and we owe it to them to ensure that they ultimately progress to a senior registrar appointment.

For this reason I would urge that *Achieving a Balance* is instituted as soon as possible and that target numbers for career registrars should be achieved within the shortest time possible. This will seriously curtail and may even prevent the entry of new trainees over the next few years, but this has to happen if the majority of those currently in training are to be given a chance of progressing to the senior registrar grade.

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Pitfalls in the glucose tolerance test

SIR,—I am grateful to Dr Hilary King and colleagues (30 January, p 357), representing the World Health Organisation and the United States National Institutes of Health, for their authoritative comments on issues raised in my leading article (28 November, p 1363).

On the topic of whether 75 g of anhydrous or monohydrous glucose should be used for the glucose tolerance test they say that most data have been obtained using 75 g of "pure" glucose and that this should be adhered to. In the survey I carried out over half of the 230 participating laboratories claimed to be administering the dose as the monohydrate. Most of the commercial preparations for glucose tolerance tests are packaged to give a dose of 75 g of the monohydrate, whether in the form of glucose powder or ready made solution. In the case of the glucose syrup preparation Lucozade the manufacturer recommends a volume of 235 or 353 ml as equivalent to 50 or 75 g respectively of glucose monohydrate.

There is, however, confusion in the published reports. Some workers have said that 235 ml of Lucozade is equivalent to 50 g of anhydrous glucose,^{1,2} while others have been less specific, saying it is equivalent to 50 g of "liquid glucose."^{3,4}

The term "pure glucose" used by Dr King and others is also ambiguous. To them it obviously means anhydrous glucose, but to others it can mean either form, as distinct from glucose syrup preparations, which also contain higher molecular weight carbohydrates that are digested to glucose. Furthermore, I think the World Health Organisation's first report on this topic in 1965 actually recommended using a dose of glucose monohydrate (then 50 g).

Clearly, the situation is confusing and while I have no very strong views on whether we should be using 75 g of anhydrous or monohydrous glucose, I do put in a plea for uniformity throughout the world and would ask the World Health Organisation to state its preference clearly and to publicise it as widely as possible so that all interested parties—clinical laboratories, clinicians, pharmacy departments, and specialist manufacturers—will be aware of it: they certainly are not at present.

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SIR,—The World Health Organisation recommends using a 75 g load for the oral glucose tolerance test. This is a compromise between the 50 g load widely used in Europe, which has been criticised for insufficient provocation, and the 100 g load used in the United States, which often causes nausea. Despite these recommendations there is still much variation in the type and quantity of glucose given as part of the test. This has been pointed out by Dr K Wiener (28 November, p 1363) and Dr H King and others (30 January, p 357).

The results of an oral glucose tolerance test are often used to define normality, impaired glucose tolerance, and diabetes mellitus. Small differences in blood glucose concentrations can have profound implications for patients. Although small variations in the quantity of glucose given do not produce significant variations in blood glucose levels, it is important to define precisely the protocol for the test.

Dr Weiner explains the problems in interpreting the term "75 g of glucose." We suspect that most laboratories would supply 75 g of glucose as the anhydrous compound or an equivalent quantity of the monohydrate. Pharmacy departments would refer to the *British Pharmacopoeia* and find that glucose BP was in fact glucose monohydrate. They would supply 75 g of glucose monohydrate (equivalent to 67.5 g of glucose anhydrate). If the *Système International d'Unités* were used for both prescription and supply these misunderstandings would be avoided. We agree with Dr King that the glucose used in the oral glucose tolerance test should be defined as 75 g of glucose anhydrate C₆H₁₂O₆ (or 82.5 g of glucose monohydrate C₆H₁₂O₆.H₂O). Future publications from national and international organisations must be precise about the degree of hydration of the glucose to be used.

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Paediatric oncology information pack

SIR,—Dr J A James and his colleagues (9 January, p 97) report on a valuable initiative to improve communication between a paediatric oncology unit and general practitioners by providing an information pack for general practitioners on the management of childhood cancer. In the same issue Dr Nick Black (p 82) comments on the potential gains to be had from partnership between health authorities and voluntary organisations. Information sharing is a good example of these benefits. Information provided by the voluntary agencies often distils the experiences of families and other carers in a form that can benefit those with responsibility for medical management of the child. Effective communication over the care of sick children and the support of their parents should also include other primary care workers and representatives of family carers.

Voluntary organisations have often taken the lead in providing information to health professionals about the needs of families with particular problems and to parents about rare conditions and available support. Information which user groups have helped to prepare can be particularly useful in drawing attention to the non-medical needs of parents, but volunteers and other carers also have considerable practical experience of the organisational barriers to providing sensitive health care to children. Their experience indicates that improved communication between agencies and more widely available

information about the management of serious conditions could reduce the difficulties experienced by parents before and immediately after diagnosis, while caring for a sick or handicapped child, and when facing bereavement.¹⁻³

Coordination would also be improved by the wider distribution of background information on the management of rare conditions. Those who could usefully benefit from the information include clinical medical officers, community nurses, social workers, head teachers, and voluntary groups. Most primary care teams do not yet have sufficiently established routine contacts with these other agencies to enable them to take responsibility for passing on general information. In particular, as the Bristol study showed, distributing information to general practitioners alone is likely to result in patchy dissemination to community nursing staff. Consultant community paediatricians might be best placed to provide overall coordination and to circulate relevant information.

