PRACTICE OBSERVED

Practice Research

Preparing to introduce a computer into a health centre

CARL R WHITEHOUSE

The recent Royal College of General Practitioners' working party on computers¹ predicted that computer systems will probably be in widespread use in general practice in five years, but that this depended on general practitioners accepting that introducing computers would result in greater business and clinical efficiency without requiring too much extra time, cost, or effort of themselves or their staff.

There are already several comparatively cheap off-the-shelf systems based on microcomputers that could perform many functions required by a general practice information system. Many general practitioners who are interested in improving patient follow-up, surveillance of repeat prescriptions, or aspects of preventive medicine can seriously consider purchasing a computer package, even though they have no knowledge or interest in computer technology. As the working party stated, only a small minority of doctors will have a clear idea of the revolution in office procedures that is coming, and an equally small number have probably considered making the requisite changes in their own record-keeping, though Greene investigated these in 1970.²

The usefulness of computers depends on the satisfactory collection and input of information, and this means a firm commitment by medical and office staff. Therefore, if it is necessary to alter the attitudes of staff or the way they work then this should be assessed before a computer system is introduced.

An attempt was made to assess the attitudes of staff to using a computer in one health centre.

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Method

The University of Manchester department of general practice decided to look at the process and effects of installing an off-the-shelf microcomputer system at Didsbury House Health Centre, which provides general medical services for 11 000 patients. The practice manager and two general practice principals, who were also members of the academic staff, were asked to investigate the many different types of systems. It was thought that acceptability to the users was an important factor, so it was decided to find out the attitudes of all practice staff to using a computer in the health centre.

All staff were asked to complete a questionnaire—the "computer oracle." The aim was to gather broad impressions from different groups of staff. The results were not intended for analysis, and the reported figures should be regarded only as indicators. The questionnaire looked first at three basic functions that are required for the development of more complex information systems: details of patient registration, information about patients' medical background, and information about encounters between staff and patients. Staff were asked their opinions on how useful a more complex facility such as a control over repeat prescriptions and registers for administrative, preventive health care, and educational purposes would be. Since there was no intention of introducing real-time computing in to each consulting room (that is, staff using the computer while consulting with patients) staff were not asked to give their opinions on fully computerised clinical records or on computer-assisted diagnosis.

Results

Thirty-five questionnaires were circulated to all staff in the department of general practice and the health centre, excluding research secretaries. One academic administrator and one senior research fellow returned their questionnaires because they were not relevant to their work, and one senior research fellow failed to return his. The 32 completed forms came from 12 doctors (seven academic principals, one National Health Service GP, and one retired GP), 11 administrative staff (secretaries, receptionists, and records clerks) and seven others (social worker, health visitor, district nursing sister, school nurse, and three research staff).

of concern about repeat prescribing we thought that considerable interest would be shown in this. Table 1 shows that all groups put a high value on controlling and processing repeat prescriptions by computer, but the doctor's anxiety may be reflected in the value given to altering about drug interaction. The low interest in recalling form FP100 may be related to the fact that an academic department with mainly salaried principals has no personal interest in item-for-service fees.

Fig 3—The percentage of respondents who thought that it was important to have access to information about each encounter between patients and staff on the computer.

TABLE 1—Information about medication

Percentage of respondents according to mode frequency (mode 4-5)	All respondents (n=32)	Doctors (n=12)	GP principals (n=8)	Administrative staff (n=13)
(1) Processing and controlling repeat prescriptions by computer	68.75	66.7	75	77
(2) Individual summaries for all medicines	59.4	66.7	75	38.5
(3) Altering about drug interactions	59.4	83.3	100	23
(4) Altering of failure to require repeat prescription	59.4	58.3	75	23
(5) FP100 recall	28.1	33.3	25	15.4

Question 5 Information specific to the practice

The questionnaire lastly asked about using a computer to construct practice logs and registers for clinical, administrative, or educational purposes. Manual methods are arduous, and the advantage of a computer is obvious but few staff members would need to use the information. Only moderate interest in having registers in the three categories was shown (table 1), even though this was a practice committed to teaching and research, except for those concerned with preventive health. Administrative staff, who would not expect to use these registers, attached little importance to them. Some of the marked differences, however, might have implications for organising an effective system—for instance, doctors were more interested in lists of patients by social class, but occupation is seldom available on current records. There is no system for collecting and coding information, and the lack of interest shown by administrative staff, together with the objections noted above, may make the provision of such lists difficult.

