

## LETTERS TO THE EDITOR

**Guidelines for imaging children with head injuries in A&E departments**

EDITOR,—Please see below (panel) guidelines for imaging children who present to the A&E department as a result of head injuries. We have managed to achieve a temporary consensus (at least) between the A&E department, radiology department, two paediatric neurologists, and a paediatric neurosurgeon, which must be some form of record! The reason for devising local recommendations came about as we felt that the Royal College of Radiology guidelines booklet paid insufficient attention to the needs of children presenting to A&E as a consequence of a variety of head injuries.<sup>1</sup> Although guidelines for managing adult patients with head injuries can be applied to children, the indications for skull radiography and emergency CT scanning can be different in a paediatric population, and so we have made our own modifications.<sup>1,2</sup> Our local recommendations are based somewhat loosely on the RCR guidelines booklet for skull radiography in adults.<sup>1</sup> Despite the wide availability of CT scanners, we are aware of no imaging protocol or strategy, specifically for the paediatric population with head injuries, that includes a rational use of both skull radiography and CT.<sup>1,3,4</sup>

Our recommendations are intended to act as a guide to paediatricians and A&E staff managing children with head injuries—a full clinical history where possible and sensible clinical judgement are necessary for this to be implemented properly. These recommendations will hopefully provide a framework within which judgement can safely be exercised, particularly by inexperienced staff. We accept that there are certain inherent limitations to our approach, for example a clear history of unconsciousness can be difficult to elicit in some children and the exact significance of a fall of approximately 1 metre on to a hard surface has not, to the best of our knowledge, been clearly defined. Similarly, vomiting more than twice may be a relative rather than an absolute indication for admission. Despite these limitations, we believe our recommendations are a useful guide in the management of children with head injuries in the A&E department.

A fundamental question arises regarding the need to perform skull radiographs in children who appear well but who have a “medium risk of intracranial injury”. Our justification for this is that some cases of unexpected non-accidental injury are picked up in this manner. Similarly, many head injuries are not witnessed and so their severity is difficult to estimate—clinical management can often depend on the skull radiographic findings. Although most children with skull fractures do not develop serious intracranial complications, fractures are more common among children who develop such complications.<sup>4</sup> Finally, we would be interested to hear how this problem is approached in other centres managing children with head injuries.

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- 1 Royal College of Radiologists. Making the best use of a department of clinical radiology. Guidelines for doctors, 3rd ed. London: RCR, 1995.
- 2 Teasdale GM, Murray G, Anderson E, et al. Risks of acute intracranial haematoma in children and adults: implications for managing head injuries. *BMJ* 1990;300:363-7.
- 3 Clarke JA, Adams JE. The application of clinical guidelines for skull radiography in the Accident and Emergency Department: theory and practice. *Clin Radiol* 1990;41:152-5.
- 4 Leonidas JC, Ting W, Binkiewicz O, et al. Mild head trauma in children: when is a roentgenogram necessary. *Pediatrics* 1982;69:139-43.

**Guidelines for imaging children with head injuries in A&E****High risk of intracranial injury→proceed to emergency CT**

Decreased conscious level  
Focal neurological signs or seizures  
CSF from nose or ear  
Blood from ear  
Penetrating injuries  
Previous surgery with shunt tubing in-situ→low threshold for CT  
Skull fracture on SXR-CT if clinically indicated

**Medium risk of intracranial injury (neurologically intact)→proceed to SXR**

Diagnosis uncertain/inadequate history  
Clear history of unconsciousness or confusion  
Suspicion of NAI  
Large scalp swelling/laceration particularly over frontal or ethmoid sinuses  
?Depressed fracture  
Fall >1 metre on to hard surface (if clinically indicated)

**Low risk of intracranial injury→SXR not indicated**

→Head injury instructions  
Fully oriented  
No amnesia  
No neurological deficit  
No serious scalp laceration

NB No child should be transferred to CT until fully resuscitated  
CT indicated, then SXR rarely necessary  
Patient to be admitted, SXR rarely indicated  
Vomiting more than twice—admit  
Return visit—review by senior clinician (PCT)

**Acute pain management for children in A&E**

EDITOR,—Children in acute pain are often undertreated.<sup>1,2</sup> We carried out a postal survey of the management of acute pain for children in 26 A&E departments in the South and West Region.

There were 20 replies (77% response rate). Four A&E departments (20% of replies) have an existing policy for pain management in children, and three (15%) were in the process of producing one. Only two departments (10%) have clinical standards to allow audit. Seven departments (35%) routinely assess and record pain scores in children, with 50% of departments giving formal training in pain management to medical and nursing staff.

