PRACTICE OBSERVED

Computers in General Practice

A computer in your practice: indispensible tool or troublesome toy?

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The computer and its role in modern general practice has been much to the fore, occupying inches of newsprint, especially medical newsprint, over the past 18 months or so. The interest the medical profession, and general practice in particular, has shown in the use of microcomputers, and the possible market potential therein, may be judged by the fact that at least two magazines are going to be produced for the general practitioner solely on computers and general practice. Furthermore, there has been the proliferation of computer firms selling complete computer-based packages for the modern practitioner, without which, they claim, it is surprising that general practice has survived for so long. It is surprising that there is a wide range in the price of these systems, with a factor of at least 5, and possibly 10, separating the cheapest from the most expensive.

The amount of information about the need, type, and cost of computers is enough in its own right to confuse the average general practitioner, who after all is trying to be a doctor to his patients and also run a business, often in partnership, and who above all else really wants to know just how such a system will help him in his day-to-day work. After all the expense and the possible trauma of installing a computer, what will he gain from it?

This question is all the more difficult to answer because the doctors who are already using computers are almost invariably people who developed or already had an interest in computers and who really adapted their hobby to their work. Furthermore, they are the same doctors who have often provided the basis upon which the computer firms have built the package that is being sold to GPs. They are therefore already computer orientated and can recognise and correct problems that occur, probably without even realising that what to them was hardly worth rating as a hitch would be to a person with virtually no experience of computers a disaster of Titanic proportions.

I hope to shed some light on the advantages, disadvantages, pleasures, curses, savings, and expenses of installing a packaged computerised system into a busy general practice. I will try to give a chronological account of the problems our practice had and the position the computer now occupies since we bought it one year ago.

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The practice

The practice is a five-doctor, semirural practice with four surgeries in neighbouring distinct villages. There is a total practice population of 10 200 patients, to 80% of whom we dispense. This means that with the high cost of drugs the annual financial turnover in the practice is well over £½m and that theoretically a small percentage savings in the drug bills achieved by more efficient stock control, for example, would have a large effect on the profit for the partnership.

The practice is also concerned in training and in local post-graduate education. Having keen young minds passing regularly through the practice also meant that we continually had to look at innovations to see if they were appropriate or desirable for our practice.

Two years ago computers were the subject of frequent discussion, and we had reached the position where we felt we could see a need for one.

Objectives

Financial—As I mentioned above, we thought that a good stock control system would quickly pay for the computer and thereafter improve the business efficiency of the practice.

of the top three positions in this list, and so has led us to consider whether we should run a hypertension clinic, using the practice nurse for the regular three-monthly review with appropriate regular investigations, such as electrolyte and urea, electrocardiograph, weight, and urine to be reviewed perhaps yearly by the doctor. One does not need a computer to do this, but it took a computer analysis to show just how much of our time and work load is concerned with the regular review—at a fairly inadequate, superficial level—of our hypertensive patients.

Other information now at hand is a monthly printout of the practice balance sheet, profits, and partner drawings, and a daily instant bank balance. This is done using a program written by one of the partners, slowly and painstakingly over the winter, as more and more expertise was and is being gained in programming and computer uses. Another partner has written a program analysing prescribing habits as part of a project his trainee wished to do. Again, all with skills learnt through having a computer in the practice.

Administration—The biggest influence on the day-to-day running of the practice has been with the use of the repeat prescription program. When operating properly it runs very smoothly, and is certainly one aspect of the computer that the receptionists almost like. No longer do doctors have to be chased up to check and sign repeat scripts. They are just handed a bunch of scripts that can be signed with a minimum of checking and time, since the doctor is secure in the knowledge that the validity of the script has already been checked by the computer and will be refused should the patient need to be seen by the doctor at an interval previously decided upon by the doctor.

Conclusions

As you can see we have had our problems. Some self-induced through attitudes and impatience, and a major equipment one that was probably peculiar to us. The computer has not saved us any money, and probably will not. It has caused a certain amount of staff disquiet. Clinically, it has done all, or nearly all, we had hoped, and has added greatly to the interest and management and planning capabilities of the partners. I personally do not feel that the age/sex register needs to be computerised, and that our present dual system works quite well enough for the screening and vaccination recalls we do.

Our computer system was not expensive as such systems go. At £3500 it was decidedly at the lower end of the commercial GP-computer market. It has not cost each of us very much for the benefit of learning a great deal more about our practice, our patients, the jobs we actually do, and the place of computers in general practice.

I just wonder if we had bought one of the bigger, faster, more adaptable, equally untried systems for £15-20 000, I would be feeling quite so happy at my end-of-year report.