Discussion

When introducing a computer information system it is important to overcome the idea of the "spontaneous generation" of information. Many reports³⁻⁶ have emphasised the value of

TABLE 2—Practice registers

	All respondents (n=32)	All doctors (n=12)	GP principals (n=8)	Administrative staff (n=13)
Administrative				
Complete alphabetical list	34.4	25	37.5	46
Complete age-sex register	34.4	16.7	25	38.5
Selected age group	33.3	33.3	87.5	15.4
Summary register structure	40.6	33.3	37.5	30.8
List by geographical location	9.4	8.3	12.5	—
Work-based				
Patients contacts	34.4	41.7	62.5	7
Investigations/procedures	27.5	58.3	75	17.8
Referrals	28.1	58.3	62.5	7
Referral log	34.4	33.3	50	15.4
Preventive health procedures				
Patients call-recall lists for				
Child health surveillance	56.25	75	87.5	30.8
Maternity/postnatal	53.1	75	100	15.4
Cervical cytology	33.3	75	87.5	30.8
Risk factors	28.1	58.3	50	7.8
Preventive procedures				
For example, flu vaccine	28.1	41.7	62.5	7.8
Cervical surveillance	53.1	58.3	87.5	30.8
Teaching/audit				
Complete disease register	43.75	41.7	37.5	34.4
Selective disease register	43.75	41.7	37.5	15.4
Medication registers	46.9	50	50	30.8
By doctor	28.1	33.3	50	15.4
By problem	28.1	33.3	50	15.4
Listing by social class/socioeconomic group	25	41.7	62.5	0
Listing by ethnic group/nationality	15.6	41.7	50	7.8

computers in improving patient care or practice administration. Only information can beget information, however, and the advantages can only be realised if the staff is motivated to provide the right information from the beginning. Most practices will not be able to afford consulting-room terminals at first and therefore will need a system of "encounter forms," so that relevant information is passed by the doctors to the administrative staff to be entered. This poses problems of confidentiality that are not the subject of this report, and it also means a change in practice work-patterns. If existing staff are to be redeployed they must appreciate the value of the change and the relevance of the information.

This study was limited to one large practice, but it suggests that there may be sharp differences in thinking between the medical and the administrative staff over how much information is necessary—even though they agree on having a computer. The patient files are the building-blocks of any primary care information system, but many details are either not there or not easily accessible. To gain the full benefit of a computer these details need to be collected, and we must be aware that occupation, social classification, ethnicity, and even marital status, for example, are sensitive areas that some staff feel uneasy about handling. Although doctors may realise the value of knowing which women in social class V have not had cervical cytology, such lists are unlikely to be adequate unless all staff are prepared to collect and process the information. Again, considerable interest was shown in including alcohol consumption, smoking status, and obesity among risk factors, but this requires getting the information from patients and a change in work process to ensure that the information is adequate. Computer printouts can only remind us of the absence of information. The lack of interest in having lists of patients with risk factors suggests an ambivalence that might affect data collection, despite the encouragement of the recent RCGP working party on prevention⁴ to ascertain the smoking behaviour and weight of patients under 64 years.

The lack of interest shown by doctors in information about encounters between patients and staff may also foreshadow problems in changing the pattern of recording that is necessary for data collection, though the considerable interest in disease registers and facilities for repeat prescriptions may counteract this, especially if they are seen to be effective.

The questionnaire (the "oracle") showed that there is

They were asked to grade from 1 (not important) to 5 (essential) the importance they attached to having a computer available for each facility. A grade of 4 or 5 indicated a considerable interest in having that facility. These grades were added and expressed as a percentage of all respondents. The percentage that showed considerable interest was also calculated for three separate groups: all doctors, general practitioner principals, and administrative staff, the other groups were too small for separate analysis. In certain instances the respondents were asked to forecast how frequently a facility would be likely to be used, and the mode frequency forecast is reported.

Question 1 Background information about patients

The respondents were told that a computer could hold background information on all registered patients that might range from simple details to a personal profile. They were asked to grade the overall importance they personally attached to this information being available on the computer, and to say how frequently they thought they would need access to it. A list of possible items for inclusion was given and respondents were asked to specify which should always be included, might usually be included, or should never be included—the latter aimed to pinpoint particularly sensitive areas of information-handling.

Fig 1 shows the general response. All groups were interested in

Fig 1—The percentage of respondents who thought that it was important to have access to background information about patients on the computer.

having this information available for use daily. Administrative staff showed the highest interest—mainly for name, date of birth, address, National Health Service number, practice number, and registered doctor—suggesting that this was largely due to their frequent need to check registration details. Medical staff also gave high priority to including telephone number, marital status, and occupation, which was expected in the light of Richardson and Berkeley's⁷ findings on general practitioners' views of essential items on records.

