PRACTICE OBSERVED

Computers in the Surgery

The patient's view

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Abstract

A postal survey sent to 350 patients from two rural practices confirmed that an appreciable minority of patients (17%) were opposed to doctors using computers. The questionnaire distributed had been carefully designed to identify their opposition more specifically. Most of the general concern was accounted for by the 91 patients (31%) who feared that confidentiality of information would be reduced. The sensitive nature of medical information alerts patients to the possibility of diminished security of records and obliges practices considering acquiring a computer to ensure that these fears are not realised. Smaller proportions of patients were found to oppose computers on other grounds—namely, impersonality, economy, and general anxiety.

Introduction

The encouragement, support, and optimism received for computerisation of general practice records were found by Potter to be disturbing in view of the lack of "research into the views of patients on this important subject." Unfortunately, his questionnaire on the subject of computerisation was strongly biased, consisting of only four items, all of which were negatively expressed. Simply by agreeing with the statements (as patients tend to do) his patients could express concern at the

use of computers by doctors. The reported 26.5% of patients who agreed that they would be "unwilling to speak frankly about personal matters to [their] general practitioner if he or she used a computer for keeping [their] records" may not therefore be as disturbing as it at first appears, especially as this particular attitude was suggested in the introduction to the questionnaire. In view of these methodological shortcomings we developed a questionnaire to assess and identify patients' attitudes towards computerisation of their medical data in their own general practices.

Crickbank indicated that attitudes towards computerisation become more favourable as experience of computers increases—"a natural occurrence as computers rapidly penetrate homes, businesses, and schools. At medical consultations, however, patients will be forced to encounter computer terminals, which may form an integral part of the consultation. As patients' experience of the interaction between doctor, computer, and patient increases they will be able to make more informed decisions about their likes or dislikes of the new technology. At present they can only have opinions based on their knowledge, fears, and feelings about computerisation generally."

In the present study we presented a balanced questionnaire to patients from two practices to detect apprehensions before the introduction of terminals to the consulting room. A postal survey was selected rather than a "waiting room" study so that patients who attend rarely would be included, and a second practice was used to reduce the risk of producing atypical results.

Patients, methods, and results

We identified four areas of concern—namely, confidentiality, impersonality, general anxiety, and efficiency. Six statements were formulated on each subject, using an equal number of positive and negative items. These were randomly ordered to form a 24 item Likert-type scale, which was then plotted. Internal consistency correlation was used to retain the 14 best predictors of overall attitudes; these then formed the patients' questionnaire (figure). Correlations for the items retained varied from 0.55 to 0.81 (mean

of rapid technological advance, but as more homes and businesses acquire computers this becomes a further confidentiality risk. Fourthly, the ability to combine information efficiently in a wide variety of ways is often of medical value, but it may also provide a valuable method of combining information for use in unintended ways.

No other section of the questionnaire indicated strong opposition to computers, but some individual items indicated considerable opposition to computers. In support of previous findings¹ the item "Doctors with computers will lose their personal touch" was often of medical value, but it may also provide a valuable method of combining information for use in unintended ways.

Our results indicate that patients trust their doctors and have few worries concerning computerisation of their medical records. Thirty one per cent of patients, however, were aware or afraid that widespread medical computerisation may give rise to

a potential loss of confidentiality. Measures taken to avoid this threat may reduce the value of computers in medicine. Nevertheless, patients and doctors should reach agreement over who should have access to how much of the wealth of information that can now be stored so that guidelines may precede an information explosion.

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References

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Beyond the Surgery

Quadrathlon

COLIN SMITH

At 5 pm on Saturday 20 August 1983, 87 athletes ran down Brighton beach and plunged into the sea when Jimmy Saville sank the launch of the car's old cannon. It was a sunny evening with an onshore breeze raising two foot waves on a moderate swell and enough surf to push the competitors onto a bit. The sea was a little warmer than usual for Brighton, though the air was cool.

The athletes were embarking on a new race, the Quadrathlon, in which they would have to swim two miles at Brighton, walk 50 km to Tunbridge Wells, cycle 100 miles to and around Brands Hatch motor racing circuit, and end with a full marathon to Gravesend. This tortuous way of crossing Kent would take between 16 and 20 hours.

