking is often essential if they are to be successfully treated.' (BMA, equal access to NHS treatment, press release, 13 January 1994).

Apart from the fact that cigarette smoking is a risk factor for, rather than a guarantee of, unsuccessful coronary artery surgery outcome, it is only one risk factor which has been singled out among many, namely, hypertension, diabetes, age, female sex, obesity and hypercholesterolaemia.[2] This leads to Shiu's worry that 'once we accept an absolute bar to surgery for smokers, we... may well be on the slippery slope to withholding treatment for the unmotivated and the unfit,'[2] which ultimately violates the National Health Service's philosophy of equity of access to services. Moreover, insisting that smokers heed smoking cessation advice, before coronary heart surgery is considered, is arguably not a treatment, but a coercive measure, which in any case will prove largely ineffective because it is based on an ignorance of the real issues, as outlined below.

The BMA's stance is based on the logical premise that once smokers are educated about the harmful consequences of tobacco, they will adopt 'healthier' lifestyles — providing of course they care about their health. However, while the association between smoking and ill health is based on comprehensive research, the association between knowledge and consequent behavioural change is grounded primarily in assumption, and more importantly, has not been supported by the mountain of research which underlines the physical, psychological, social, ecological, economic and political determinants of health and health behaviour.

On the physical side, tobacco is an addictive drug. As the Royal College of Physicians underline: 'Inhalation of tobacco smoke results in remarkable efficient delivery of nicotine to the brain, the interval between inhalation and the onset of nicotine's action on the brain being less than 10 seconds. Repetition of the process many times with each cigarette... ensures regularly repeated "shots" of the drug. Dependence is thus reinforced with a frequency very much greater than that associated with injectable drugs of addiction such as heroin.'[3] The surgeon general in the United States of America has underlined that smoking is as hard to give up as heroin.[4] The 1992 general household survey reported that 58% of all smokers believed they would find it difficult to go without smoking for a whole day.[5] This is supplemented by the vast number of people who try to give up smoking and fail — as recorded by a 1983 survey which found that '70% of all current smokers have made at least one attempt to give it up and half of these say they have made at least three attempts.'[6] Nicotine withdrawal has been associated with anxiety, depression, poor concentration, hunger, irritability, restlessness, weight gain and decreased heart rate.[7-10] Thus, stopping smoking can initially lead to a deterioration in the smoker's general mental and physical health. However, the new products to help the smoker give up tobacco, such as nicotine patches, are not readily available on prescription and are relatively expensive in the shops.

In addition to threats to physical health, the social and psychological benefits of smoking must be acknowledged. In a recent health and lifestyle survey in Cheshire and Wirral, 48% of 1374 respondents who wanted to give up smoking or cut down, found it difficult to do so because smoking calmed their nerves when under stress.[11] This was especially so for those suffering from