Half of the respondents had reservations about some items. One said that the socioeconomic group should not be included "until I know what it is"; one receptionist would have excluded marital status, occupation, social class, religion, ethnicity, birthplace, and nationality. Social classification was most frequently objected to, not only because it was a sensitive issue but because it was likely to be inaccurate. Two research staff wanted all the social information but would have excluded the name for confidentiality. Four respondents had reservations about religion and birthplace and three about nationality.

Question 2 Information on medical background

To develop a disease register, or a register of patients at risk, or other practice registers requires collecting details about past medical

history, screening procedures, etc as well as knowledge of the current problems of each patient. Individual summaries could therefore be available as a printout. The questionnaire asked how valuable they would find such summaries. There was only moderate interest (fig 2) except from doctors. Senior administrative staff saw no reason for access to this information, and most administrative staff thought they would "never" use the summaries. This may suggest that the few less experienced staff who attached priority to access may not have thought out the issue of confidentiality.

Fig 2—The percentage of respondents who thought that it was important to have access to information about patients' medical background on the computer.

Respondents were also asked to choose from a list the areas that should always be included. Doctors showed particular interest in past medical history, family history, and summaries of current problems and medication, but less in birth history, risk factors, and screening and preventive health procedures. Respondents were then asked to specify items under none of these headings. Family history: 36 suggestions that ranged from diabetes to "attitudes to deviance," but only four—diabetes, ischaemic heart disease, stroke, epilepsy—were mentioned by 10 or more people. Risk factors: 29 suggestions from "alcohol" to "ignorance," but only alcohol, obesity, and smoking were mentioned by 10 or more people. Screening/preventive health: 19 subjects, with immunisation status, cervical cytology, blood pressure, and urinalysis appearing 10 or more times.

Question 3 Encounters between staff and patients

The information about a patient's personal background and thus the practice registers comes from the encounters between patients and staff. When a practice has no real-time consulting-room computer no information must be collected, in addition to manual records, on separate encounter forms or by amending existing computer printouts in the records. If the latter method is used a summary of each encounter may be printed and filed to be used at the next contact. In a practice with up to 150 patient contacts a day this would be a heavy load of computing and filing. This question was asked to see if staff thought such printouts had any value in their own right, but the staff showed little interest and the doctors none (fig 3). Those who did think that they were important may have been reflecting their own frustration at not finding legible information when they received telephone calls from pharmacists or laboratory technicians to check on missing doctor's requests.

Question 4 Information about medication

Most off-the-shelf computer systems have facilities for controlling prescriptions, particularly repeat prescriptions. Because there is a lot

considerable interest in having computerised facilities in this practice, to be used especially in time-consuming or anxiety-provoking areas, and this should ease the introduction of a computer. Interest may develop in using a computer in other areas as well. It appears, however, that educating staff and developing simple methods of data collection will be required before such potential can be realised, and we now know which areas will need careful handling.

We think that the "oracle" has shown that it is important to make a survey of staff attitudes before introducing a computer information system.

Conclusions

Introducing a computerised information system to a health centre will affect the work of all the staff. If the attitudes of the staff are taken into account this will facilitate introducing the system. A questionnaire, called the "computer oracle," was used in one large health centre to find out the attitudes of different groups of staff to using a computer.

My thanks are due to all the staff for completing the Oracle, especially to Dr E J Williams, senior lecturer in general practice, and

Miss Margaret Flynn, practice manager, my colleagues on the sub-committee, and Mrs R Arditi for her help with typing.

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Trainees Corner: Managing Chronic Disease

Asthma

I: Managing the acute attack

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This article is based on an audiovisual presentation made for vocational trainees in general practice by the MSD Foundation. Further information about the tape-slide programme on which this series is based is available from the MSD Foundation, Tavistock House, Tavistock Square, London WC1.

At least a quarter of a general practitioner's consultations deal with the problems of patients with chronic disease. These patients return year after year to seek help for conditions that are often incurable in the strict sense, but which the doctor can do much to alleviate.

In these presentations on managing chronic disease in general practice we emphasise the active planning of managing patients both on an individual basis, corresponding with the needs of each patient, and collectively by using policies that

take into account the characteristics of the group of patients with the condition and the organisation and resources of the practice.

This is the first of two articles which deal with managing the asthmatic patient in general practice. In the average practice about 5% of the patients have asthma at one time or another, and the disease may occur in all age groups. This first article considers the general practitioner's role in diagnosing and treating the acute attack, and the second article will consider long-term management of the condition.

