

will overestimate arterial blood pressure if the ratio of the cuff's width to the circumference of the arm is less than 0.4,² and that there is therefore a tendency to overestimate blood pressure in obese people unless large cuffs are used. The American Heart Association recommends four sizes of cuff for routine clinical use to overcome this. Although Dr Seidman and colleagues state that a cuff of "appropriate" size was used, it is unclear what they mean by this. Even when the four cuffs recommended by the American Heart Association are used up to 7% of interindividual variation in blood pressure may be accounted for by variation in the ratio of the cuff width to arm circumference.³ In other words, even within the band of arm circumference for which one size of blood pressure cuff is recommended those with larger arms will still tend to have a higher blood pressure recorded simply because they have a lower ratio of cuff width to arm circumference. In epidemiological terms this is analogous to residual confounding.

Present body weight is correlated with birth weight, with a correlation coefficient of approximately 0.4,⁴ so it is quite possible that the small correlation found between birth weight and adult blood pressure is simply the result of the inter-correlation of birth weight and adult weight and the measurement bias described above.

Although the blood pressure measurement described may well have been appropriate for clinical practice, it may not be appropriate for investigating the relation between blood pressure and a correlate of adult obesity, birth weight.

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A two tier system

SIR,—In the continuing debate in the medical press and elsewhere the belief that fundholding practices will result in a two tier system within the NHS seems to be widespread—inevitably so, one feels, despite bland assurances to the contrary. Indeed, if this were not the case and fundholding practices were able to offer their patients no advantages in terms of access to specialist and other services, what has become of the intended introduction of "internal market forces" in primary health care, which was a cornerstone of Mr Kenneth Clarke's ill considered resolution and for which the selected practices were wooed and rewarded?

Perhaps the present administration is just beginning to recognise what many general practitioners recognised from the outset would be the outcome of deliberately introducing a competitive or divisive element into primary care. Instead of the general public perceiving the benefits available to the minority of patients belonging to fundholding practices as something to be sought by changing their own allegiance they will be dismayed by the realisation that such advantages can be bought only at someone else's expense. The British respect for fair play has meant a willingness to accept waiting lists and delays as long as everyone is manifestly keeping his or her place in the same queue. Once the reality of the principle of the internal market

dawns there will not be a wholesale rush of patients to join the lists of fundholders (nor, I suspect, a clamour of general practitioners to enlist in that self selected elite) but an outcry of such enormous chagrin by the great majority, who will think themselves disadvantaged by the system, that the debacle over the poll tax will seem a minor miscalculation by comparison.

Many former loyal Conservative supporters, myself included, tried in vain to warn our MPs of the folly of so determined a destabilisation of a system that had given such good value for money and was rated so highly by just about every survey of consumer satisfaction ever undertaken—and this in the only service industry expected to function effectively without the normal economic restraints that balance demand and supply.

I suggest that as the anger and public outcry over the injustice of the poll tax were sufficient to sweep Mrs Thatcher from her position her erstwhile Cabinet colleagues should be working furiously to devise a formula to defuse the missile they have launched at their own feet. Before that happens perhaps the "more able colleagues" who rushed to accept the doubtful privileges of fundholding should pause to reflect on the fate of the Judas goat once his usefulness has passed.

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General practitioners and postgraduate education

SIR,—In their report on the characteristics of general practitioners who did not claim the first postgraduate education allowance Dr T S Murray and colleagues say that "The general practitioners most in need of postgraduate education took the least part in it."¹

I wonder what evidence they have for this statement. There are many ways of pursuing postgraduate education. Excellent journals, tapes, and videos are available specifically for general practitioners. The cost:benefit ratio in time and convenience alone strongly favours these options over that of attending meetings. Specific problems can be discussed on the telephone. I suspect that there is little evidence that meetings change the practice of doctors more than other forms of postgraduate medical education do. Non-attenders should not be branded bad doctors.

During my time as a clinical tutor in general practice I found some evidence (from many personal communications) that attendance at meetings had a strong social element.

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Evaluating the effects of fundholding

SIR,—We were interested to read that the General Medical Services Committee is calling for an evaluation of the general practice fundholding scheme.¹ It is a pity that the Department of Health did not see fit to initiate an evaluation a year ago. The opportunity to collect baseline data from a national sample of fundholders and control practices before the scheme was implemented has now been lost. Much of the necessary information cannot be collected retrospectively with any accuracy.

Fortunately, Oxford Regional Health Authority was not so short sighted and is funding our three

year evaluation of the scheme, which began in April last year. We are monitoring the scheme's effects by studying the experiences of 10 fundholding and 10 control practices in the Oxford region throughout this period.

