and call them "fracture like appearances." Rib fractures are difficult to recognise early, especially if oblique views are not obtained, and may become visible radiologically only when callus begins to form. Thus rib fractures that become evident only in hospital may not necessarily have occurred in hospital.

Vomiting and diarrhoea are so frequent in infancy that their presence can hardly be used to confirm a diagnosis of copper deficiency. The physiological anaemia at a few months of age or the anaemia that occurs as a result of acute blood loss with fractures and subdural haematomas must be differentiated from the anaemia of copper deficiency.

Twin pregnancies are not an established risk factor for copper deficiency. Similarly, other statements made by Dr Paterson that bleeding from the mouth and blue sclerae are recognised features are totally without foundation.^{1,2} There is no evidence that a ragged frenulum is a manifestation of a collagen defect.

Dr Paterson's involvement in the cases he describes is usually at a later stage, when parents have been charged and may already be committed to the Crown Court. The absence of social risk factors does not exclude a diagnosis of non-accidental injury. Further investigation will indeed be necessary before we can diagnose temporary brittle bones with spontaneous cure in the absence of a change of diet.

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Bone mineral density in Addison's disease

SIR,—Ever since Urist and Vincent in Los Angeles and Hollo and Feher in Budapest showed that the urinary excretion of androgen metabolites was lower in patients with postmenopausal osteoporosis than in age matched controls the interest in this subject has never faded,^{1,2} particularly as Hollo *et al* later showed low concentrations of dehydroepiandrosterone in the plasma of patients with osteoporosis.³

Though Dr R G Crilly (6 June, p 1486) has been associated with the most convincing data pinpointing lowered adrenal sex hormone concentrations in patients with osteoporosis,^{4,5} and although these data have been confirmed by the relation between adrenal steroids and some densitometric measurements, there is still considerable disagreement about the adrenopause. Several groups have detected no decrease in adrenal sex steroid concentrations in patients with accelerated osteoporosis.⁶⁻¹⁰ This may be because the actual difference may be rather slim. For example, in the paper by Dr Crilly and colleagues, in a figure comparing 45 patients with osteoporosis and 45 controls, "a just significant difference in androstenedione levels" was observed, whereas in the next figure, comparing 25 pairs of controls and age matched patients with osteoporosis, significance was not achieved for androstenedione concentration but for plasma cortisol concentrations, which were increased in patients with the crushed vertebrae syndrome.⁵ Perhaps a more sophisticated approach is needed, such as measurement of rates of production of androstenedione or, even better, peripheral conversion rates, as performed by Longcope *et al*, who concluded that the amount of biologically available androgen was decreased in patients with osteoporosis.¹¹

These are the reasons why we did not discuss in

detail in our paper (28 March, p.798) the pathogenetic role of the adrenopause in postmenopausal osteoporosis. In fact, we agree with most of Dr Crilly's points and believe that our data added much weight to his arguments. Our purpose was to clarify an important pathophysiological point—namely, that whereas the best way to pinpoint the role of gonadal steroids is to study the consequences of ovarian failure or oophorectomy, so the role of adrenal steroids may be studied best in patients with Addison's disease. While there are, of course, plenty of data relating to the first approach, there are no data at all on the second. We filled this gap in current knowledge and kept to the facts, irrespective of the pathophysiological mechanism concerned. That the lack of adrenal androgens in postmenopausal patients with Addison's disease essentially leads to the lack of substrate for peripheral conversion to oestrone and to osteoporosis, and that this is the salient point, seems obvious from our painstaking efforts to show whether this in fact resulted in lowered oestrone concentrations (two tables in our paper). This is so obvious to us that we concluded a recent abstract by stating that "the adrenal androgens play an essential role in the maintenance of bone mass after the menopause in providing the essential precursors for oestrone."¹² Our conviction has been strengthened by, among others, another study from Leeds, in which dehydroepiandrosterone had no effect on bone,¹³ as well as by the numerous correlations between oestrone concentrations on the one hand and many densitometric variables on the other. That premenopausal patients with Addison's disease did not have osteoporosis showed that adrenal steroids play no part as long as oestrogens are present. Therefore little can be learnt by giving oestrogens to women with postmenopausal osteoporosis, as suggested by Dr Crilly.