Asthma is a formidable problem in general practice and one that is worthy of intensive study and continual surveillance. There are several different definitions of asthma, but we define it as "potentially reversible airways obstruction." The first priority when the disease starts with an acute episode is of course to relieve the respiratory distress. The relief can be dramatic: the symptoms may well vanish on the end of a needle. But it is only one episode in a long story; one aspect of a disease you and the patient may have to cope with for a long time.

Four patients

Let us consider four patients who are chosen to illustrate different aspects of asthma. The first, a wheezy infant, could become the second, an asthmatic child, who might in turn become the third, an

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Objectives

When preparing this article we started with a list of the objectives devised by the advisers to the MSD Foundation (all working general practitioners). Obviously two articles alone cannot achieve the objectives, nor will every general practitioner agree with them; nevertheless, we print them here convinced that they will be useful to all trainees in general practice.

Attitudes—Trainees shall regard asthma as a formidable clinical problem in general practice, worthy of intensive study and continued surveillance.

Skills—Trainees shall demonstrate their ability to:

1. Use a peak flow meter in general practice on home visits.
2. Use a diagnostic index in their own practices to identify and maintain a list of all patients known to have asthma for whom they are responsible.
3. Assess the significance of peak flow readings in relation to the normal for a child of any given age, sex, or height.
4. Maintain a systematic follow-up system in their practices for all asthmatics, including identifying and taking action about those who fail to attend appointments.

Knowledge—Trainees shall demonstrate their ability to:

1. Define asthma as a condition of potentially reversible obstruction of the airways.

asthmatic teenager. However, asthma can also arise spontaneously in teenagers and in middle-aged people. While the needs of all these patients differ in detail, the aim of management is the same for them all: the wheeze and its cause must as far as possible be eliminated, and the return of the wheeze prevented. Recurrent asthma may otherwise result eventually in chronic non-reversible obstructive lung disease with deteriorating lung function; it may also result in death. There are still 1500 deaths a year in England and Wales from asthma.

WHEEZY INFANT

John is seven months old, and you are asked to see him in his home during his first attack of wheezing which has followed a minor upper respiratory tract infection. He has no pyrexia, and is not cyanosed. As you stand looking at him, you consider the possibility that he has asthma—but what other diagnosis should pass through your mind? By your definition this child certainly has asthma, but he may not always have bronchospasm; the obstruction is probably due to oedematous bronchial walls and copious mucous secretion. John is likely to wheeze in the future. Other causes of this wheeze must be considered, however. We can usefully divide them into acute and chronic.

Acute causes include chest infections which usually make children febrile. Bronchitis, which is usually due to a virus, often makes small children seriously ill, and requires admission to hospital. It tends to occur in the spring and autumn, often in epidemic form. Another acute cause to think about is inhaled foreign bodies. Lastly you should consider acute heart failure; this is most commonly due to a previously unrecognized congenital anomaly.

Chronic causes include cystic fibrosis, which is rare. If a child develops successive episodes of wheezing, however, this condition needs to be considered and, if necessary, excluded.

Treatment—When you have excluded these possibilities, you will move on to treatment. Relieving the bronchospasm is the first priority, and while oral drugs such as beta-adrenergic stimulants might be helpful in older children they will probably not help baby John very much. Even the newer beta-adrenergic stimulants are relatively ineffective in children under 20 months of age, and theophylline derivatives must be given with extreme caution based on dosage-to-weight ratios. The best advice is to keep the child well hydrated. Extra fluids by mouth and steam inhalations are helpful, and they allow the parent to take an active part in their child's treatment.

Antibiotics should not be prescribed routinely because asthma in the young may well be precipitated by viral infections and is rarely associated with bacterial disease. Of course they should be given whenever there is an indication for them: the ears, throat, and chest

may be sites of infection. If you need to give an antibiotic, penicillin is preferable to broad-spectrum antibiotics.

2. Recall the prevalence of asthma in a typical British practice (about 5%).
3. State a satisfactory system of treating an acute episode of asthma in the home. List a satisfactory catalogue of steps of treatment suitable for the long-term surveillance of an asthmatic child at home, including indications for the parent or child, or both, to seek treatment outside the home.
4. List the composition, indications for use, and adverse effects of all the drugs they use in treating asthma.
5. List the indications for using steroids, whether given as aerosols or systemically, in children with asthma.
6. Be able to distinguish intermittent from permanent airways obstruction.
7. Know when to seek and how to use specialist help.
8. Understand the effects of the disease on the family.
9. Understand the possible effects of the disease on the child's school performance and leisure activities.
10. Understand the value of a single doctor providing continuing management.
11. List other causes of wheezing—for example, cystic fibrosis, foreign body, bronchitis.
12. Understand initial investigation and the limits of investigation.
13. Understand the signs that indicate admission to hospital during the acute episode.
14. Understand how treatments may need to be varied for age—for example, dosing (omitting) may easily be given to the very young.

may be sites of infection. If you need to give an antibiotic, penicillin is preferable to broad-spectrum antibiotics.