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Organising a Practice

Communication outside the practice: a London view

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General practice can be a very lonely career. Isolated in your consulting room, with only the patient for company, it is easy to lose contact with the mainstream of medicine. Even one's partners are not privy to the conversation between doctor and patient. Both to provide the necessary care for the patient, and to ensure that the doctor does not gradually go "off the rails," formal and informal links with the medical and wider world outside are essential. Rather than write a thesis covering the whole subject, I have selected a few ideas that seem to be important in daily practice, particularly in my area of south London.

The telephone

The telephone is the principal link between patient and doctor. In our practice of some 8500 patients we have two incoming lines that are operated by receptionists 11 hours each weekday. Out of hours we find an answering machine more useful than the transfer call operator. Patients, hearing the recorded message, must decide if their problem is urgent before redialling to the duty doctor. This sifts out a good number of trivial calls. After 11 o'clock at night I reckon that about half the calls are urgent enough to require a home visit. Curiously, a lot of our patients assume that the night-time doctor is a stranger; they are sometimes disappointed that the hoped-for "second opinion" turns out to be the same doctor they saw in surgery earlier that day.

During the day the receptionists must decide if a patient's pressing problem is urgent enough to impose on an already fully-booked surgery. Simple guidelines help: all urgent children are seen the same day; eyes, ears, and chest pains are seen promptly; fleas in ears are administered by the doctor, not the receptionist; abusive or threatening patients are removed from the list.

Telephone communication with doctors in hospital can be a problem. Busy residents find the "bleep" a nuisance; surgeons may be in theatre; consultants, in general, do not like interruptions to ward rounds or clinics. Our local hospital employs an experienced admissions officer, who can make all the arrangements for emergency admissions, even arranging an ambulance. If the hospital is full the emergency bed service undertakes to guarantee admission to another hospital and do all the telephoning required. This valuable service is particularly useful when yellow or red warnings are operating.

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Administrative—We thought that a computerised age/sex register would allow easier identification of patient groups for screening procedures in the practice—such as cervical cytology, rubella immunisation, and risk factors for coronary artery disease, all of which we ran from a manual system. Again we thought that a computerised repeat prescription system would allow better patient surveillance, yet save the doctors' and receptionist's time.

Clinical—We thought that a computerised disease index and analysis of work load would improve management of our patients by allowing easy access to lists of patients with chronic and also common diseases. We also hoped that it would allow regular analysis of our trainee work loads to ensure that trainees were seeing the total spectrum of patients in general practice.

Philosophical—It is always difficult to judge just when is the right time to branch out into new, relatively untried techniques —especially when there is little proved experience and benefit, and the capital outlay is substantial. This is even truer with electronic gadgets. How many of us have got £50 calculators that are 4 or 5 years old, yet are considerably less complex or effective than some that are available today for less than £5? Next year the gadget will be twice as good at half the price. Progress in computers is advancing at such a rate that the timing is even more difficult, and probably will never be right.

Summary—We felt that for valid financial, clinical, and administrative reasons a computer would have a place in our practice, and all that had to be decided was when and to what extent to take the plunge—that is, a compromise between the availability of a suitable system and its cost. At this stage we saw reviewed a system that seemed to offer most of what we wanted at a reasonable cost of about £3500, which after tax would entail a commitment of only £300 for each partner to have at least the excitement of taking part in the vanguard of the computer revolution.

The reality

A year has now passed in which we have had the benefit of the computer. And a year in which we have all certainly learnt a great deal more about computers than we knew at the start.

How does the balance sheet now stand?

SNAGS

The equipment—Unfortunately we have been bedevilled by a tiny gremlin, apparently acting randomly in the works. Its presence has only in the past few weeks been traced by the firm from whom we purchased the system. This is, I must add, despite a great deal of their effort. Nevertheless, it has caused difficulties in operating the full system and a certain amount of disillusionment on behalf of the less committed partners.

The staff—There is little doubt in my mind that the average receptionist has a deep mistrust of things mechanical, and especially things electronic. We got off to the right start in allowing our practice manager to see the system in operation before we purchased it. This led to a great deal of enthusiasm and commitment on her part, particularly in setting up the repeat prescription system and thus she could more easily identify with the benefits to the staff. Despite this enthusiasm, however, I nearly caused a mass resignation of the staff when I recently suggested that now that the system was operating reasonably reliably the computer should be moved to the reception area from the common room, so that certain as yet unused facilities, such as label printing, could be used, and that the computer could at last become a working tool rather than the item of special equipment it still is.

