who had complications while in hospital and those who required readmission for treatment. We would accept that patients with major complications would come back to hospital but some, who received treatment in casualty departments, other nearby hospitals or from their GPs may not have been readmitted. The authors do not make it clear but it seems that they do not include data from postoperative outpatient review. It is a large assumption that all complications were recorded and, consequently, the reported complication rates are almost certainly too low.

They state that there were significant differences in complications between the study periods, but what are they comparing? Different types of complication cannot be compared between the groups. For example, it would be wrong to compare groin lymphatic fistula in the first period with femoral vein injury in the second. It appears they are claiming that the rate of thromboembolism between the two periods is different and this may be due to a change from crêpe bandaging to the use of higher grade compression bandaging, antiembolism stockings and earlier mobilisation. If this is their comparison, there are four patients with proven deep vein thrombosis (DVT) or pulmonary embolism (PE) in the first study period and one in the second. The authors have used the χ^2 test to perform an analysis of these data. The formula for χ^2 uses both the 'observed' frequencies (ie the number of actual complications recorded) and the 'expected' frequencies which here represent the number of complications that would have occurred if there was no effect of the instituted management changes upon outcome (ie if the null hypothesis was true). From the presented data, the expected values for 'proven DVT or PE' are calculated at less than 5 in both groups and the χ^2 test is then inappropriate *(2)*. Rather, a two-tailed Fisher's exact test should be used *(2)*. This shows that there is no significant difference between the study periods ($P=0.65$). Furthermore, we are told nothing about other important risk factors in the five patients with thromboembolism, such as previous episodes, nor whether subcutaneous heparin prophylaxis was ever used.

We have performed a computer-assisted statistical analysis (SPSS for Windows version 6.1) of all the possible combinations of differences in complication rates between patients in the first and second study periods. Whichever way the data is examined, using χ^2 or Fisher's exact tests where appropriate, it is not possible to show any significant differences and we believe it unjustified for the authors to claim this.

They rightly recommend appropriate training and supervision of juniors, but do not say how many of the operations carried out by juniors were supervised. It would be interesting to know how many supervised and unsupervised procedures had been previously performed by the SHO who injured the femoral vein. Presumably the injury occurred in a unsupervised case. Although it is conventional wisdom that such mishaps are usually the work of inexperienced trainees others have shown that consultants are just as much to blame *(3)*.

It is incumbent upon authors to highlight potential deficiencies in their methods and to avoid statistical errors that lead to unjustified conclusions. This paper is yet another example of findings from audit being inappropriately substituted for those from properly conducted research *(4)*.

ANDREW MAW FRCS[1]
Lecturer in Surgery
ASHOK HANDA FRCS FRCSEd[2]
Clinical Research Fellow
RICHARD CORBETT MChir FRCS[3]
Consultant Surgeon
[1] Academic Department of Surgery, St Bartholomew's and The Royal London Hospital School of Medicine and Dentistry
[2] University Department of Surgery, Royal Free Hospital, London
[3] The Princess Royal Hospital, Haywards Heath

References

1 Brennan P, Croft P. Interpreting the results of observational research: chance is not such a fine thing. *BMJ* 1994; **309**: 727–30.
2 Altmann DG. *Practical Statistics for Medical Research.* London: Chapman & Hall, 1991: 229–77.
3 Tennant WG, Ruckley CV. Medicolegal action following treatment for varicose veins. *Br J Surg* 1996; **83**: 291–2.
4 Yentis SM. Bad research is not audit. *Lancet* 1996; **347**: 330.

Audit of pain after nasal surgery

I was interested to read the recent article by Thomas *et al.* (*Annals*, July 1996, vol 78, p380) on the audit of pain after nasal surgery. They obtained such good results that they were encouraged to alter their departmental protocol immediately. There was, however, apparently no anaesthetic input into an audit which involved pain in the postoperative period. This time is affected by the perioperative administration of analgesia. It is quite possible that analgesics, eg morphine, given by the anaesthetist could affect the 2 h pain scores given on the visual analogue scales, both when the nasal packs are in place and during their removal. Thus, differing anaesthetic practice could alter the pain scores and influence audit results. Co-operation with the anaesthetists involved is essential to ensure a standard anaesthetic technique and standard use of analgesia in conjunction with the surgical use of cocaine and prilocaine. The use of postoperative analgesia on the ward may also influence the results obtained. It concerned me that some patients had high scores on the visual analogue pain scale; there is no mention of supplementary postoperative analgesia.

V J WEBSTER MB ChB
Senior House Officer in Anaesthesia
Doncaster Royal Infirmary
Doncaster

An effective shield for free: pulsed lavage in total knee replacement

The use of the blister packaging of the femoral component of a knee replacement as a pulsed lavage shield is not a new technique as suggested by Witte *et al.* (*Annals*, July 1996, vol 78, p383). This was demonstrated to me by, I think, the Johnson and Johnson representative when I first started as an orthopaedic registrar in 1992 and it is in fairly common use among the trainees and consultants on the west London circuits who employ pulsed lavage. I am sure it is also widely used in other parts of the orthopaedic world, but for those who have not yet tried the technique, it is effective. It is important that the authors have reminded us that the underlying reason for employing the