We feel that it is important to introduce clinical guidelines, standards, and training in

all A&E departments to improve the quality of pain management for children.

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- 1 Managing acute pain in children. *Drug Ther Bull* 1995;33:41-4.
- 2 Selbst SM. Analgesia in children. Why is it underused in emergency departments? *Drug Safety* 1992;7:8-13.

**Childhood accidents**

EDITOR,—We wish to express our concern at the validity of the conclusions in Maitra and Sweeney's paper<sup>1</sup> on childhood accidents. The paper examined the relation between the location where injuries were sustained (school or public place) and the severity of injuries sustained by children presenting to an A&E department.

The authors drew the conclusion that injuries sustained in schools were of a greater severity as there was a higher incidence of fractures and dislocations in the school group. However, the paper did not address the actual incidence of injuries in either environment. We are left to assume that all injuries sustained in both environments presented to the A&E department; this is clearly an unacceptable assumption as the presentation of a child at the A&E department has as much to do with a parent's or teacher's knowledge and experience with previous injuries. The higher incidence of fracture/dislocation in the school group could easily be explained by teachers and school first aiders, who have a wide experience of minor trauma, excluding a number of children with minor injuries that a parent may have presented to the department.

The authors' use of a percentage marker to compare the two groups is invalid when the true incidence of injury in the population is not known. To answer the authors' question correctly a community based approach, not a hospital based approach, would be necessary.

We do not question the statement that schools should examine their injury prevention measures as this is sound advice; however, the data presented in this paper lend little to the debate on whether schools really are safer than public places.

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- 1 Maitra AK, Sweeney G. Are schools safer for children than public places? *J Accid Emerg Med* 1996;13:196-7.

**The authors reply:**

Our study was hospital based and not community based.

We agree the referral pattern to the hospital for various injuries may have been influenced by other factors. But further studies (yet to be published) and our local experience lends credence to the view that over a longer period (that is, six months) these factors have only a

marginal effect. As for the validity of comparing percentages, the conclusions are reasonable in the context of unequal total numbers between the groups.

The main aim of our study was to raise the profile of school safety and trigger further studies by the A&E practitioners on this very important national and international issue. We are pleased with the response, even if it is critical.

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### Topical analgesia for children

EDITOR,—We read with interest the paper of Kendal *et al*<sup>1</sup> and wish to raise a few questions. The authors described in detail how the adrenaline-cocaine gel was applied to the wounds but, apart from stating that the lignocaine injections were “standardised using a 25 gauge needle”, we know nothing about the technique used, who injected and sutured (nurse, SHO, registrar, etc), nor the time given for the lignocaine to act before starting the suturing. Standardising the needle gauge and suture size for all lacerations regardless of the site to simplify analysis and satisfy statisticians is bad surgical practice because it means using heavy thread for the face or fine thread for the trunk. Also, to alleviate fear of the “sight of the needle”, a point made by the authors, is obviously desirable, but how did they alleviate fear of the sight of the stitching needle, the forceps, and the needle-holder? To find out that 40% of patients and/or parents considered suturing lacerations under lignocaine “unacceptable” may simply mean poor overall technique. How do they account for this extraordinarily high patient/parent dissatisfaction? We also want to know the authors’ explanation of their high “failed” anaesthesia rate of 24% in the lignocaine group and how they managed this subgroup: did they proceed regardless or was more lignocaine given, or was the gel therefore applied?

Another unclear point is the authors’ evaluation of cost. They state that the gel costs £2 for one application, while a 10 ml ampoule of lignocaine costs 25p. Although they were only dealing with lacerations less than 2 cm in length, they conclude that even after considering patient volume, the overall cost implications were tiny. How can they explain this, given that a 1.9 cm cut should only require a 5 ml ampoule priced at a mere 16p? Also why haven’t they tested any of the available lignocaine gels? Although they are not licensed for open wounds, neither is the adrenaline-cocaine gel, and lignocaine gels are available in all accident departments.

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1 Kendall JM, Charters A, McCabe SE. Topical anaesthesia for children’s lacerations: an acceptable approach. *J Accid Emerg Med* 1996; 13:119–22.

### The authors reply:

We thank Nathan and McKeever for their comments and would like to address some of the issues they have raised.

One per cent plain lignocaine was infiltrated locally around the wound using a 25 gauge needle by experienced nursing staff, who per-

form the majority of the suturing at Gloucester Royal Infirmary. The lignocaine was not warmed or buffered, and 10–15 minutes was allowed to elapse before beginning suturing. Nurses were already trained to try and conceal or minimise the “sight of the needle” by distraction, play, and other techniques; clearly these factors should have applied to both study groups.