The time—Setting up the basic system and running it takes an enormous amount of time. We already had a manual age/sex register and a reasonable repeat prescription system. Yet despite these advantages a great deal of the doctor's time is needed to ensure the accuracy of the clinical information being fed into the computer, whether it is an approved list of repeatable prescriptions, dosages, and review intervals, or whether it is a summary of the patient's medical history. The prospect of having to go through 10 000 + records, summarise them, and enter all this onto the computer at the same time as trying to keep the information up to date proved so daunting that we abandoned for the time being the idea of having the full computerised age/sex register and decided to rely instead on a combination of a manual age/sex register and a continuing consultation analysis program.

Also we learnt that it is difficult to set up from scratch and run three different systems simultaneously. The stock control, practice analysis, and repeat prescription programs all need different types of information which must be first organised in the practice and then fed into the computer. It is only now that the repeat prescription part is fully operational and we can contemplate having a second attempt at the stock control part, abandoned initially in part because of the gremlin, and in part through staff antagonism, but essentially through trying to do too much too soon. The outstanding success has been the practice analysis, which in fact needed the least amount of work to set up.

It has also become clear to me that to run several different systems in one reasonably sized practice one requires the equivalent of a full-time committed "computer operator/receptionist," or that the computer has to become so acceptable to all the receptionists and staff that it is used on a continuous as-it-happens basis in the heart of the administration area. As I have said before, in our practice this is not even remotely feasible now, but I think that it reflects more my total initial enthusiasm for the package, which produced a reactive overkill on the part of the staff, than a universal problem.

ADVANTAGES

Organisation—Probably in retrospect the biggest advantage has been that to institute any form of computerised system one needs a good basic scheme anyway, and that the reorganisation of the records and the repeat prescription scheme allowed a good deal of tightening up on what had become somewhat lax through use.

Information—Apart from problems caused by the gremlin, the system does most of what we were promised. We now have a continuing disease register, which can print out patient lists of virtually any condition or symptom listed under the Royal College of General Practitioners' classification. This is useful and interesting. A symposium on low back pain that our practice presented at the local postgraduate centre was based on morbidity figures and case-note analysis of the 200 patients who presented with the symptom in 1981. When discussing management of haemoptysis with a trainee it was a simple task to identify the five patients with the symptom over the past year and to see that the textbook management was not always appropriate in general practice. Just this week, after seeing the correspondence on pityriasis in the letters in the *BMJ*, and the possibility of it being infective in origin owing to clustering of cases, I got the computer to print out a month-by-month listing of patients diagnosed in the practice. It was not particularly useful nor were the numbers valid, but it was certainly interesting.

On a more practical level we are now able to identify our groups of patients at risk—for example, diabetics, asthmatics, those with multiple sclerosis. In fact we can identify virtually any group, and all at the touch of a button or two, allowing for easy review of management and the planning and co-ordination of resources. We can also compare patient work loads for each doctor, and so allow for better planning of surgeries. At the end of each month the computer can print out a full list of all conditions seen and the consultation rates, or an abbreviated "top thirty." As well as allowing trends to be identified it has produced some surprises. Hypertension regularly occupies one

A recently-acquired extension to the telephone is the radio "bleep." If an urgent message is received at surgery or home while I am out I can be called to a 'phone to find out what it is. This has often saved unnecessary journeys, and may have been instrumental on one occasion in saving the life of a baby suffering an acute anaphylactic reaction to egg protein—I was able to give treatment before sending the child to hospital.

The letter

Between doctors the letter is a commoner method of communication. The standard referral letter should list the history, examination, and investigations, with current treatment and past problems. It is wise for all junior hospital doctors to read this carefully. One of our patients nearly died because the anaesthetist did not heed the warning in the original letter about asthma.

Commonly, letters are now sent direct to the consultant, who then arranges for an appointment to be made with the patient. This throws the onus for stressing urgency firmly on the general practitioner (where it belongs). Less desirable is the habit in some specialties of not permitting letters to be addressed to the consultant of one's choice. It is scandalous that patients in our area are denied a choice of psychiatrist, and must perforce see the consultant who covers the street where they live (chosen alphabetically). Despite unctuous claims of freedom to refer, this habit has grown and now encompasses the geriatricians, and to some extent the obstetricians and gynaecologists. Choose your home address with care! Even worse, some clinics insist that the letter be addressed to the sister, psychologist, or secretary. I prefer to ignore such directives, and continue to write, as a doctor, to a doctor.