Two important parts of the treatment are talking to the parents and deciding how to follow up the child. When is hospital admission needed? Sometimes asthmatics of any age suffering an acute attack need to be sent to hospital. What are the criteria on which you would admit John or another asthmatic as an emergency? The asthmatic of any age may need hospital care for three general grounds: impending respiratory failure, general exhaustion, and an impossible home environment. Signs of impending respiratory failure include intercostal, supraclavicular, and diaphragmatic recession and tracheal tug. Others are cyanosis and a persistent tachycardia and the failure by a small child to respond to adrenaline or intravenous amorphous or oral drugs. Vomiting and fatigue are dangerous signs. Also important are the willingness or ability of relatives to cope: a child is sometimes better out of the hands of parents who are unable or unwilling to cope. A "silent chest," bronchospasm so severe that rhonchi are not heard, and signs of heart failure (liver enlargement or a tachycardia over 140) are also indications for admission to hospital. Giving the patient 100 mg of intravenous diazepam before he is sent to hospital should be considered essential treatment.

Having treated the acute attack successfully it is particularly important to keep in close touch with the patient and the parents. Telephone reports may be valuable, but they are no substitute for seeing the patient again. Asthma may return suddenly and sometimes unexpectedly. The wheeze may continue for days without being obvious to parents, and only by close and regular follow-up will you be sure that it has completely cleared.

WHEEZY 6-YEAR-OLD

James is six and has a history, says his mother, of chesty colds. On asking leading questions you find he had mild croup as an infant. This is your first contact with him in an acute asthma attack. It started while running home from school, and he is now in considerable distress. Other common and important presentations are simply recurrent cough and reports of difficulty with breathing during games.

Treatment—Would you approach the treatment of James's acute attack in any way differently from that of John's? Drugs such as salbutamol and cromoglycate are much more effective in older children than in infants. Sometimes it is possible to give intravenous amorphous provided the home is calm and the child is co-operative; it must be given slowly over at least 10 minutes. Some doctors, however, prefer to give subcutaneous adrenaline or terbutaline, which is easier to administer, provided that the dose is regulated according

Law and the General Practitioner

Negligence

RICHARD PARKES

Professional negligence is one of the great growth areas of the law. Old habits of deference to the judgment and ability of the professional man may die hard, but they are dying none the less; and the wish of the courts both to devise a remedy for the injured and to fix liability on the broadest available shoulders has tended to expand the frontiers of legal responsibility as well as encourage aggrieved citizens to sue the well-insured professional.

Medicine has always been firmly subject to the discipline of law: inevitably so, for the responsibilities of doctors are enormous, and the consequences of their errors potentially catastrophic, especially in the critical areas of surgery and anaesthetics. But the same principles of law apply to all doctors, whether specialist or general practitioner, and despite the impression often given by highly coloured press reports of massive awards of damages, the law's burdens are neither overwhelming nor difficult to understand.

Negligence is the breach of a duty to take reasonable care. It is only actionable in the courts if that breach of duty causes actual damage. There are some areas of human activity where it is uncertain whether a duty of care is owed at all. For instance, until 1932 it was not finally decided that the manufacturer of an item of food or medicine owed a duty of care to the ultimate purchaser or consumer. That issue was settled by the House of Lords in the great Scottish case of *Donoghue v Stevenson*, in which Miss Donoghue sued the manufacturer of a bottle of ginger beer. She and a friend went to a cafe in Paisley, where her friend bought some ginger beer. One Manchella, the proprietor, poured her a glass, which she drank. Her friend poured the rest of the bottle into another glass, and as this happened a decomposed snail floated out. Nauseated by the sight and by the consciousness of what she had done she understandably suffered from gastroenteritis and shock. This is how Lord Atkin put the central issue:

The rule that you are to love your neighbour becomes in law, you must not injure your neighbour: and the lawyer's question, "Who is my neighbour?" receives a restricted reply. "You must take reasonable care to avoid acts or omissions which you can reasonably foresee would be likely to injure your neighbour. Who, then, in law is my neighbour?" The answer seems to be—persons who are so closely and directly affected by my act that I ought reasonably to have them in contemplation as being so affected when I am directing my mind to the acts or omissions which are called in question.