Individual athletes were raising money for Jimmy Saville's appeal for the spinal injuries unit at Stoke Mandeville Hospital. The race itself was sponsored by Foster's Draught Lager, though many other organisations, particularly Gravesend Borough Council, helped with time, facilities, or money.

Rochester, Kent

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I had been seduced into joining the organising team some months before over lunch in a pub in Chatham High Street, but it soon became apparent that there was a lot of work to do and, though plenty of physiological information was available, I could find little about how to set up a system to cover the health and safety of the athletes in such an enterprise. As the athletes would be few, and only those who could give evidence of ability in endurance sports allowed to enter, many of the problems arising in the massive "fun runs" should not happen. The major hazards of road accident, hyperthermia, and hypothermia would still be present, compounded by immersion in the sea, the speed of the cyclists, the darkness, the strong out nature of the race, and the enormous endurance required.

The Sussex and Kent divisions of the St John Ambulance Association were superb, and among them provided 16 ambulances, five caravans, and first aid facilities at 15 locations. This included about 100 volunteers and two motor cyclists on specially adapted machines. Each discipline had an expert organiser, who saw to route marking, marshalling, and the provision of feeding stations, but I foresaw (rightly) that communications good enough to maintain reasonable scrutiny of each athlete at all times would be difficult to achieve, though the Territorial Army was tremendously helpful on the event.

I was fortunate in being able to call on the enthusiasm of 13 general practitioner colleagues, so that we could provide

List of questions

- (1) My consultation would still be private if the details of it were put into a computer.
- (2) I could talk as easily to my doctor with a computer in the room.
- (3) Computers could save money for the health service.
- (4) If my doctor used a computer it would not worry me.
- (5) With a computer around a doctor will lose his personal touch.
- (6) Once my records were in a computer I would be less sure about who might have seen them.
- (7) If my computer means less time in the waiting room they are a good thing.
- (8) Even if doctors use computers they will see you for as long as before.
- (9) I would be uneasy in a doctor's surgery if I saw a computer there.
- (10) If computers are useful for specialists I think my own doctor should use one.
- (11) Doctors with computers for their patients will not want computers.
- (12) Computers make too many mistakes to be trusted with my medical problems.
- (13) If my doctor used a computer I would be afraid of becoming a mere number in a machine.
- (14) Computers are fine while they work but they will break down and turn out to be a waste of the doctors' time and money.

Patients were asked if they strongly agreed, agreed slightly, disagreed slightly, or strongly disagreed with the above statements.

0.67. Completion of the questionnaire took 10-15 minutes, but many patients obviously devoted a lot more time in thought and discussion to the implications of computerisation in general practice.

Random samples were taken from the age-sex registers of two general practices. Three hundred and fifty patients aged from 16 to 75 were sent the questionnaire with a covering letter. The sample included equal numbers of men and women. Initial collection of answers from patients of practice 1 was by personal visits; stamped addressed envelopes were given to those patients who did not respond initially. This yielded a response of 99.8%. In practice 2, however, initial collection was effected by providing stamped addressed envelopes; personal visits and telephone calls were made and hand-written reminders were sent if there was no response. This yielded a response of 82.2%.

Three hundred and four questionnaires (87%) were recovered, but 16 of these were partially scorable and seven were totally unscorable. Among the 46 patients who did not return their questionnaires, eight had left the area, three were away for the whole study period, six refused in writing or by telephone, and one had died; no successful contact was made with the remainder. Altogether 47.1% of the patients did not favour the use of computers by doctors on any grounds; 91.3% were against computers on the grounds of possible loss of confidentiality; 43.1% feared that consultations would become less personal; 34.12% were pessimistic about the economics of computerisation; and 38.13% had more general anxieties about medical computerisation. Although the patterns of response were the same for the two practices, the table shows that patients from practice 1 were slightly less opposed to computerisation on all grounds.