Person-to-person

In our group practice daily personal contact with attached nurses, health visitors, and social workers allows a free flow of information (often by-passing the doctors if they are irrelevant). Outside our walls such personal communication is difficult. The social services department appear to be addicted to case conferences. These can often be arranged to take place in the safety at a mutually convenient time; and the general practitioner is still paid a fee for attending. It is my experience that the family doctor, being such a *rara avis*, is particularly welcomed. The exchange of information can be fruitful, though care is needed when treading on the eggshells of confidentiality.

What has happened to the traditional domiciliary consultation? It seems to be used now as a short-cut to admission, and only a few consultants actually try to arrange a joint visit with the general practitioner. This remains an effective way of encouraging patients to persist with home treatment and is often very reassuring to anxious relatives.

The unit of medical communication is the consultation. Person-to-person contact, between patient and doctor, is the pivot on which our profession turns. Outside the practice this means the home visit. Although home visits have declined since the inception of the National Health Service I still average three or four visits a day, each taking about 15 minutes including travelling time. It is difficult to see how the numbers could be much reduced. Having a group of volunteers to transport elderly patients to and from the surgery has lightened the load, however. Our practice area is compact, covering only a few square miles of mainly terraced housing. Driving and parking are not as difficult as one might expect, though our colleagues in central London have a more acute problem.

There are advantages in being near the Smoke, too. Apart from social and cultural riches, the centres of the medical hierarchy are easy of access. The BMA, the family practitioner committee, the royal college are no more than a 45-minute car ride away. And the preponderance of teaching hospitals in London is an embarrassment. But for daily care, our close relationship with our local hospitals is paramount. Meeting consultants over lunch in the postgraduate medical centre often solves problems of management quickly and informally. In fact, the chief advantage of practising in London is, surprisingly, its compactness.

In the future

The communications explosion has hardly affected the conservative habits of the medical profession. No doubt it will become possible for practices to be linked by telephone to the local laboratory, to save time and postage in returning results. No doubt the Pharmaceutical Society will encourage computer links between doctors and pharmacists, giving greater accuracy and safety in prescribing. Perhaps magnetic tape, or discs, will gradually replace the typed letter. All predictions of the future fail, in that it is always more surprising, and more familiar, than can be predicted. However exotic the method, remember that the purpose of communication is to get an idea from my head into yours, within the confines of medicine, to benefit the patient.

FEIGNED DISEASES An excellent seaman, six feet high, was admitted under my care at Deal Hospital, labouring under a paralysis of the right arm. Circumstances connected with the man's case led me to suspect him to be an impostor; and, after nearly two months' residence in the hospital, immediately before a survey of invaliding was to take place, I caused fifty drops of tinctura opii to be administered to him in his tea or supper, unknown to him. At eleven o'clock that night, I visited him, accompanied by four hospital mates, and one nurse from each ward. Most of the patients in his apartment, which contained fourteen, were asleep. I approached this man's bed, stood up against the wall on his right side, and tickled his right ear with a feather; when, to the astonishment and mirth of the assembled party, the paralysed hand was instantly raised to his ear, which he rubbed with no small degree of force, and then turned round upon his left side, dragging the bed-clothes over him with his heretofore useless arm. He was not aroused, there being only the usual light in the ward, a common rush-candle; and, when he was again supposed to be asleep, the same operation of the feather was repeated, but with greater irritation; the paralysed arm was again raised as before, and, from the loud laughing that now prevailed, he was instantly aroused, and, finding himself detected, he sprung out of his bed, and caught me with both arms round the neck, and said in a whisper, "I hope I shall meet with you, sir, some day in a dark corner." This man was sent to his ship, and I afterwards learnt that he zealously performed his duty. (*London Medical and Physical Journal* 1824;**51**:87-99.)

MEDICINE AND SURGERY I see as many patients in the character of a physician as a surgeon . . . and I have often been consulted by physicians themselves about physicians' diseases. I consider myself perfectly competent to attend to a disease, that is supposed to belong to a physician; and that the distinctions between what ought to belong to a physician, and what belong to a surgeon, are quite undefinable. . . . Suppose a man has a diseased state of the lower intestine. If it is out of reach of the finger, it belongs to the physician; but the moment it comes down, and within reach of the finger, it belongs to the surgeon. Now, can anything be more absurd than that the same disease may be a stricture, a prolapsus, or a volvulus of the intestine, or a strangulated hernia; and thus it falls within the charge of the physician at one hour and of the surgeon on the following. —SIR ANTHONY CARLISLE (1768-1840). (Select Committee on Medical Education. *Parliamentary Papers* 1834.)