Gaps in community provision—such as nursing support for sick children—might be more clearly identified if there were clearer channels of communication between hospital and primary care workers. The benefits of such consultation will, however, be attained only when communication is two way. Staff in specialist units could benefit from knowing what community resources are available, and the unit could be a useful route for introducing parents to local contacts. Parents who have experienced similar problems also have a great deal to offer and their views can be invaluable in ensuring that arrangements are sensitive to parents' needs.

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Shift system for a neonatal intensive care unit

SIR,—Having worked as a neonatal senior house officer for Dr Brian Speidel at Southmead Hospital I was interested to see his recent description of the "shift" rota (30 January, p 343). The objectives of introducing this rota were twofold: to improve care of the babies and to make life more tolerable for the senior house officers in a specialty with a heavy night time workload.

The system has a number of advantages for the operation of the unit. In particular, working continuously in special care baby units for a week allows the senior house officer to develop a more thorough knowledge of the problems and progress of each baby than is gained when covering only every fourth day, as previously occurred. This improves the continuity and, it is hoped, the standard of care.

There are still disadvantages, however, for the senior house officers concerned. The main problem is that although nominally on a 1 in 4 rota they effectively work 1 in 2. Long shifts fully occupy alternate weekends and although the paper points out that social activities must be curtailed during the week of night shifts, they are also severely restricted during the week of long days since the nominal finishing time of 2100 or 2300 is often overrun when problems occur in the special care baby unit or the delivery suite.

Dr Speidel correctly points out that the longest

shift worked is "only" 19 hours but this occurs at the end of the week of nights, as the third of three long shifts (16, 16, and 19 hours), and is particularly exhausting.

Having moved from Southmead to a 1 in 3 obstetric post with a similar out of hours commitment, I find that the traditional rota is less tiring, since there are two clear weekends to recuperate. The system would best be improved, however, by emulating most anaesthetic rotas: after a night on call the senior house officer has the next day off. A busy night would be much easier to endure if some sleep was guaranteed the next morning.

Although the shift system described has some advantages it has failed to achieve fully its original purpose of improving both the care of the babies and the working patterns of the senior house officers.

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The need to make rugby safer

SIR,—As an orthopaedic surgeon and a former first class rugby prop forward I think that Dr H C Burry's and Mr C J Calcina's article (16 January, p 149) has no great message for rugby football. The paper which they quote seems to be the only scientifically followed epidemiological research on injuries from playing rugby.¹ In Wales the incidence of serious cervical cord injuries has risen to a steady level of two or three a year. Recent changes in the front row scrummaging rules have had no effect on this, and scrummaging injuries account for 44% of the total. Two suggestions for immediate action are the banning of the practice of "popping" opposing front row props out of the scrum and education of the second row forwards about the danger of continuing forward momentum in the collapsed or lifted scrum.

I was perturbed by the comments of Messrs D A D MacLeod and P H Pattison (13 February, p 498). There is no place for complacency in this disturbing situation. Pressure on the flexed cervical spine is dangerous and must be minimised if we are to make rugby safer.

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1 Williams P, McKibbin B. Unstable cervical spine injuries in rugby football: a 20 year review. *Injury* 1987;18:329-32.

Tardive dyskinesia

SIR,—Dr Thomas Barnes (16 January, p 150) states unequivocally that tardive dyskinesia is a "disorder of movement caused by dopamine antagonist drugs," ignoring a detailed historical literature that suggests this is not true. Nineteenth century descriptions of chronic psychotic illness, reflecting Kraepelin's classic delineation of dementia praecox,¹ constantly refer to grimacing and gesticulations as typical features. More recent work by Brandon *et al.*,² Owens *et al.*,³ and Waddington⁴ has emphasised the presence of tardive dyskinesia among psychotic patients never treated with dopamine blocking drugs. My own research into Victorian casebooks supports such findings, all of which logically point to tardive dyskinesia as resulting primarily from the intrinsic disease process itself, mediated by dopamine antagonists.

The importance of refuting Dr Barnes's statement lies in the need to understand, and appropriately research, neurochemical aspects of

psychotic illness, as well as in the possible malpractice suits that might ensue, in these increasingly legalistic times, from patients with tardive dyskinesia making claims against those treating them. It also underlines the fundamental necessity of a historical perspective.

