vindication. Our study of the use of cimetidine after renal transplantation¹ had been criticised because of the use of retrospective controls² (although I am sure that our findings are valid).

At a second reading, however, Dr Cranberg's message seemed altogether unsatisfactory. Indeed, he has fallen foul of his own argument: he dismisses criticism of the polyarteritis study because it results from a particular clinical trial, yet it is only by special pleading on the basis of this and the fast-neutron trial that he is able to arrive at his conclusion. These are two very special situations, in which it is clearly difficult to gather adequate numbers for comparison; but there are a host of clinical therapeutic situations in which control and treated groups may readily be obtained. To give uncritical academic respectability to the use of retrospective controls is to weaken the incentive to achieve such accurate comparisons.

I would further suggest that to deem the use of retrospective controls "essential" is "a violation of a well-established scientific principle"—namely, that of maintaining objectivity and impartiality in the performance of an experiment. In medicine, as in quantum mechanics, observation changes the nature of the phenomenon observed and it is scarcely necessary to point out the influence of observer and of placebo, which only cancel out when groups are studied by the same workers over the same time period. And how many of us would place such faith as Dr Cranberg in the accuracy of data culled from old records or in our own abilities to select impartially from them? While conceding that, under rare circumstances, retrospective controls need to be used, I shall continue to regard with suspicion the majority of information which depends on them.

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¹ Jones, R H, et al, *British Medical Journal*, 1978, 1, 398.
² *Lancet*, 1979, 1, 366.

SIR,—Dr Lawrence Cranberg (17 November, p 1265) is quite correct to argue that the indictment of retrospective controls as inherently fallacious is incorrect. As he states, this could be the case only if the method involved a logical contradiction. There is no logical reason why the controls in a case-control study have to be collected and assessed at the same time as the experimental group. The controls could be gleaned from retrospective studies or even a separate control study could be mounted. However, there are grave practical difficulties against these courses of action and it is much better in practice to have a concurrent control group.

Horwitz and Feinstein¹ reviewed 17 medical topics about which conflicting views had appeared in the literature. They looked at 85 retrospective case-control investigations. Their evaluation of these studies showed that most of them violated commonly acceptable standards of scientific investigation. The major argument against using retrospective controls is that they will not have been assessed in the same way as the experimental group. Case controls must be reviewed and assessed by the same methods and criteria for patient selection and response as the experimental group.

It is pertinent to state the reasons why trials using controls have been advocated. There are three reasons. The first is the multiphasic

nature of diseases. The pure scientist can usually isolate the effect he wishes to observe; this is not possible for the medical experimenter. Randomised controlled trials are an attempt to cancel out all variations except the one of interest. There is also an inherent variability in many diseases which are subject to experimental treatments. Again, randomised controlled trials are an attempt to ensure that any changes in the experiment are due to change induced by the experimenter and not to the inherent variability of the condition. Finally, the assessment of the effectiveness of drug treatment: it is usually the case that a marginal increase in efficacy is looked for—that is, a patient response rate of 70%, as against 50%. Again, randomised controlled trials are an attempt to cancel out the inherent variation in the patients and to allow a strict comparison of the effectiveness of two agents.

If in a condition for which there is no treatment a treatment is introduced which has any effect at all, then case controls are not needed. For example, case controls were not needed to show the effectiveness of anti-tuberculous therapy in tuberculous meningitis. Without treatment the mortality was virtually 100%, whereas with treatment there were many survivors.

It is perhaps understandable for experimenters to rail at the extra work involved in having controls, but it is incumbent on the experimenter to justify his methods and to show that his results are the effect of the changes he has introduced and not those inherent in the disease he is considering. If he is able to do this without controls, then well and good. However, because of the difficulties in this field the randomised controlled trial has been devised as the most satisfactory way of overcoming the problems involved.

To point out, as your leading article (p 1244) does, that by judicial selection of papers conflicting results can be shown in the comparison of the efficacy of drugs in rheumatoid arthritis simply means that none of the drugs are superior. It is not an argument against the methodology which gave rise to those results.

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¹ Horowitz, R I, and Feinstein, A R, *American Journal of Medicine*, 1979, 66, 556.

Rehabilitation

SIR,—It was reassuring to find rehabilitation discussed in your series on accident and emergency services (17 November, p 1268), but closer inspection revealed the old platitudes simply being re-aired. We know that return to work depends on many factors other than the physical,¹ not the least being the improvements in social security benefits.²

Why are patients attending for physiotherapy on their way to work? If they can work why do they need physiotherapy if "return to normal work is the best form of rehabilitation"?³ How big is the workshop where there are "special machines, adapted to provide all the movements needed for rehabilitation in the many different types of disability"? Such statements suggest a failure to grasp the most basic concepts of disability and rehabilitation.

