

the sample population. These injuries are described as having been experienced or seen by the 221 ringers in the population sampled. Most ringers do part of their ringing outside their home band, and as each ringer is normally in a belfry with about nine other ringers while ringing the population is not just 221 ringers for two years, but closer to 2210 for two years. The incidence of injuries is therefore not 1.8% but 0.18%. Only one of the eight injuries is of a serious nature. The incidence of serious trauma associated with bell ringing in a belfry from these data is therefore 0.02%, a figure which fits well with the literature review.

What is missing from the study, apart from scientific methodology, is an assessment of the benefit side of the equation. This omission is disappointing, as ringing provides gentle regular exercise. Indeed, bell ringers refer to the activity in general as "the exercise." The authors do not state that their questionnaire requested information about benefit. Nevertheless, 10 of the 221 respondents claimed relief from back pain during ringing. As only one fifth of the population suffers from back pain<sup>1</sup> one interpretation of the data suggests that 23% of people with back pain might expect to find relief through bell ringing.

Investigation of the true risk-benefit ratio would be a useful study to the medical profession and 50 000 bell ringers. Collections of anecdotes about bizarre injuries merely mislead.

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## Should religious circumcisions be performed on the NHS?

SIR,—Mr P Madden and Miss Su-Anna M Boddy have raised the subject of religious circumcision,<sup>1</sup> which is also of concern to us, practising in a mixed racial area in south London. We too have been concerned by the number of complications seen after circumcisions performed by lay surgeons.

We identified 68 paediatric patients (age 5-15 (median 5) years) admitted to St George's Hospital during 1988 for elective circumcision. One had to be returned to theatre from the recovery room for postoperative bleeding, but there were no other complications.

Eight patients (age 3 weeks to 8 months (median 7 weeks)) were admitted as emergencies after circumcision elsewhere. Seven operations had been performed at home by a mohel and one by a surgeon at a private clinic. Five boys were Christian and of African origin; three were Moslems. Three children required an operative procedure, three required both surgery and transfusion, one patient needed only a blood transfusion, and one was treated conservatively. A single bleeding vessel was ligated in three boys. Three patients had varying degrees of denuded shaft of penis, which was covered by drawing up the remaining skin in two children and burying it in the scrotum in the other.

Our experience is thus similar to that described by Mr Madden and Miss Boddy. Although it may be argued that there are more pressing demands on scarce operating time than ritual circumcision, the severity of complications described above is worrying.

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- Madden P, Boddy S-AM. Should religious circumcision be performed on the NHS? *BMJ* 1991;302:47. (5 January.)

SIR,—In the east end of London we too have experienced a demand for religious circumcision that cannot be met within our current financial allocation. On several occasions we have encountered difficulty in explaining to the fathers of six to eight sons that to circumcise all of their male offspring at one time, thereby requiring only one day off work, would entail the use of all of our day beds and an entire operating list. We have come across all of the complications of circumcision performed by inexpert, unqualified practitioners described by Mr P Madden and Miss Su-Anna M Boddy<sup>1</sup> and have treated boys with suppurative inguinal lymphadenitis and secondary septicaemia, meningitis, osteomyelitis, and septic arthritis; in one boy the complications led to bilateral femoral head necrosis.

Recently a 16 day old healthy Moslem boy underwent circumcision by a local non-medical practitioner. This was complicated by bleeding, and we are led to believe that during the night his parents made unsuccessful efforts to obtain medical help. The next morning the baby was extremely unwell, and he inhaled vomitus during the journey to the general practitioner's surgery. Despite rapid transfer to hospital he was dead on arrival, with evidence of substantial blood loss in the nappy.

To avoid such tragedies safe and reliable provision for religious circumcision should be made available. Our annual surgical budget is determined by work done in previous years, but there is an annual expansion in the young Moslem population, thereby creating an ever increasing inability of the NHS to meet the demand. We have attempted to overcome this problem by offering to perform religious circumcision at "cost price," but to date none of the Moslem parents has been able or willing to meet this charge, which is about eight times that of the cheapest unqualified practitioners for "kitchen table circumcision" without anaesthesia. The Jewish community has established a reasonably safe service, but local Moslem groups need to organise similar facilities.

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## Diagnosis of Alzheimer's disease

SIR,—Dr Alistair Burns and colleagues in responding to criticisms<sup>1</sup> of their paper<sup>2</sup> accept that they made a technical error in using the term "sensitivity" for "predictive value positive," but they do not accept that their study cannot assess the accuracy of the clinical criteria they used in the diagnosis of Alzheimer's disease.

The reason that their data cannot be used in this way is that in their study the only patients who had a histopathological examination were those who had had a positive clinical diagnosis of Alzheimer's disease. To determine correctly the accuracy of the diagnosis (that is, its sensitivity and specificity) the study should have been based on all the patients with dementia who were tested with the set of clinical criteria, not just those who were positive. Saying that it was not the purpose of the study to estimate specificity contradicts its aim because estimating specificity is a necessary part of determining the accuracy of a test.

The inappropriateness of restricting the study to patients with a positive clinical diagnosis of Alzheimer's disease is illustrated by the implausible estimates of sensitivity and specificity that

would be derived from the data, in that if the diagnosis of Alzheimer's disease were taken to include both probable and possible cases the apparent sensitivity (detection rate) would be 100% (42/42), suggesting that cases were never missed; and the apparent specificity would be 0% (false positive rate of 100% (8/8)), suggesting that unaffected individuals always had a positive diagnosis.

This illustrates that a diagnostic test, or set of tests, can have a high sensitivity if the specificity is set low enough. Both measures are needed for a proper assessment.

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## Diagnostic utility of flumazenil in coma with suspected poisoning

SIR,—We use flumazenil routinely in suspected benzodiazepine overdosage with depression of the conscious level and, having read the article by Dr Jonas Höjer and colleagues,<sup>1</sup> would like to report a new suspected interaction.

A 55 year old man who was under psychiatric care with a diagnosis of schizophrenia was admitted unconscious after taking an overdose. He was breathing spontaneously and responding only to painful stimuli. He was cardiovascularly stable but noted to have loss of doll's eye movement. It was initially unclear what drugs had been taken, but a 12 lead electrocardiogram was normal. Initial blood gases showed oxygen pressure of 9.7 kPa and carbon dioxide pressure of 4.6 kPa. A benzodiazepine overdose was suspected, and in view of the clinical picture a bolus of 200 µg flumazenil was given intravenously. The patient rapidly regained consciousness and was able to tell the admitting doctor that he had taken an overdose of zopiclone (Zimovane), a new non-benzodiazepine hypnotic agent. The patient's conscious level again fell but was rapidly recovered by instituting an intravenous infusion of flumazenil 100 µg/h. Subsequent drug screens were negative for alcohol, paracetamol, barbiturates, salicylates, and benzodiazepines. The patient recovered completely and it was confirmed that his regular medication included chlorpromazine, amitriptyline, trifluoperazine, procyclidine, and zopiclone. He confirmed that the overdose taken was of zopiclone.

Zopiclone is a cyclopyrrolone hypnotic that binds to a site different from but closely related to the central benzodiazepine receptor site on the  $\gamma$ -aminobutyric acid-chloride ion channel complex. Flumazenil might be expected to reverse the effects of zopiclone. Further investigation of this interaction is indicated, particularly as this drug would be of value in zopiclone overdose.

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