Our study aims to answer the following questions: Will the scheme affect hospital utilisation rates? Will fundholders use a broader range of hospitals than those for whom the district health authority is the contractor? Will the scheme affect communications between the practices and hospital specialists? Will it affect the speed and nature of a hospital's response to requests from general practice? Will it affect prescribing costs? Will it lead to an extension of practice based facilities and facilities offering direct access?

In addition to collecting quantitative data on activity our study aims to monitor the views and experience of general practitioners, hospital consultants, and patients. We believe that evaluation along these lines should be an essential component of all major innovations in health policy. This will require a much greater commitment to funding health services research than has been the case so far.

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Hospital case notes and medical audit

SIR,—We were not surprised to learn that Dr M C Gulliford and colleagues found that the availability of case notes for medical audit was a potential cause for bias.¹ In two recent reviews of our work in Leicester we have experienced major difficulties in obtaining case notes: a review of all barium enemas performed during one year at a hospital in Leicester yielded only 70% of case notes, attempts to locate the notes extending over six months; and only 59% of case notes on patients having isotope bone scans were obtained over a similar period. Informal discussion with colleagues suggests that these rates of return are not unusual.

Both concern for patients' wellbeing and resource management demand that we adequately review the value of our work. Radiologists audit an increasingly wide range of techniques and investigations and rely heavily on case notes for this. These may be "out of file," for genuine reasons but occasionally may be untraceable for long periods only to reappear mysteriously later. The problem of unavailability extends to x ray, ultrasound, and other images which also form part of patients' records. A particular problem for radiologists is when a single film is absent from the film packet (often the most important film in a rare, interesting, or unusual case).

If audit is to be meaningful the reasons for low return rates must be addressed. Some centres achieve return rates of 100%, and ideally this should be possible everywhere. At present some isolated areas can be helped by storing records on computer (for example, x ray reports and biochemistry results), but centralised storage of all of a patient's records on computer is not yet a reality. Until such a time we have to rely on the traditional methods of record keeping. The demand for audit places an increased load on departments and individual staff (both doctors and support staff), and adequate funding and time must be available to make rapid processing of records possible.

Difficulty in obtaining records has implications

for both medical care and audit. With an increasing emphasis on accountability and in an age of multidisciplinary care everyone must be aware of the need to ensure the continuing availability of records to those who need them.

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1 Gulliford MC, Petrukevitch A, Burney PGJ. Hospital case notes and medical audit: evaluation of non-response. *BMJ* 1991;302:1128-9. (11 May.)

General practitioners' response to a postal questionnaire survey

SIR,—I was interested in Mr Niru Burchett's letter concerning responses to a postal questionnaire survey.¹

I have been reviewing outcome after subarachnoid haemorrhage, as assessed by patients' general practitioners, for almost 12 months. Until April this year the response of general practitioners was excellent, with 98% responding. Since 1 April six out of 43 inquiries have been returned unanswered with comments about the increased paperwork introduced with the new contract. Inquiries among colleagues in general practice testify to the increased workload.

It is a great pity in this new era of "putting patients first" and audit that this simple method of assessing outcome may be lost. I hope that general practitioners' good will can be maintained as they are increasingly burdened by an imposed bureaucracy.

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Screening in general practice

SIR,—Professor D C Morrell points out that the south east London screening survey showed that half the abnormalities found on general health screening were already known and that 95% of the newly found abnormalities were minor.¹

The table shows the results of general health screening of 505 patients in my singlehanded practice. Screening identified almost three times as many previously unknown risk factors as known ones, and these factors are important and (with the exception of family history) modifiable.

Professor Morrell states that screening should be able to alter the natural course of the disease in an appreciable proportion of those screened. It has been shown that patients heed advice from general practitioners on smoking² and alcohol consumption.³ Similarly, treatment of hypertension reduces the risks of heart attacks and strokes.

Risk factors elicited by general health screening of 505 patients in general practice

	Previously known findings	New findings
Stress	2	15
Family history	1	20
Overweight		73
High blood pressure	44	29
Smoker	4	37
Ischaemic heart disease	14	
Diabetes	2	2
Raised cholesterol	1	8
Excess alcohol consumption	4	11
Total	72	195

All these risk factors may occur in patients under 35 years old: using this age as a cut off for screening for hypertension therefore seems arbitrary. If the natural course of ischaemic heart disease is going to be altered it seems sensible to try to do so as early an age as possible.