The trend towards a team approach is recognised especially in paediatric and community-based units and competition for posts

in such units is high. Generally, however, physiotherapy departments are said to be understaffed by 20% and the reasons are not purely financial. Some hospital departments are understaffed possibly because therapists are unable to work with medical colleagues who do not recognise their ability and training, while the importance of understanding what a physiotherapist or occupational therapist can achieve for a given patient is sometimes overlooked. We are still training surgeons in orthopaedics and traumatology who cannot, or do not, utilise the employment rehabilitation services for their patients. This is as true now as it was eight years ago when Brewerton and Daniel³ published the results of their study on brachial plexus injuries.

Although accidents may account for a large number of patients requiring rehabilitation, by far the greatest load comes from patients with rheumatic diseases, and the working time lost because of these dwarfs time lost from accidents. "Consider the impact on the national economy of regular return to work of skilled workers with minor back strains."¹

We continue to equip rehabilitation departments with expensive trained staff and elaborate equipment. Rehabilitation will continue to be an expensive placebo, devoid of scientific basis, if more thought is not put into its future and an opportunity given to examine carefully its therapeutic effect. "It is a serious error to think that rehabilitation is a separate process divorced from other medical care"³—but it is.

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¹ Brewerton, D A, and Nichols, P J R, *British Medical Journal*, 1977, 2, 1006.
² Sommerville, J, *Proceedings of the Royal Society of Medicine*, 1970, 63, 1147.
³ Brewerton, D A, and Daniel, J W, *British Medical Journal*, 1971, 4, 277.

A national register for erythropoietic protoporphyria

SIR,—Erythropoietic protoporphyria is an uncommon genetic disease in which attacks of acute, often burning, photosensitivity occur soon after exposure to sunlight. The exposed skin is thickened and may bear superficial scars. Excess protoporphyrin is found in the red cells. A spectrum of liver disorders ranging from the trivial to the lethal may be seen in these patients, and perhaps also in some of their relatives; but little is known about the prognosis and treatment.

We are therefore, with the support of the Medical Research Council, setting up a national register. The register will (a) help to clarify the natural history of the disease; (b) provide an estimate of its prevalence and that of its complications; and (c) enable treatment to be evaluated. The UK is uniquely favourable for such a register because of the existence of both the NHS records and the Registrar General's system for tagging death-certificates, which will allow us to follow up the patients on the Register for the rest of their lives.

We would, however, also welcome details of patients in the other European countries, since greater numbers will increase the value of the register. We have written to all consultant dermatologists in the UK, since they are most likely to see patients with erythropoietic protoporphyria; but we would be very

grateful if any doctor, whether in Britain or elsewhere in Europe, who has a patient would write to us at 10 Nichols Green, Ealing, London W5 2QU, so that we can provide details about the register.

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Aggressive patients—what is the answer?

SIR,—Although I sympathise with Dr K Raghu's heartfelt letter (3 November, p 1147) about his difficulties with an aggressive patient and although I cannot simply "come up with a realistic answer to the problem," enough has been written for us now to be aiming to understand these situations. They then need no longer provoke such amazement.

It was pointed out in 1961¹ that when anxieties become too much for the patient or patient group to contain they overflow and outside help is called in. If a major factor of the distress is or can be made to appear to be medical, the general practitioner may be called on as the source of the help. The person who makes the request for a visit (the "intermediary") is responding to his subjective view of the situation—that is to say, to his own anxieties.² It is these anxieties which initiate the doctor's visit and they do not necessarily relate to the medical need. The way in which these anxieties are expressed—that is, the way the request for a visit is made—will set the tone of the visit.

Sometimes, as in Dr Raghu's case, no medical intervention is needed but unless inquiry is made into the intermediary's anxieties the cause of the visit remains unknown and the distress is not relieved. The consequent lack of satisfaction for both the doctor and the patients will be inevitable. In Dr Raghu's case, the intermediary's phoning twice while the doctor was on his way was an indication of the intermediary's agitation, not necessarily of his maliciousness. The need is for the doctor to understand the cause of the agitation and he may then be able to resolve some of the distress. Thus it is important for the doctor consciously to aim at a diagnosis or formulation of the problems of the intermediary. The usefulness of his visit may be seriously reduced if the intermediary is excluded.

If these points are not understood, the doctor is unlikely to find any alternative other than trying to control the "abusive and impudent" caller and wishing to have recourse to his being "disciplined or reprimanded for his behaviour."

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¹ Clyne, M B, *Night Calls—A Study in General Practice*. London, Tavistock Publications, 1961.

² Bailey, A J M, *Journal of the Royal College of General Practitioners*, 1979, 29, 137.

Home monitoring of blood glucose using filter paper strips

SIR,—We have previously reported a method of home monitoring of blood glucose by the collection of capillary blood samples on strips

of filter paper.¹ The method has now been adapted so that the glucose estimation is automated and we report here details of the modified method.