With regard to replacement doses of glucocorticoids in postmenopausal patients with Addison's disease, we do not agree that they have a crucial role. We showed, as did Dr Crilly in his 1981 thesis, that premenopausal women were well protected against the administration of low dosage prednisolone, but this increased bone loss in men by a factor of 8.3-10.0, whereas it did so in postmenopausal women by a factor of 1.8-2.6.¹⁴ Thus if replacement doses of glucocorticoids were important in this model the men ought to have had osteoporosis, which they did not.

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Problems of comprehensive shared diabetes care

SIR,—Dr J L Day and coworkers (20 June, p 1590) describe the problems of caring for diabetic patients in general practice, not the problems of comprehensive shared diabetes care, as the title of their paper suggests, as the only support given to participating practices in their study was "at least one (practice) member at one meeting" to discuss their project. Thereafter general practitioners were expected to provide the same level of services that the clinic had provided to greatly increased numbers of patients. As other studies have shown,¹ this results in the type of problems that Dr Day and colleagues describe, as (with the exception of antenatal care) general practitioners do not usually provide this type of service. Follow up of long term medical problems is usually "opportunistic" and, given the time constraints on general practitioners, not fully recorded.² Indeed, recording of results is a problem for all doctors concerned with diabetes care. Dornan *et al* showed that 69% of patients attending hospital clinics had no record of foot examination in the past year compared with 90% of patients attending a diabetes clinic in their own practice.³ Where no framework existed these figures fell to 26% of patients attending their general practitioner irregularly and 17% for those attending only on a demand basis.

There are essentially three problems for general practitioners who want to provide long term follow up for their diabetic patients, and consultants who want to establish "comprehensive shared diabetes care" must address all three.

The first criterion, of organising follow up, is obviously possible, as has been shown by Hill⁴ and others.⁵ An investment in computers is probably necessary in both the coordinating hospitals and the participating practices. Though many practices have computers, the software for effective follow up is not always available.

The next problem is deciding on agreed examination criteria, which is more difficult to achieve, as previously discussed. Doctors are not good at performing regular testing. The suggestion by Dr Day and coworkers that nurses might participate is one solution. This may be done on a miniclinic basis or during regular surgery hours if a nurse performs most of the checks and the patient attends one of the partners in the practice for completion of the examination. This is the system used in my own practice, which achieves almost universal coverage of all our diabetic patients at least yearly.

The last problem is that of screening for retinopathy. This is the most difficult, as most general practitioners perceive their skills in fundoscopy as being inadequate. Like many hospital doctors who are not ophthalmologists, general practitioners

require special training before undertaking this service. Again, diabetologists and ophthalmologists are strategically placed to provide education and training for all general practitioners who wish to do this work.

If all three issues are addressed there is no reason why the problems of comprehensive shared diabetes care highlighted by Dr Day and colleagues should not be overcome. This would allow consultant diabetologists to see patients with problems and give general practitioners rapid access to consultants when problems arise with the patients who are under their care.

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SIR,—We would like to take issue with some of the points raised by Dr J L Day and colleagues (20 June, p 1590). We broadly agree with them that major problems with diabetic care lie within general practice, which may partly be resolved by an up to date practice register of diabetics and protected time for clinics. We consider the study, however, to be unfair in its attitude to general practice.

Historically, most diabetics in a district have attended a hospital clinic. This has inevitably resulted in an assumption among patients that the condition may be monitored only by a hospital and that it does not warrant concern if followed up by a general practitioner. The experience in Sheffield, where a large proportion of diabetics discharged from the hospital clinic to general practitioners considered themselves to be "cured," exemplifies this.¹ Moreover, general practitioners feel unhappy and lack confidence about following up diabetics, because their closest experience with diabetics may be a preregistration appointment 10 or 20 years previously. The recent expansion in knowledge and changes in treatment cannot simply be communicated at postgraduate meetings but require close and constant contact with specialists. We entirely agree with the suggestion of Dr Day and coworkers that the practice nurse and diabetic specialist sister in miniclinics should play a part in such care, but we believe that close communication between diabetologists and general practitioners is a prerequisite for a truly comprehensive diabetic service.

Our recent experience in Newham is similar to that in Wolverhampton, where over a third of practices have joined a shared care service.² In our system the diabetologist sits with the general practitioner in a designated diabetic surgery as part of a longer term training process. Once the general practitioner is confident the consultant attends bimonthly and thereafter quarterly. Though the scheme is time consuming for those concerned, the improvement in the general knowledge of diabetic care throughout the district and the obvious enthusiasm of patients is beginning to pay dividends. We plan to report our first two years' experience of the scheme shortly.

