then future planning of health care under war conditions may need to take this factor into account.

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Teaching trauma management

Sir

In reference to the article on teaching trauma management in the accident and emergency department (Williams *et al.*, 1991), we are concerned that it may perpetuate the myth that junior staff can and indeed should continue to manage critically injured patients.

Many studies have shown that preventable trauma deaths can be reduced from 20–30% to less than 5% with appropriate organizational and staffing changes (Cales *et al.*, 1985; Kreis *et al.*, 1986). The management of major trauma presents a complexity of diagnostic and therapeutic decisions, in addition to requiring skill in multiple invasive procedures that cannot reasonably be expected of junior staff.

The ATLS Programme teaches a basic approach to initial trauma care but in no way confers expertise on the participants and is therefore no substitute for management by experienced senior staff. The suggestion that an abbreviated version of ATLS might represent any type of solution to the problem of trauma care by junior doctors is unrealistic.

Major trauma is a disease which demands the immediate presence of trained and experienced senior medical staff. Trauma centres, so favoured in the U.S.A., may not be a practical or economic solution in the U.K. environment with its comparatively low rates of trauma. However, redressing the serious imbalance in the ratio of junior to senior medical staff (10:1) in U.K. accident and emergency departments illustrated by Williams would improve the care of all critical and injured patients, not just those with major trauma, and must therefore represent an essential strategy.

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Pulsed electromagnetic energy and pre-tibial lacerations

Sir

I wish to comment on the letter from Muirhead *et al.* (*Archives of Emergency Medicine* 8(2) 152–154). Their study appears to have been well planned but the conduct of it must have met unanticipated problems. They state that, after exclusions, 48 patients were entered into both the treatment and the control groups but Table 3 which reports healing times only includes 15 treated patients and 13 controls. It is not clear from the text whether Table 3 relates only to female patients under 60 years of age but it does show a clear preference for the patients with pulsed electromagnetic energy.

It is unfortunate that the authors chose to do this study using a Curapuls machine which is a maverick device among machines of this nature. The original Diapulse machine and the widely used Megapulse machine use a pulse width of 50–65 μ s, Curapuls uses 400 μ s. The underlying reason behind using a pulsed field is that the biological action results from the on/off effect and any heat generated by the field will be dissipated during the resting phase and before the next pulse occurs. In my own studies using the Diapulse device I have found that 400 pulses s^{-1} with a 65 μ s pulse width applied for 20 min gives a definite beneficial therapeutic effect (Wilson, 1972).

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Massive haemothorax from central venous catheterization: a note of caution

Sir

The various techniques for central venous catheterization are an essential component of the armamentarium of physicians providing emergency care (Parsa & Tabora, 1986; Putterman, 1986). Though the list of complications associated with this procedure is quite long, proper attention to technique and to patient management can reduce attendant morbidity and mortality to an acceptable minimum (McGoon *et al.*, 1979).

Perforation of venous vascular structures is a relatively rare, but potentially lethal, complication of central venous catheterization. It is recommended that a