Applying Lord Atkin's formula is easy enough in the case of doctors. All of a doctor's patients are his "neighbour," and the category must include not only those patients that he treats but also those on his list that he has never treated but who, for

instance, telephone a doctor for help that is carelessly ignored. In addition, if the doctor treats the victim of an accident which he chances upon—the old "Is there a doctor in the house?" predicament—that person becomes his patient and is owed a duty of care, no matter whether or not the doctor is paid for what he does.

Standard of care

Once the group of people is established to whom the duty of care is owed it is necessary to isolate the standard of care that the doctor must achieve to avoid being in breach of the duty. In the case of the general practitioner it is the standard of the ordinary competent practitioner exercising the ordinary degree of professional skill. The standard will vary according to the circumstances, which will include the facilities available, the conditions under which treatment must be given, and the amount of time that the doctor has to do what is necessary. The important thing to remember is that it is always a defence to proceedings for negligence for the doctor to prove that his actions are in accordance with general and approved practice, which means practice approved at the time the negligence is alleged to have happened, even if later research or experience shows that the practice is unsound. What is more, it need not necessarily matter that a large number of one's professional colleagues would have handled matters differently, as long as the treatment given would be accepted as proper by "a responsible body of medical men skilled in that particular art."

It is also worth remembering that an error of judgment need not be negligent but is perfectly capable of being so; a remark of Lord Denning's, in the recent case of *Whitehouse v McGregor*, when he stated that "in a professional man, an error of judgment is not negligent," has been rightly criticised and ended firmly by the House of Lords in *Whitehouse v McGregor*. It is a fairly clear case that meant that such an error is not necessarily negligent. It all depends on whether the error is one which might be made by the ordinary competent practitioner exercising the ordinary degree of professional skill.

Of course the general practitioner must keep his knowledge up to date, at least in his own field of practice; otherwise he may take himself outside the ambit of the law's potential protection. Similarly, he must know his case is beyond his scope and ability, and in such a case refer the patient to a consultant or a specialist unit. Once he does so, and the consultant has assumed overall responsibility, it is a defence for the general practitioner to show that he acted on the consultant's instructions. If he fails to refer the patient and attempts to carry out treatment for which he is insufficiently qualified the failure to refer may in itself be negligence, and in addition he is likely to be judged in carrying out that treatment by the higher standard of care of the ordinary competent specialist in the field in which he has trespassed. (The same rule probably applies, logically enough but perhaps unjustly, to the ignorant but well-meaning by-

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to the child's weight. A few general practitioners are now beginning to use salbutamol given by nebuliser for treating acute attacks of asthma in the child's home. James's bigger body means a greater therapeutic ratio and therefore a greater margin of safety in the dosage. Also his wider bronchi mean that a better response to bronchodilators is likely.

There is no evidence that bacterial infection plays an important role in inducing bronchospasm at this age, and routine antibiotics are not indicated. Intravenous and intramuscular hydrocortisone are of considerable help in more severe attacks and act faster than the stated 24 to 36 hours of the pharmacology textbooks. They may even be life-saving.

ASTHMATIC TEENAGER

Treating Catherine, aged 17, in her acute attack is little different from treating James. It is unlikely, however, to be her first attack: a probable cause is that she is taking her prophylactic erratically after adequate control by drugs the most important aids to treatment the doctor can use are sympathy, a firm yet flexible attitude, and an understanding of the patient as a person. Catherine will need time alone with her doctor to discuss her asthma as she sees it. Her mother may also need time to discuss her asthma.

MILD-AGED ASTHMATIC PATIENT

Mrs Jackson, in her early fifties, has no previous history of bronchospasm. Asthma in middle-age is not uncommon. Yet she is one in whom the diagnosis is difficult, because the wheezing is the most common misdiagnosis, especially in men, and purely because the family doctor fails to make a few inquiries and conduct some simple tests in the home. The rare case of heart failure which used to be called cardiac asthma may also be missed.

Investigations

The age of onset of asthma not only largely determines the treatment but also the nature of investigations. Asthma in the wheezy baby has different causes from that in the older child or adult. Very important, of course, is a detailed history: it may bring to light a familial tendency to asthma and the precipitating factors of the acute attacks. The history is less likely to be helpful, however, in baby John's case.