The continuing high morbidity and mortality from diabetes mellitus despite major advances in treatment³ highlight the shortcomings in diabetic care. We congratulate the Ipswich group on their attempt to improve matters in their district, but,

by their own admission, their system of care cannot be considered to be comprehensive. We suggest that some criticism must lie at the door of the hospital rather than the general practice surgery, and we believe that the only way of achieving a comprehensive service for all diabetics is to break down the barriers between hospital and surgery. Any system that proposes to bypass the family doctor is doomed to failure.

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Cough associated with captopril and enalapril

SIR,—As Drs D M Coulter and I R Edwards comment (13 June, p 1521), angiotensin converting enzyme inhibiting drugs may increase concentrations of bradykinin and prostaglandins such as prostaglandin E₂ in the lung, compounds known to stimulate unmyelinated afferent C fibres in animals.^{1,2} This raises the possibility that stimulation of lung receptors other than rapidly adapting receptors in the larger airways may produce cough.

We have recently described the induction of paroxysmal coughing in humans with central intravenous injection of capsaicin (8-methyl-N-vanillyl-6-nonenamide), a fairly selective C fibre stimulant in animals.³ The short latency of this response (3-9 seconds) is consistent with its origin from juxta-pulmonary capillary receptors in the lung.⁴ Selective blockade of these receptors by inhalation of small particle size local anaesthetic aerosol depositing at alveolar level has been suggested as a means of testing the hypothesis that captopril and enalapril might cause cough by this mechanism in humans.⁵ Unfortunately, at least in animals, small particle size local anaesthetic aerosol is unable to block the effects of mass activation of C fibres with bolus injections of capsaicin,⁶ but the effect of such an aerosol on the less intense receptor activation that probably produces chronic cough with angiotensin converting enzyme inhibitors in humans might be worth trying.

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Intraregional variation in treatment of end stage renal failure

SIR,—Dr Maureen Dalziel and Mr C Garrett (30 May, p 1382) have usefully emphasised the serious variations in the North West Thames region in treating people with terminal renal failure. There is an unfortunate inverse relation between distance and acceptance of dialysis and treatment rate. Publicity via the *BMJ* may help to correct these major errors and reduce the premature deaths of about 200 people each year in this region alone.

I suspect that the authors may be correct when they suggest that information related to dialysis drops in proportion to the distance from a renal unit. For example, one patient from this hospital receiving continuous ambulatory peritoneal dialysis successfully referred for treatment his neighbour, who had been told by a consultant that no treatment was available for his terminal renal failure.

Dr Dalziel and Mr Garrett are correct in stating that treatment of end stage renal failure has traditionally been provided by teaching hospitals. A glance at the map of the North West Thames Regional Health Authority shows three renal units all tucked into the extreme south east corner. Happily, there is a small minimal care haemodialysis unit in Watford General Hospital and a dialysis unit is planned for Lister Hospital, Stevenage, perhaps to open before the end of 1988. If each unit is run at maximum capacity then it should be possible to offer all patients in this region dialysis when necessary. Until then many premature deaths from chronic renal failure will occur.

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Coping with sudden death

SIR,—Dr Eva Alberman's letter (6 June, p 1484) fills me with dismay as a police surgeon and a general practitioner. The fundamental mistake was for the patient's own doctor (or a partner) not to attend, believing that as he was not in a position to issue a certificate there was no point. The next mistake was for the emergency service to inform the uniformed branch of the police, who have no function in an unexpected death being dealt with medically.

My own procedure, having confirmed that the patient is dead and excluded violence, is to hear the story again from the relatives and offer them some words of comfort. I then speak to the coroner's officer, and between us we arrange the removal of the body in the most fitting way. I know that he may speak to the patient's own doctor the next morning in an attempt to avoid a post-mortem examination. I then spare a thought for the relatives, who may need a mild sedative or even hospital admission that night. I explain the coroner's functions and point out that a post-mortem examination does not necessarily mean an open inquest with headlines in the local papers. The next morning I may speak to the deceased's own general practitioner or even to the social services department.

Finally, the reason why two policemen attended was probably that one of them was a probationer. This may have been his first experience of death, and he may need some psychotherapy.

All this when there is "nothing to be done."

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