Numbers of patients showing negative attitudes towards various aspects of medical computerisation

Categories	Neutral or no	Strongly	Disagreeing	Total
	Pr. 1 n=2	Pr. 2 n=2		
Confidentiality	5	31	58	94
Impersonality	10	22	21	53
Economy	12	13	22	47
General anxiety	10	22	21	53
Total opposition	45	16	19	80

Discussion

Response to the items in the questionnaire indicated that a high proportion of patients mistrusted computers and doubted whether operators would maintain confidentiality. Patients' comments clarified their anxieties further. These included: "security of the data and access to it should be absolute"; "my answers assume that the computer software would retain the use of security systems to limit access"; "who would enter existing records into the machine?"; "would extra staff be taken on to operate the machine?"; "who will maintain the machine?"; "surely any hearing stories of people breaking safeguards"; "surely any system of keeping could steal vast quantities of computer records?"

The worries expressed could be put into five categories: (1) How secure will records be? (2) Who will be responsible for repair and maintenance? (3) Will there now or in the future be links to outside sources, such as hospitals, other practices, or data banks? (4) How easily will stored information be able to be displayed on other systems? (5) Will extra staff be needed to program and enter information, and how much access to information will they have? These questions represent two distinct values of confidentiality; one "local." The modern links must be guarded to prevent the "neighbours from finding out." The second represents a fear of "big brother"; information must not be allowed to collect into an amorphous mass to be used in ways for which it was never intended.

Vaux cites five characteristics of computer system storage that facilitate the maintenance and use of extensive records and may therefore threaten confidentiality. We second his view that the operations performed by a computer could in principle be carried out by traditional methods but may only become practicable through the use of computers. It is the practicability of such operations, however, that makes computers a threatening means of record storage. If, as others have foreseen,² widespread linkage of data systems occurs with information known to the family doctor being provided for hospital and clinical use then we support the opinion that confidentiality may suffer. Patients will lose the protection afforded by referral letters, which provide specialists with only relevant information.

In the future family doctors may have to be more selective about the information they release. Clearly it would be wrong to deliver printouts of full medical histories when patients attend for minor operations. Hierarchical coding is needed so that only relevant information is given, with more sensitive details being available only to the patients' own doctors. We believe that patients should be invited to participate in deciding which of their secrets should be available and to whom. Confidentiality is vital to a patient's willingness to talk freely and thus enhance medical care. "If the patient cannot rely upon his confidences practices will be forced to encounter computer terminals, which may form an integral part of the consultation. As patients' experience of the interaction between doctor, computer, and patient increases they will be able to make more informed decisions about their likes or dislikes of the new technology. At present they can only have opinions based on their knowledge, fears, and feelings about computerisation generally."

If the ultimate aim of computerisation is improvement of patient care many contradictions arise. Firstly, the usefulness of computers would increase substantially if hospitals and possibly other general practices had access to some of the information through a medical data bank, but the confidentiality of information would become difficult to protect, making patients less willing to divulge sensitive information. Secondly, computerised practices will benefit from good local maintenance support, but this might be a severe threat to "local" confidentiality if employees or patients or less than the practice itself were to have links to a maintenance base, which are provided with some systems, are an asset to the system's efficiency and reliability but mean that a further population may gain access to sensitive information. Similarly, a shared system permits access to many more ancillary staff than a single practice system. Thirdly, compatibility of hardware and software with those of other systems is an asset to anyone starting to use a computer at a time

one in front, one behind, and small teams at Brighton, Tunbridge Wells, Brands Hatch, and Gravesend. Each team had a leader, and their functions were to determine the resources available to them, to have their urine tested for blood, protein, and ketones to assess their fitness to continue.

Most competitors had their own helpers for special requirements. Hot drinks and food were available at changeover points and at some feeding stations, and orange juice and electrolyte drinks were provided at remaining stations.

After the race the athletes estimated their fluid consumption at between five and 37 litres. The food they ate was extraordinary. The winner ate only two plates of fish and chips, but others ate anything from chocolate bars to banana and honey sandwiches and spaghetti bolognese. Clearly they had devised their own survival regimens from previous experience.

The athlete who came in third lost 10.7% of his body weight, and the others lesser amounts. Blood and ketones in the urine were quite common, but except in the case of one athlete, who withdrew before the end of the race, no athlete had a medical analysis failed to show any correlation between observations made and performance. Twenty five entrants failed to finish; six of these were taken out of the sea with hypothermia, which suggests that though fit they were not acclimatised. Two

withdrew on medical advice, and the rest with fatigue, pains, and strains.

The high morale of the competitors was remarkable, though perhaps not so much the smile and thumbs up that I received intervals had something to do with the threat of rectal thermometry in the event of collapse.