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Cost effectiveness of cardiac defibrillation by general practitioners

SIR,—A recent letter to general practitioners from the Royal College of General Practitioners invited doctors to participate in a study of thrombolytic treatment in the community. An accompanying memorandum suggested that it was not cost effective for general practitioners to have their own defibrillators; rather, they should look to the ambulance service to provide this lifesaving equipment. Experience in Grampian leads to the opposite conclusion and recommendation.

General practitioners with a list of 2000 patients might see as many as 10 patients with heart attacks a year, or 100 per decade, assuming an attack rate of five per 1000 per year.¹ In about 5% of calls for a heart attack the general practitioners will be faced with a cardiac arrest—five per decade—and can expect to resuscitate 20-30% if they are properly prepared and equipped.² One such patient per decade will therefore leave hospital alive—3000 a year in the United Kingdom. If the cost of a defibrillator (£3000-5000 for one with a monitor, £1500 for one without) is written off after 10 years the cost per life saved will be £5000. In a group practice organised so that a duty doctor answers emergency calls one defibrillator will suffice for four or five doctors, reducing the cost per life saved to £1000-1200. Seldom will a practice have to bear the full cost of a defibrillator as local charities, benefactors, or the British Heart Foundation are only too pleased to donate lifesaving equipment provided the recipients are committed to putting it to good use. The financial cost to the practice per life saved is then negligible, and it is much easier to keep a defibrillator in good working order than it is a doctor's car.

The "worst case" cost per life saved of £5000 should be contrasted with the costs of other lifesaving treatments: £300 000 per life saved by screening for and treatment of carcinoma of the cervix³; £144 000 per coronary bypass graft prevented by lipid screening and treatment⁴; and £10 000 a year for home dialysis for chronic renal failure.

Of the causes of death, ventricular fibrillation is the most common, the most sudden, and the most treatable. Defibrillators used by general practitioners must be the most cost effective of any lifesaving treatment.

In the Grampian region's early anistreplase trial general practitioners are evaluating thrombolytic treatment in the community. Each of 30 participating practices has a defibrillator. In the first 250 patients studied seven cardiac arrests occurred after entry to the trial and before transfer to hospital. Four of the victims of these cardiac arrests out of hospital were discharged from hospital, having been resuscitated by their general practitioners. Two patients whose condition was stable when they entered the ambulance died in

transit when the hard pressed ambulance service was unable to provide an attendant, although defibrillators are now provided in all emergency vehicles through the Heart Start Scotland initiative of the British Heart Foundation. The general practitioners have also used their defibrillators successfully when subsequent entry to the trial has been precluded. Looking at all events, both those included in the trial and those not, cardiac arrests constitute about 5% of calls for a heart attack and survival is better than 50%.

The success rate of resuscitation by general practitioners confirms the importance of defibrillation at the first opportunity. When every second counts it is simply not good enough for a general practitioner to depend on the ambulance service to bring lifesaving equipment to the scene of an arrest.

In Grampian the number of lives saved by general practitioners' use of defibrillators will undoubtedly exceed by far the number saved by earlier thrombolytic treatment.

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We sent Dr Rawles's letter to the director of the Manchester research unit of the Royal College of General Practitioners, who replied as follows:

Dr Rawles and I agree completely about the ends but differ in our opinions on the means. In considering cost effectiveness Dr Rawles concentrates on the cost whereas the memorandum to which he refers is much more concerned with effectiveness.

No one would wish to discourage any practice that wishes to acquire its own defibrillator, but in my view, which was expressed in the memorandum, any piece of equipment that is used infrequently is likely, in practice, to be inadequately maintained, and there is a substantial risk that it is not immediately available when it is needed.

It is not certain how often a defibrillator would be used. Ironically, in calculating our own logistics, we used data from Dr Rawles's study in Grampian region, which indicated that cardiac arrests would occur in about 5% of patients with myocardial infarction attended by general practitioners. Where we might disagree, however, is on the number of such patients whom the average general practitioner would encounter each year. Doctors in Grampian region generally work in rural areas and attend nearly all the cases of myocardial infarction occurring in their practices. This does not occur to the same extent in urban and metropolitan areas, where, for example, many patients go direct to hospital and others may be attended at home by deputising services. As a result we believe that two cases per doctor each year is a more accurate estimate of frequency than the 10 per year suggested by Dr Rawles. This means that a defibrillator would be used by a general practitioner only once in 10 years. To compare its maintenance with that of a car used every day is unrealistic.

What matters is that a functioning machine is available when it is required. It would be a tragedy for the doctor and the family if a defibrillator failed to work when it was needed. If a practice's machine can be properly maintained and reliably passed from duty doctor to duty doctor year in and year