(adrenaline) should have been given intramuscularly". We believe this to be true, but it was most certainly not our intention to condemn all use of intravenous adrenaline by experienced medical practitioners either in emergency departments or elsewhere. In retrospect we see that we should have been more explicit on this point. We agree totally with Dr Brown's statement that adverse outcomes for adrenaline occur when it has been given too rapidly, inadequately diluted, or in excessive dosage. We also recognise that emergency medicine has progressed a long way in the last decade with a much higher level of senior supervision and greater possibilities for treatment under monitored conditions.

Our guidelines were intended specifically for those first medical responders who are inexperienced in the management of this emergency. They are unlikely to have monitoring facilities available. For these, cautious recommendations are appropriate with intravenous use of adrenaline restricted to emergencies judged to be immediately life threatening.

The examples that we gave for indications for intravenous adrenaline were clearly not intended to be comprehensive, and experienced physicians in monitored areas will appropriately make their own decisions. We did mention the value of infusions of 1:100 000 adrenaline which permits titration of dose against need. It may also be worth emphasising that in asphyxia from upper airway oedema and hypoxia from severe bronchospasm, there are additional priorities—not replacing parenteral adrenaline—such as oxygenation and nebulised inhaled bronchodilators. Dr Brown's comments do, of course, add to our own guidelines by making sound recommendations for expert management that was outside the remit of our article.

The concerns of Mr Gavalas and his colleagues were similar, but there seems also to be an element of misreading of our document. They say that they "believe very strongly that the advice against using intravenous adrenaline (epinephrine) is potentially very dangerous". We must reiterate that we did not advise against its use, but urged only that it should be used in the most serious cases and by experienced clinicians.

Our guidelines stated in paragraph 4.4 that: "Intravenous epinephrine (adrenaline) in a dilution of at least 1:10 000... is hazardous and must be reserved for patients with profound shock that is immediately life threatening and for special indications".

We also added in paragraph 5.2:

"The use of epinephrine (adrenaline) by the intravenous route in the special circumstances given in paragraph 4.4 should usually be reserved for medically qualified personnel who have experience of it, who know that it must be administered with extreme care, and who are aware of the hazards associated with its use".

The footnote to the legends state very clearly:

"Consider slow intravenous (IV) epinephrine (adrenaline) 1:10 000 solution. This is hazardous and is recommended only for an experienced practitioner who can also obtain IV access without delay".

There are some practitioners who have made the habit of always using adrenaline intravenously, while others have preferred the subcutaneous route, and many are afraid to give it at all. We believe that we have given the correct emphasis—that intramuscular adrenaline is the norm for the emergency treatment

by first medical responders, with IV adrenaline reserved for special and life threatening situations. This is far from advising against its use!

There is one charge to which we must plead guilty. Of course we were aware of the previous paper published in the *Journal of Accident & Emergency Medicine* in 1998, and it was indeed our intention to reference it together with the other specialist recommendations. That omission was not deliberate, and one of us (DAC) must take responsibility for that important last minute oversight.

We do not accept that the guidelines need urgent revision. Neither does the Project Team with its wide representation accept that the recommendations as they stand are insulting to the specialty of accident and emergency. We are conscious that we all have the same aims: better and safer treatment of an important medical emergency.

Future inpatient management of patients with minor head injuries

EDITOR,—We read, with interest, the letter from Pau and Buxton, regarding the need for neurosurgical referral of patients with an admitting diagnosis of minor head injury.¹ We agree that these patients are a low risk group. We performed an audit of patients admitted to our observation ward with the primary diagnosis of minor head injury. From October 1997 to July 1999, 668 such patients were admitted under our care. Of these patients, only two were subsequently transferred to the regional neurosurgical unit after the finding of intracranial haematoma on computed tomography. This finding, and our general experience, leads us to agree that patients with an admitting diagnosis of minor head injury do not require neurosurgical referral, in the first instance. However, we suspect, given that only 12% of responding accident and emergency (A&E) departments (71% response rate) in the UK have on-site neurosurgical facilities,² this practice is not widespread anyway.

Pau and Buxton's conclusion is in keeping with the recommendations of the *Report of the Working Party on the Management of Patients with Head Injuries*.³ One of the logistical concerns raised by this report, and highlighted in Pau and Buxton's letter, is the fact that observation wards have a finite capacity. Our current practice is that, when our observation ward is full, these patients are admitted under the general surgeons. *The Way Ahead* document recommends that A&E observation wards should be within, or immediately adjacent to, the A&E department.³ We feel that it is inevitable, when the only specialty admitting patients with isolated minor head injuries is A&E, that problems will arise when the observation ward is full. It goes against the spirit of the report of the working party to then admit these patients under other specialties, just because the observation ward is full. If these patients are to be admitted to wherever there are beds within the hospital, but still under the care of A&E, we fear a major step backwards in the standards of our practice if, when a seriously ill or injured patient arrives in the A&E department at 5 am, the only A&E doctor on duty is at the far end of the hospital, assessing a head injured patient.

The recommendations of the report have provoked widespread debate and polarity of views within the specialty. It probably represents a watershed in the management of A&E departments that do not currently accept

inpatients under the care of A&E consultants. We do not yet know how we will resolve this issue locally, but would welcome other views on ways of managing the patient.

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- 1 Pau H, Buxton N. Management of minor head injuries by non-specialists. *J Accident Emerg Med* 1999;16:390.
- 2 Royal College of Surgeons. *Report of the working party on the management of patients with head injuries*. London: Royal College of Surgeons, 1999.
- 3 British Association for Accident and Emergency Medicine. *The way ahead*. London: British Association for Accident and Emergency Medicine, 1998.

Cycle helmets

EDITOR,—I read with horror the British Medical Association's Board of Education and Science conclusion that legislation to make helmets for cyclists compulsory would reduce the number of cyclists and not be in the interests of health.¹

As an accident and emergency consultant for over 20 years, I have seen far too many head injuries in cyclists, some fatal. The main factor in causing most accidents is human error. I agree, as the article suggests, that cycling proficiency should be taught in all schools and the driving test modified for awareness of cyclists to other road users. The government, as suggested, should subsidise cycle helmets and promote them through the media by advertising. The car driver is not interested, but we need better cycle routes nationwide.

Our government is committed to reduce injuries from accidents (see *Our Healthier Nation*). The main cause of death in children is trauma. But I have personally discussed at length the benefits of wearing a helmet with children who, unhelmeted, have suffered a fractured skull in a cycle accident. Many children still remain unconvinced! Parental control is weak. So voluntary action to increase the wearing of cycle helmets in this age group is unlikely to succeed.

My answer is that the compulsory wearing of cycle helmets is needed now. This should be introduced as part of an overall cyclist's programme—teaching, better routes, helmet subsidies, and increased awareness through publicity. The number of cyclists may well reduce initially but more importantly head injuries will become fewer too! However, in the future, the population of cyclists naturally will then increase as cycling at last becomes safer and so even more enjoyable.

There has been successful government legislation concerning road traffic accident prevention and injury protection—for example, the breathalyser laws, compulsory crash helmets for motorcyclists, and the seat belt laws. These are still supported by publicity. The legislation could be expanded.

We as an emergency specialty, however, have a responsibility in accident prevention and injury protection. We all need to be active, as I have been, in the local press recently highlighting, for example, the need for cyclists to wear helmets. We recognise this problem only too well.

Our department has a nurse who travels round schools talking about accident prevention and injury protection—particularly cycle