The race was a success, and no medical problems arose that we could not deal with. Serious problems could have arisen, however, especially in bad weather, because of the difficulties of keeping track of the needs of individual athletes scattered along a 40 mile course through the night, quite apart from the problems posed by the swim.

The doctors' responsibility in such a race must cover all aspects of health and safety, including the placing of feeding stations, first aid posts, and ambulances; crowd control; and communications. It is as much for their decision making and organisational abilities as their medical skills that medical officers are required. It is essential that organisers of a race such as this should recruit a medical person at an early stage to help coordinate the skills and knowledge of the organisers of the individual events and the back up services for the care of each athlete throughout the race. Small teams of general practitioners, who are used to working in groups and making decisions on their own initiative, are particularly valuable for coping with the unexpected.

The last word must go to the athletes. This race, with its mixture of four disciplines, went far beyond most in testing their skills, strategy, fitness, and powers of endurance. Even to complete the course you have to be a hero.

Selecting with solicitude: the sequel

Several papers have been published recently discussing the methods and problems of selecting trainees for vocational training schemes, only one, from Oxford, suggested that the current trainees help select their future colleagues.³

The trainees on the Exeter vocational training scheme have recently been invited to participate in the interviews. When candidates apply they are invited to contact the chairman of the trainee group. Many do, and often visit the trainees. We have been able to find a few of the trainees a few weeks before the interview. Eight shortlisted candidates met four of the current trainees at 11 am (on the morning of the interview) and then went to visit four of the trainee practices. This provided the opportunity to see some of the practices and once again meet some of the trainees. It also allowed the candidates to sound out some of their ideas on general practice with our trainees in a relaxed and informal environment. The candidates then had lunch with their hosts, the senior lecturer in the department of general practice, the course organisers, and two other trainees who were to be at the interviews in the afternoon.

In the afternoon there were two 15 minute interviews, each committee comprising five or six members, including one trainee who had an opportunity to ask questions and an equal vote with other members of the committee. At the end of the afternoon when the two interview committees met the trainees had the opportunity to put forward the views of the trainee group as a whole to the other members of the selection committee.

What are the advantages of this system? By the time of the interview most of the candidates will have had the opportunity to confirm their own impressions of our scheme, sound off their own ideas on general practice, find out in advance the composition of the selection committee, and will at least recognise one friendly face on each interview panel. The members of the trainee group will have met all the candidates on a few occasions and had the opportunity to form their own views and opinions on the candidates. One potential problem is that the trainees will support the candidates that they like personally rather than those who are the best trainees. On the other hand, the trainee group may build up a better picture of the candidates from meeting them before and at the interview and be in a better position

to select the most appropriate candidate than at a simple 15 minute, one off, interview.

In fact the trainee selection was closely similar to that of the other members of the selection board, and the candidates welcomed the procedure and found it helpful. We enjoyed participating and hope that we were able to help the candidates and would encourage other training schemes to integrate their current trainees into the selection process.—DOMINIC A. MACALEY, chairman, Exeter trainee group, Exeter Postgraduate Medical Centre, Barrack Road, Exeter EX2 5DW.

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ONE HUNDRED YEARS AGO The result, on one day recently, of four football-fights—it is a gross misuse of language to call them "games"—was that two young men lost their lives, and two sustained fractures of the leg, in one instance apparently a severe compound fracture, one of the deaths was said to have been due to heart disease, the other was clearly caused by fracture of the spine in the neck. It is a great pity that what might be a mainly and health-giving game should have been allowed to degenerate into a kind of organised faction-fight. The human skull, unlike that of the goat and bull, is not adapted for use as a battering-ram; the death of a young man who perishes in the attempt to emulate the tactics of a goat or a bull may perhaps not be any great loss to the community, but what we complain of is that such conduct should be held up before the eyes of a number of young men and lads as an example to be followed. The constituted authorities of football ought to be able to make regulations sufficiently stringent to prevent the, at present, high percentage of killed and wounded. If they want a precedent, they have only to turn to the action of the cricket legislature, which is to meet at Lord's next month in order to put laws, intended to put a stop to certain dangerous abuses which have crept into the noble game. (*British Medical Journal* 1884;1:571.)