Whatman 4619 filter paper strips are prepared by soaking them in 5% boric acid, to preserve glucose in the dried blood. A drop of capillary blood is applied to the strip to form a blood spot, which is allowed to dry at room temperature. When a series of timed blood samples have been collected the strip is returned to the laboratory wrapped in a polyethylene bag.

Discs of 6 mm diameter are punched from the centre of each blood spot and contain $11 \mu\text{l} \pm 2\%$ dried blood. Glucose is eluted from the disc with 300 μl of 2.5% sulphosalicylic acid for one hour; this also precipitates plasma proteins and haemoglobin in the filter paper disc. After mixing, 30 μl of the eluate is sampled by the autoanalyser and mixed with diluent and colour reagent for glucose estimation by a modified Trinder method.² No protein is present in the eluate so that the dialysis stage of the procedure is bypassed, which increases the sensitivity of the method about 40-fold. At the beginning and end of each batch of 30 samples 1 mmol/l glucose solution standards are run for calibration, with several blood spots of known glucose concentration as control samples. The technical details of the method are reported in greater detail elsewhere.³

Recovery of glucose from dried blood spots is approximately 98% for up to three weeks after preparation for blood samples with a wide range of glucose concentrations. The coefficient of variation of the method between batches is 4%.

The technique of capillary blood collection is demonstrated to each patient as blood spots that are too small, or have not soaked thoroughly into the filter paper, will result in underestimation of the blood glucose. Such samples are identified by preliminary inspection and discarded. Falsely high results are obtained if patients apply more blood to an already dried blood spot. This method of home monitoring of blood glucose has proved cheap and reliable and applicable to large numbers of samples.

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¹ Wakelin, K, et al, *British Medical Journal*, 1978, 2, 468.

² Trinder, P, *Annals of Clinical Biochemistry*, 1969, 6, 24.

³ West, P, Marsland, I G, and Bradshaw, P, *Medical Laboratory Sciences*, in press.

Multidisciplinary teams

SIR,—Drs James Appleyard and J G Maden (17 November, p 1305)—paint a disturbing picture of the ill effects of the multidisciplinary team. Why have such teams arisen, and why is there pressure to displace medical leadership? The multidisciplinary approach has grown up in those specialties where professionals other than doctors have a significant contribution to make. Perhaps the oldest "team" in medicine is the co-operation of ward sisters and nurses with doctors; but few people would call this a "multidisciplinary team." In specialties such as psychiatry, child health, and geriatrics the social worker, the community nurse, and when available the psychologist are further important team members.

To function well a team needs a common aim: the health of the patient or client. It also needs a leader. In most cases the doctor, with

his very broad-based and prolonged training, was originally regarded as the natural leader. Such a leader, while retaining responsibility for his team, may be willing in special circumstances to delegate his leadership to a member of the team more qualified to deal with a particular case. I believe that pressure to displace doctors from leadership roles has arisen from two main sources. Firstly, some doctors are naturally very poor leaders, for reasons varying from an overbearing manner to an inability to take decisions. There is very little attempt at the undergraduate or postgraduate level to train doctors in the skills of leadership. Secondly, other professions have developed management structures which remove authority from those workers directly concerned with patients or clients. The managers in these structures cannot easily be involved in multidisciplinary team decisions about real patients. On the other hand, the social workers who see patients may be very restricted in their ability to make decisions on behalf of their departments. However, managers higher up the hierarchical structure want their professions to have a say in patient care. This seems to be an unresolvable conflict unless other professions are prepared to adopt the medical management structure, with its emphasis on the individual responsibility and authority of the doctor who is in personal contact with the patient.

There is another pressure at work, linked to this but even more disturbing. This is the pressure not just to displace the doctor as team leader but to do away with individual leadership and responsibility altogether. Our bureaucratic society seems to be generating people who are unwilling to be mistaken, and therefore unwilling to make decisions. The committee is the bureaucratic instrument for avoiding responsibility. The individual expert is displaced, authority and risky decisions are avoided, and the Health Service stagnates.

We need multidisciplinary teams, but there must be a leader who accepts responsibility for decisions and has the authority, which should never be divorced from responsibility. If this is ever to be achieved management structures must be changed. If doctors want to be team leaders, they need more than "sapiential authority"; they also need to work at developing real leadership skills and to fight hard against any erosion of individual clinical responsibility.

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SIR,—The points raised by Drs James Appleyard and J G Maden in their article "Multidisciplinary teams" (17 November, p 1305) demonstrate very clearly when applied specifically to child psychiatry the way that children's best interests can be sacrificed on the altar of administrative and financial convenience. For instance, to avoid psychiatric opinions that might be contrary to those of the local education authority (LEA) members of the multidisciplinary team the obvious manoeuvre is for these members not to bring to the team for discussion any cases which might predictably lead to conflict and with it the risk of an authoritative psychiatric or medical opinion that ties their hands and prevents them from carrying out only those "conventional" procedures autocratically advocated by their employers—the LEA and, to a lesser degree, social services department.

The psychiatric member of the multi-