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- 1 Kraepelin E. *Lectures in clinical psychiatry* (trans Johnstone T). 3rd ed. London: Ballière, Tindall and Cox, 1913.
- 2 Brandon S, McClelland HA, Protheroe C. A study of facial dyskinesia in a mental hospital population. *Br J Psychiatry* 1971;118:171-84.
- 3 Owens DGC, Johnstone EC, Frith CD. Spontaneous involuntary disorders of movement. *Arch Gen Psychiatry* 1982;39:452-61.
- 4 Waddington JL. Tardive dyskinesia in schizophrenia and other disorders: associations with ageing, cognitive dysfunction and structural brain pathology in relation to neuroleptic exposure. *Human Psychopharmacology* 1987;2:11-22.

Charging patients for eye tests

SIR,—We entirely support Dr John Yudkin's plea (2 January, p 64) for the free eye test to remain and take issue with the subsequent correspondence from Messrs Smith, Scott, and Flanagan (23 January, p 290).

We participate in a cooperative system of diabetic care in Newham in which one of us (PK) sits with local general practitioners in diabetic clinics held in their surgeries. This system of care has also sought the help of optometrists for detecting diabetic eye disease. Since the publication of Dr Yudkin's letter four patients have been referred by optometrists with a suspected diagnosis of diabetes mellitus, two with incidental findings of diabetic retinopathy and two because of a recent deterioration in vision due to refractive changes. All of these patients had attended the optometrists for an eye test, but we accept that the optometrists were alerted because of the local interest in diabetes. We agree that general practitioners should screen the eyes of their own diabetics including dilatation of the fundi; indeed, we ensure that this is regularly performed in our own shared care clinics. In these circumstances, however, the examination is done in a designated surgery; patients are warned not to drive to the surgery, and a diabetologist is present to help instruct the general practitioner. We suspect that the situation is not so ideal in most practices. For this reason the participation of optometrists in a system of free eye tests will, at the very least, widen the possibility of early detection of diabetic eye disease.

Any payment levied on patients will deter those who are most at risk.

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SIR,—I agree with Mr Redmond Smith (23 January, p 290) and Mr Rolf Black (6 February, p 431), who suggest making greater use of ophthalmic medical practitioners to relieve the pressure on the hospital eye service.

The "medical eye centre" (which ironically was created to cope with the rush for free eye tests in the early days of the NHS) never developed its full potential. The medical aspect was overshadowed by the retail aspect of the business houses who endowed these centres, and for some obscure reason the government never permitted ophthalmic medical practitioners to prescribe even eye drops on NHS forms. Nevertheless, some medical eye centres still provide a valuable neighbourhood service to both general practitioners and the public.

Many, like myself, must be able to recall picking up cases of ocular or systemic disease whose morbidity would have been dangerously increased by delay in treatment.

Now that the ethical restrictions on the optical profession have been relaxed I fear that the patient has become a "customer" and the consulting room a small part of a boutique selling fashion frames. To whom can the family doctor send patients with indefinite symptoms and suspicious signs which could be resolved by slit lamp examination, gonioscopy, applanation, or field testing at a medical eye centre but for which they might have to wait months at a hospital?

Is there any reason—apart from penny pinching—why the ophthalmic medical practitioner should not be contracted to examine patients either on a sessional or per caput basis at a health centre or as part of a general practice?

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** This correspondence is now closed.—ED, *BMJ*.

Inappropriate dental care in casualty departments

SIR,—There is serious concern in this unit about incorrect treatment for children and adolescents who have knocked out permanent incisor teeth and who have been taken to casualty departments in district general hospitals.

This was shown recently in two cases, one in an 8 year old girl and the other in a boy of 13. Both children had had upper permanent central incisor teeth knocked out during the evening. In each case the patients had been seen by a casualty officer at hospital within 30 minutes of the accident. After examination the parents were advised that nothing could be done and were told to take their child to a dentist the next day. In neither case was the hospital dentist on duty called to see the patient. When the children were seen the next morning it was too long after the accident to replant the teeth, and they are now required to conceal the unsightly gap by wearing a denture. This is an extremely unfortunate and avoidable outcome of this type of accident in a young child.

In children and adolescents a tooth that is replanted into its socket within 30 minutes of being knocked out has a 90% chance of reattaching itself to the bone and becoming fully functional. There is then a deterioration in prognosis, related to time after the accident, until it becomes poor after two hours and hopeless when several hours have elapsed.¹ Thus it is essential that the appropriate action is taken without delay.

When a child presents at the casualty department having knocked out a permanent incisor tooth the tooth should be immediately placed in physiological saline while the history and examination are conducted. No effort should be made to disinfect the tooth or scrub it clean. If the tooth is dirty it should be gently flushed with physiological saline to avoid damaging the delicate periodontal membrane on the root. If the tooth has not been brought to the hospital efforts should be made to retrieve it if this can be done expediently. The hospital dentist should be contacted and asked to attend the patient immediately. If there is likely to be any delay the casualty officer should replant the tooth as soon as possible and then get the patient to bite on a pad of gauze to hold the tooth in position. No anaesthetic is usually required for this operation and the blood clot should not be removed from the socket before replantation. An antibiotic should be prescribed and the need for tetanus vaccination