lead to improved patient survival, but is this the case? I know of no surveys in the UK designed to show this, and surveys from the USA, where paramedic training is generally more organised and more advanced, show conflicting results. The question of whether or not better paramedic training improves patient outcome in trauma is controversial.[1]

There are two schools of thought on the management of major trauma: those who advocate field stabilisation (performed by paramedics) and those who advocate quick evacuation (the "load and go" or "scoop and run" philosophy). The value of field stabilisation is in "time dependent" patients—those with extremely urgent life threatening problems, those with long transport times, and those who are trapped. In situations such as these most doctors agree that the ABC of resuscitation should be performed as soon as possible. However, recent surveys in the USA have advocated the "load and go" philosophy in urban areas, where transit times are short,[2] though some surveys have shown increased survival in certain kinds of urban trauma with paramedic intervention.[3] In truth, however, neither school is supported by large quantities of research, and the need for further research is great.

In the UK most major trauma will occur in urban areas where transit times will be short; if a policy of "load and go" is instituted then little opportunity will arise for the skills taught to be put into practice. The greater skills of the highly trained paramedic are unlikely to provide better results than the techniques of resuscitation used by ambulance staff today.

Finally, the interval between injury and definitive surgical treatment is a critical factor in determining the survival rate of trauma victims.[4] A recent report suggests that the delay in definitive surgery may rest with the medical profession and the lack of a dedicated trauma system in some hospitals.[5] The future introduction of regional trauma centres will, I hope, relieve this state of affairs. The increased skills of a qualified paramedic are a small but important part in the overall resuscitation of the trauma victim in certain circumstances, but without other improvements the true benefits of these skills will not be known.

BRIAN J RYAN

Royal Hospital,
Wolverhampton

1 Dailey RH, Callaham M. *Controversies in trauma management*. New York: Churchill-Livingstone, 1985.
2 Gervin AS, Fischer RP. The importance of prompt transport in salvage of patients with penetrating heart wounds. *J Trauma* 1982;**22**:443.
3 Baxt WG, Moody P. The impact of a rotorcraft aeromedical emergency care service on trauma mortality. *JAMA* 1983;**249**: 3047.
4 Trunkey DD. Trauma. *Scientific American* 1983;**249**:20-7.
5 Dearden CH, Rutherford WH. The resuscitation of the severely injured in the accident and emergency department—a medical audit. *Injury* 1985;**16**:249-52.

Dangers of lumbar puncture

SIR,—Since reading the article by Messrs P G Richards and E Towu-Aghantse on the dangers of lumbar puncture (1 March, p 605) and the subsequent correspondence (22 March, p 827; 26 April, p 1134) we have seen two children who presented with clinical meningitis and deteriorating levels of consciousness; they did not undergo lumbar puncture and subsequently recovered from their illness.

Case 1—A 2 year old boy was admitted in a semiconscious state (responding to painful stimuli only) with marked neck stiffness, positive Kernig's sign, left facial palsy, and a history of left otitis media, vomiting, and fever. A lumbar puncture was considered dangerous despite a normal computed tomogram and no papilloedema. The child was treated with intravenous chloramphenicol, ampicillin, and penicillin. *Haemophilus influenzae* was subsequently grown from blood, at which stage penicillin was discontinued. The child made a slow recovery. His consciousness level improved the next day but it was not until the third day that he was fully conscious and alert. His temperature took 11 days to settle. The facial palsy resolved completely by day 14. He is probably left with some residual hearing defect, for which he is to undergo hearing tests.

Case 2—A 12 year old girl was admitted with a very short history of fever and headache and deteriorating level of consciousness over two hours before admission. On arrival in hospital she was moribund, unconscious, and in shock. She had marked neck stiffness and a purpuric rash over her trunk. She was treated with intravenous chloramphenicol and penicillin and made an excellent and prompt recovery. No bacteria were grown from her blood.

Most children and babies with life threatening illnesses in the UK are admitted to district general hospitals, at least initially. Having computed tomography and a neurosurgical department in our district is an advantage. However, we wish to point out to colleagues at Great Ormond Street that "early transfer to a paediatric intensive care unit with facilities for intracranial monitoring" would have been an option carrying some risk. We thought positively about local measures likely to minimise intracranial pressure: (*a*) careful nursing of the airway; (*b*) maintaining effective breathing, with regular blood gas analysis to identify early the need for assisted ventilation; (*c*) circulatory appraisal with measurement of skin temperature and blood pressure; (*d*) drug therapy with chloramphenicol, ampicillin, and penicillin; (*e*) early detection of neurological change—standard head injury chart; and (*f*) fluid restriction, but not so much as to cause hypoglycaemia.

