The same survey carried out in the same hospital in 1992 revealed, using a randomly acquired sample of 90 patients with MHI, that eight (9%) were referred to the regional neurosurgical unit, none of whom needed any active intervention.

One of the authors (NB) carried out a similar review of patients admitted under general surgeons with MHI for the year 1991 in a different large general hospital with a co-located A&E department (at that time a trial trauma centre) and subregional neurosurgical unit. Of 53 patients admitted with MHI only four (7.5%) required a neurosurgical opinion and none required active intervention.

These three temporally separate studies in two different, but similar, hospitals found a total of 761 patients admitted with MHI, none of whom required neurosurgery. It is our contention that no patients with MHI need be admitted under the care of neurosurgeons in this country and that patients who need specialist neurosurgical input can be identified by neurological observations in a non-specialist setting and referred for advice or action accordingly.

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Visual assessment of blood loss by accident and emergency staff

EDITOR.—Birkinshaw et al have recently demonstrated that in reconstructed scenarios using manikins, 80% of estimates of blood loss by paramedics and technicians were underestimates, and for a blood loss of 3 litres the mean underestimate was 60%. It is also important that staff in the accident and emergency (A&E) department can assess blood loss that is continuing within the department and also assess loss in clothing as it is removed, as stressed in Advanced Trauma Life Support courses.

We undertook a study whereby a measured volume (450 ml) of expired human whole blood was spilt over some clothing on a non-absorbent surface. After five minutes this scene was photographed. The photograph was shown to staff of the A&E department and they were asked to estimate the volume of blood shown in the photograph.

Forty A&E nurses and 18 senior house officers (SHOs) were surveyed. Their estimates of blood loss are shown in Table 1.

This demonstrates that staff in A&E show a wide variation in the accuracy of their estimates of blood loss. It is not reliable for clinical decision making. In contrast to the pre-hospital study, A&E staff appear to overestimate blood loss. None of the staff had ever been shown pictures of measured blood loss as part of their training. There is a need to train A&E staff in the assessment of external blood loss.

Table 1 A&E staff's estimate of volume of a measured 450 ml blood loss

<table>
<thead>
<tr>
<th>No surveyed</th>
<th>Mean</th>
<th>Maximum</th>
<th>Minimum</th>
<th>1st quartile</th>
<th>3rd quartile</th>
</tr>
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<tbody>
<tr>
<td>Nurse</td>
<td>40</td>
<td>577.6</td>
<td>3000</td>
<td>50</td>
<td>200</td>
</tr>
<tr>
<td>SHO</td>
<td>18</td>
<td>633.9</td>
<td>2500</td>
<td>30</td>
<td>250</td>
</tr>
</tbody>
</table>