INFANT

For John, an acute wheezy illness usually does not require investigation unless there are reasons to suspect underlying disease. It is important, however, in the long-term care of a child in general practice to make sure from the history and from the records whether a particular episode is really a first episode or whether it is the third, fourth, or further episode. Failure to thrive, with many recurrences of wheezing, should alert the clinician to the possibility of an underlying cause, and specific questions should be asked about whether the child has passed bulky stools. Height and weight should be checked against percentile charts to exclude failure to thrive. Referring a 6-month-old child for a chest radiograph after one attack of asthma is hardly good medicine, but referral after many episodes may well be indicated. Some general practitioners find that a routine blood count is useful to exclude anaemia, but other investigations are not productive.

CHILD

James, the 6-year-old, poses a different problem. Not only would we like to know the cause of his symptoms, but we want to know the effect of his asthma on his growth, development, and lung function. You may ask some of these questions: with his history of eczema has he an allergy? And how relevant to

subsequent treatment is a blood film and measurement of IgE concentration? Could he co-operate by using a mini peak flow meter, and if so what would prove a useful measure of his lung function? What is the best laboratory test of value in his case? Indeed, how important is the simple physical examination? For James the blood film and serum IgE may help the decision whether to look for allergens. Eosinophilia and a high IgE level may sometimes point to an allergic factor in the environment and may help management. The need for chest radiography is arguable. Only one should be taken, if any. Even a 4-year-old can be taught to cough into a tissue and to peak flow after using it before and after treatment will give an idea only of his disability but also of his response to treatment.

ADOLESCENT

For Catherine, blood and biochemical investigations take second place to a careful history and inquiry into the background of her attack. Both James and Catherine, however, should be examined for signs of chronic irreversible disease, which include a permanently overinflated chest; pigeon-chest deformity; lower rib recession; and growth retardation pushing them into the lowest percentiles. Peak flow measurements are also an important part of Catherine's regular assessment.

MIDDLE-AGED PATIENT

For the older asthmatic, such as Mrs Jackson, the chest x-ray film is essential. Her sputum, too, can profitably be examined. Aspergillosis, farmer's lung, asbestosis, silicosis, and other allergic or irritant lung disorders are possible differential diagnoses, but of course are extremely rare in practice.

ONE HUNDRED YEARS AGO There can be no doubt that the town of Hastings is likely to suffer considerably when the knowledge is spread among the medical profession that the important appointment of medical officer of health has been made in a manner of which the profession in the town wholly disapproves. A town such as Hastings offers many advantages to visitors for health-purposes; but it is also replete with dangers. Only last week, we had a serious case of diphtheria addressed to us of the want of sanitary precautions in one of the lodging-houses, in respect to the arrival of an imperfectly convalesced scarlatina patient, and on account of defective arrangements for quarantine. Hastings has enjoyed the reputation, under the charge of Mr Ashenden, with the vigorous assistance of Mrs Johnston, of having organized a system by which epidemic and zymotic disease could be kept in check, and was provided with unusual sanitary safeguards for visitors. The carrying out of such a system, most essentially in a town of such a size, and in the absence of a health-recess, depends for its success very largely upon the complete, hearty, and intimate co-operation of the medical men generally with the medical officer of health, and on the readiness of the medical profession to constantly arise in carrying out such a system. The spontaneous ead, information, and concurrence afforded by the private practitioners constitute primary elements of success in the regulation of a seaside resort, and the consequent readiness of the medical profession to recommend their clients to resort to it—in relation to the above, the following memorial is being influential and numerously signed for presentation, to the Mayor of Hastings.

We, the undersigned inhabitants of the borough, do respectfully ask you to convey, at your earliest convenience, a public meeting, to protest emphatically against the late appointment of the medical officer of health against the general wish of the inhabitants, which we consider calculated to do infinite injury to the health and welfare of the town, by bringing disrepute upon it as a health resort, which is assuredly evidenced by strictures passed in the leading medical journals, and is thus brought to the notice of the public. We earnestly and assuredly refrain from recommending their patients to come here if such appointment be maintained. (British Medical Journal, 1881.)

stander who tries to treat the victim of an accident: if he causes damage he is likely to be judged by a doctor's, not a layman's, standards. Yet there is the difficulty that a qualified St John Ambulance man will surely only be judged by the standards of his fellow first-aiders: why should the lay good Samaritan face a sterner test?