We do agree with our colleagues in Great Ormond Street that if these children had received a lumbar puncture then subsequent respiratory arrest would not have surprised us. Interhospital transfer of premature babies has been fashionable recently, though whether transfer for very ill children can be achieved as easily remains to be seen. Certainly a typical ambulance journey for these children without readily available life support systems would seem to carry additional risk by eroding treatment of the factors to which intracranial pressure is most sensitive—ventilatory failure, circulatory changes, and continuing inflammation.

We would thus recommend risking diagnostic purity by avoiding lumbar puncture in children with advancing coma and "treating the treatable."

M SAEED
G P WYATT

Middlesbrough General Hospital,
Middlesbrough,
Cleveland TS5 5AZ

IVF update

SIR,—The success rate claimed for in vitro fertilisation by Dr M E Setchell (31 May, p 1462) is misleadingly high. Many couples who are accepted on to in vitro fertilisation programmes and who start treatment fail even to reach the stage of embryo transfer: there may be an inadequate response to ovarian stimulation; the attempt to harvest ova may be mistimed or thwarted due to inaccessibility of the ovary or the ripe follicles; the ovum (ova) may not be successfully fertilised; or a fertilised ovum may fail to develop into a normal embryo.

The success rates quoted by Dr Tessa Richards (3 May, p 1156) were measured per 100 women receiving embryo transfer. Many couples fail to have one embryo, let alone three, made available for transfer. Couples who, for whatever reason, are seen to have a poor chance of success in in vitro fertilisation are advised not to undergo further attempts. It is therefore not surprising that the women who were offered a high number of cycles of in vitro fertilisation treatment had a high success rate.

My own collation of statistics from in vitro fertilisation units published since 1984 in the *Journal of In Vitro Fertilisation and Embryo Transfer* suggests that the more successful units can claim that about 20% of their patients will have the hoped for outcome—that is, a clinically diagnosed pregnancy.[1]

The cost of in vitro fertilisation is stated as being about £400 per patient treated. At a success rate of 20% this would mean a cost per pregnancy of £2000. This seems a small price to pay for initiating the life of a baby compared with money spent to preserve neonatal life in special care baby units. The crucial question in estimating the value of in vitro fertilisation is whether the life of a yet to be conceived child can be regarded as of benefit to society (of which that child is not a member) or whether society would benefit only by the improved quality of life of the parents and by the good of knowing that this treatment was available for those who need it.

HILARY PAGE

Department of Community Medicine,
University of Sheffield,
Sheffield S10 2RX

1 Taylor PJ, Mahaderan M, Leader A, Wiseman D, Lorsheider F, Servis S. Initial experience with in vitro fertilisation and embryo transfer at the University of Calgary/Foothills Hospital: *Journal of In Vitro Fertilisation and Embryo Transfer* 1985;**2**:112-3.

Manpower: compendium of deliberate mistakes

SIR,—It so happens that at a time when Professor James Parkhouse (10 May, p 1286), among others, has been reappraising manpower problems Professor John Swales has drawn our attention, even though many of us are already sadly aware of it, to the state of academic medicine.[1]

There is no career structure for clinical researchers. There never has been, but formerly those who could deliver results did manage to get by. Unfortunately grant giving bodies support the demise of academic medicine by restricting their considerations to applicants under the age of 35 years, whereas we all know that such people are not likely to make the headlines. Clinical research is not like research in physics or biochemistry. One's background in clinical medicine is relevant to one's ability to perceive crucial problems.

I can suggest three measures. Firstly, accreditation could be discarded in favour of a "grey book" record of witnessed clinical skills, or at least based on such a record. Thus I might have done x endoscopies and y bronchoscopies and have put in z pacemaker wires. In other words, I am not a one tune Johnny but a competent physician. Secondly, careers in clinical research could be constructed by creating an accessory consultant grade of clinical investigator. Such persons would not require full consultant status, as do independent operators in peripheral hospitals, but they would do specialist clinics and have time for laboratory investigations. Thirdly, I think the record proves that submissions by investigators for grants should not be dependent on grace and favour by an overlord but rather they should be submitted directly and