Needle gauge and suture size were appropriate and the same for equivalent wounds in both groups (5/0 or 6/0 ethilon for facial wounds, and 4/0 for trunk wounds).

Thirty nine per cent of parents found the procedure using lignocaine “stressful” or “unacceptable” (not 40% “unacceptable” as misquoted); this figure is not surprising, since a many parents are quite naturally going to find watching this procedure stressful. The point is also made in our paper that it is very difficult to distinguish pain from fear, especially as the child gets younger, and we are all aware that a frightened child may cry even if the local anaesthetic is working perfectly well. This is obviously a limitation in this kind of observational study, but visual analogue scoring is the best available validated way of assessing these issues at present. There are anxiety scores which can be used to quantify this contribution, but the effectiveness of these also decreases with age.

The inclusion criterion is stated as lacerations less than 4 cm length (not 2 cm as misquoted), and patient volume refers to the number of patients with suitable lacerations (that is, requiring suture, of an appropriate length, and in an appropriate position); this quite clearly is a relatively small number (120 over an 11 month period—approximately 10% of all children presenting with a laceration—in a department seeing 40 000 new attendances per year). This, as stated, represents a tiny cost implication to an accident and emergency department.

We evaluated adrenaline-cocaine gel because, despite its widespread use around the world as an effective and safe topical anaesthetic when used appropriately, awareness of this preparation in the UK was shown to be very limited (<5% of all accident and emergency consultants), as stated in our original paper.

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### Fasting before Bier’s block

EDITOR,—We wish to respond to the article by O’Sullivan *et al* relating to the need for patient fasting before manipulation of a fracture under Bier’s block.<sup>1</sup> Having recorded a low incidence of complications by postal questionnaire, the authors concluded that fasting was unnecessary and suggested that instead of conferring additional safety, it merely served to delay treatment. We feel this study is seriously flawed, and that to alter clinical practice as a consequence must be regarded with great caution. For this hypothesis to be adequately tested it would be necessary to conduct a prospective study; it is likely that to

attain the necessary level of power, a large number of patients would need to be studied.

To conduct a Bier’s block safely it is necessary to produce strict written guidelines defining technique, equipment, level of monitoring, assistance, and necessary level of clinical experience of the practitioner. Complications are far more likely when these conditions are not met. The questionnaire in collecting information failed to ascertain adequately how the responding departments audited these data or whether each department had issued guidelines. Several points arising from the data inferred that current practice was neither entirely safe nor effective: (1) three units still used lignocaine; (2) the large number of responders reporting the use of additional sedation/analgesia; (3) the significant number of reports of equipment failure.

The article tends to trivialise the potential risks of the Bier’s block, as well as using incomplete data to propose a serious change in clinical practice. To omit a fasting period merely as an exercise in reducing patient waiting time would be foolhardy. In the context of risk management, any litigation arising from this questionable change in practice could be financially damaging to any Trust. It would be interesting whether in the light of adequate explanation of potential risk, the patient would view the fasting period as nothing more than minor inconvenience.

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1 O’Sullivan I, Brooks S, Maryosh J. Is fasting necessary before prilocaine Bier’s block? *J Accid Emerg Med* 1996;13:105–7.

EDITOR,—We read with interest the article by O’Sullivan *et al*<sup>1</sup> questioning the need for starvation before prilocaine Bier’s block. While we agree that the retrospective audit appears to show no morbidity directly attributable to a full stomach, we would question the conclusion that fasting is unnecessary.

Traditional teaching for anaesthetists is to prepare patients for Bier’s block with the same attention to detail given to those undergoing general anaesthesia. This includes fasting to reduce the risk of aspiration, as the airways’ protective reflexes may still be compromised in the awake patient if, for example, hypotension or fitting occur. Both of these complications can be precipitated by local anaesthetic toxicity. As 23 (of 122) centres reported equipment failures—of which 18 mentioned cuff leak—we can see that this scenario is far from implausible.

Of greater concern is the concurrent use of sedation in 21 centres. This practice, which on its own can compromise airway reflexes, is in our opinion an absolute contraindication to a non-fasting policy. Furthermore, in the paper’s concluding comments, this potential danger was not addressed at all.

The apparently low incidence of morbidity in this report, and the fact that there have never been any deaths related to the use of prilocaine Bier’s blocks, does not preclude the need to fast patients. The potential for aspiration of stomach contents remains a real threat which can have catastrophic consequences;