How negligence may arise

If a general practitioner falls below that standard of care he will be in breach of his duty and guilty of negligence. It is impossible to catalogue the ways in which negligence may arise, for they are infinite; but a few examples might include failing to prescribe the appropriate drug, failing to respond to a patient's request for urgent treatment, failing to diagnose a patient's condition, failing to warn a patient of the dangers of a course of treatment, failing to make proper inquiries to find out what treatment, if any, the patient has received from his previous doctor, and failing to tell those responsible for continuing the patient's treatment of one's own findings. In each case no damage may be caused, in which case the patient has no claim, or on the particular facts of the case there may be a good defence. For instance, the patient who telephones an urgent request for treatment may have cried "wolf" so often in the past that it may be reasonable to treat the "urgency" with a pinch of salt, or the correct diagnosis may not be one that the ordinary competent practitioner could be expected to reach without the help of specialised equipment not available to doctor or patient. In neither case would there be a failure to meet the proper standard of care. Each case must be examined in the light of the circumstances to see if, on the particular facts, there has been a failure to meet that standard.

Beyond his strictly clinical duties, the general practitioner has responsibilities to his patients, and to other visitors, as an occupier of property. This is another facet of the law of negligence, governed now by the Occupiers' Liability Act 1957. As far as visitors to the surgery are concerned, the occupying doctor's duty (section 2(2)) is to take such care as is in all the circumstances of the case is reasonable to see that the visitor will be reasonably safe in using the premises for the purposes for which he is invited or permitted to be there. If the occupier makes the visitor of a danger—a slippery floor, for example—a hole in the path—that will discharge his duty if it is enough to enable the visitor to be reasonably safe.

The wording of section 2(2) limits the area of the doctor's property to which this duty applies, since if the visitor goes outside the area of invitation or permission—if he strays, for instance, from the path to the surgery and goes exploring an outbuilding—he becomes a trespasser, not a lawful visitor, and the doctor has no duty to him. A slipper on the path, however, will probably not look unsympathetic on the patient who wan-

ders off from the surgery to look for a laboratory, so it is as well for general practitioners to ensure that their lavatories are well marked, safe, and accessible; otherwise they may find that patients with bladder difficulties are covered—though strictly they are trespassers, because outside the area to which they are expressly invited—by the duty of care owed to the lawful visitor. The duty owed to trespassers is rather more difficult to state, partly because the 1957 Act failed to deal with the question; certainly the duty is a lower one than that owed to lawful visitors. The courts have provided guidelines suggesting that the duty is to act "as a humane person exercising common sense," or "in accordance with common sense and common civilised behaviour." Much depends on factors such as the age of the intruder (obviously children will be less careful than adults), the occupier's resources, the time of day, the danger causing the injury himself, and how likely it was that a trespasser would wander on to his land.

It is as well to remember that there seems to be an implied permission to any member of the public on lawful business to enter one's garden gate and come to the door, which of course makes them lawful visitors, and this must apply a fortiori in the case of a general practitioner, who in the nature of things is a legitimately accessible figure.

That is not the end of the doctor's responsibility. He is also liable by the principles of vicarious liability for the negligence of an assistant employed by him, and there is no reason why the liability should stop at a medically qualified employee; if a receptionist is negligent in, for instance, failing to transmit to the doctor the symptoms described by a patient over the telephone, so that the doctor is unaware of the need to respond properly to the urgency of the situation, the doctor will be vicariously liable for that negligence.

Liability for the acts of employees and for the safety of visitors can and should be taken care of by insurers; it may be no substitute for taking all possible care, but at least it allows one to sleep more easily at night. The area of clinical responsibility, where the spectre of professional negligence proper has its haunt, is stoutly championed by the defence societies, but no amount of financial assistance and legal advice can compensate for the trauma for a doctor of causing injury by his own carelessness. None the less, calmly considered, the duties and standards required of him are not hard to live up to.

References

1. Donoghue v Stevenson (1932) AC 562.
2. Donoghue v Stevenson (1932) AC 562 at 580.
3. Bolton v Friern Hospital Management Committee (1957) 1 WLR 582 at 587 per MacJure J.
4. Whitehouse v Jordan (1981) 1 ALL ER 690 at 698.
5. Whitehouse v Jordan (1981) 1 ALL ER 690 at 698 per Lord Fraser at 281a.

touch, making me sure the sample was not the fresh one I had asked Rupert to give me. I was sure it was the right one, and that it had been at the back of my mind before being to grow. I asked him to undress completely, and complaining, he stripped off shirt and trousers. Surely no underpants too? As last only a pair of long footie knickerbockers remained, and I felt like a gambler as I insisted on their removal. To my surprise and relief there were several incisions, some recent, and one on the right inner thigh. Rupert's explanation was that he thought a nice spicy Robin would look nice near the path of his house. When he got home from work he often jumped over it in sheer jubilation, and so he kept it. I asked him if he moved the Robin his haematuria would get better—and it did. —J. NAYLOR, general practitioner, Northampton.

We'll be pleased to consider for publication other interesting clinical findings in general practice.—Ed, BMJ.