economic deprivation are highly correlated with the proportion of the population from ethnic minorities. Ethnic group is also a strong risk factor for tuberculosis. As such, ethnic group is potentially an important confounder of the relation between tuberculosis and social deprivation, which was not accounted for in this analysis. The authors state that the increase in rates of tuberculosis in Britain is confined to the most socially deprived areas. This is potentially misleading because the geographical distribution of the increase could reflect the ethnic composition of the populations rather than population levels of social deprivation.

The analysis of local data shows that the number of notifications increased in the groups classified as white or of Indian subcontinent or West Indian origin. The assertion that the sizes of these groups in Hackney remained stable over the study period is said to be based on comparison of census data for 1981 and 1991. The 1991 census was the first to include ethnic group as a variable, so it is unclear how changes in the sizes of the populations were ascertained.

Nearly half of the increase in notifications in Hackney occurred among newly established refugee and immigrant populations. Estimates of the size of these populations are likely to be highly inaccurate. Newly established populations are said by the authors to be unusually large in Hackney even when compared with those in other socioeconomically deprived boroughs. For this reason, immigration is thought likely to have played only a small part in the national increase. As we are not told the numbers and ethnic mix of refugees in other socioeconomically deprived districts it is difficult to predict how important their contribution to the increase in notifications may be.

We believe that caution should be used in interpreting the results of the national ecological study and in extrapolating the results from Hackney to other socioeconomically deprived districts. This analysis has provided valuable information about the epidemiology of tuberculosis in Hackney, but different factors may be important in other districts.

A HAYWARD
Research registrar

J BRUCE
Senior statistician

D KUMAR
Research registrar

A CHARLETT
Senior statistician

Public Health Laboratory Service,
Communicable Disease Surveillance Centre,
London NW9 5EQ

1 Bhatti N, Law MR, Morris JK, Halliday R, Moore-Gillon J.
Increasing incidence of tuberculosis in England and Wales: a
study of the likely causes. *BMJ* 1995;310:967-9. (15 April.)

The 10 commandments of accident and emergency radiology

EDITOR,—A H Troughton and I Kendall¹ and T F Beattie and colleagues² comment on our article giving 10 commandments of accident and emergency radiology.³ As we stated in the introduction, the article was written for inexperienced senior house officers working in accident and emergency departments. The authors of the letters either did not read this or are unaware that, commonly, inexperienced accident and emergency doctors work without direct supervision.⁴

In answer to Troughton and Kendall's comments, we wish to point out the following. Rules 1, 2, and 3 emphasise the need to assess the patient first and order a radiograph only if an underlying abnormality is considered. Radiographs of joints with long bones should not be obtained if the joints are clinically normal. The article states the need to have "an accessible library of normal radiographs in the accident and emergency department as well as reference books that show normal variants."

Radiographs must be obtained before foreign bodies are removed because only in this way can the most appropriate anaesthetic and operative procedure be chosen.

In contrast with what Beattie and colleagues imply, the Royal College of Radiologists' recommendations state, "The one possible exception [for comparison views] is the opposite elbow when there are strong clinical signs of fracture with no radiological evidence and no available radiologist." No further radiographs are required while the patient is in the x ray department if the initial radiograph is normal or obviously abnormal. Rule 9 emphasises that inexperienced doctors should seek experienced advice when a radiograph does not look quite right but no specific diagnosis can be made. Beattie and colleagues' statement that "the diagnosis of subtle fractures around the elbow joint will not necessarily change the clinical management" is a dangerous concept for inexperienced senior house officers. In our experience this can be interpreted as, "If you do not see an abnormality it is not important." Both statements rely on an experienced clinician viewing the radiograph.

Owing to lack of space, several points that we wished to incorporate in our article had to be deleted. They included the comment that variation in the alignment of joints is important to note (when comparing two sides) because it may obscure abnormalities. The subsequent publication, the *ABC of Emergency Radiology*, includes this comment.⁵

R TOUQUET
Consultant in accident and
emergency medicine

St Mary's Hospital,
London W2 1NY

P DRISCOLL
Senior lecturer in accident and
emergency medicine

D NICHOLSON
Consultant in radiology

Hope Hospital,
Salford M6 8HD

- 1 Troughton A, Kendall I. Accident and emergency radiology. *BMJ* 1995;310:1605. (17 June.)
- 2 Beattie TF, Hendry M, McPhillips M, MacKenzie S. Accident and emergency radiology. *BMJ* 1995;310:1605. (17 June.)
- 3 Touquet R, Driscoll P, Nicholson D. Teaching in accident and emergency medicine: 10 commandments of accident and emergency radiology. *BMJ* 1995;310:642-5. (11 March.)
- 4 National Audit Office. *NHS accident and emergency departments in England*. London: HMSO, 1992.
- 5 Nicholson D, Driscoll P. *ABC of emergency radiology*. London: BMJ Publishing Group, 1995.

Differences in mortality after fracture of hip

Doubt remains over anticoagulant prophylaxis for deep venous thrombosis

EDITOR,—Anticoagulant prophylaxis may reduce the incidence of venous thromboembolism in hospital, but C J Todd and colleagues' study does not dispel doubts about its overall effect on mortality.¹ There was no significant difference between the survival rate at 90 days (82.2% at the four hospitals that routinely gave such prophylaxis (to 79.5% of patients)) and 82.0% at the other four hospitals (prophylaxis given to only 16.1%) despite the fact that 62.3% of patients in the former hospitals had surgery within 24 hours (favourable to outcome) compared with only 50% in the latter ($P < 0.01$, χ^2 test). Hospital 4, which gave prophylaxis to the highest proportion of patients (91%), showed joint lowest 90 day survival (76%). In hospitals 5 and 8, in which only 10.5% of patients were given prophylaxis, 83% survived despite 4% dying of pulmonary embolism. None of the 13 patients diagnosed at necropsy as having fatal embolism was taking anticoagulants, but we wonder how many of these patients had recognised contraindications,² especially other conditions

rendering them particularly prone to thromboembolism. Haematoma with subsequent infection is a worry with anticoagulants, and wound infection occurred in 9.8% (25/256) of patients in the hospitals that routinely gave anticoagulants compared with 4.9% (15/304) in the others ($P < 0.01$).

There is a danger of relying on anticoagulants in hospital and neglecting to teach patients and carers about mechanical prophylaxis, including postures to increase the velocity of femoral vein blood,³ the avoidance of bad postures, and the value of leg movements, since the risk of thrombosis continues after discharge from hospital.² Either infection or venous stasis would predispose to thromboembolism after discharge: did all 82 patients who died undergo necropsy?

Another factor that can affect outcome is the packed cell volume: lower values indicate lower viscosity (a value ≤ 0.33 discourages thromboembolism⁴) and better tissue oxygenation than at higher values. Thus it would be interesting to know whether thromboembolism and survival correlated with differences in policy concerning transfusion of red cells or haemodilution. The report by the Thromboembolic Risk Factors Consensus Group can be criticised for omitting to mention posture or packed cell volume.⁵ The decision whether to give anticoagulant treatment to a patient should take into account many factors, including the risk of haemorrhage as well as the risk of thrombosis. For many patients, mechanical methods to increase the peak velocity of femoral vein blood combined with haemodilution (for example, not replacing red cells lost) could be safer overall, especially if monitored by routine post-operative venography or colour-duplex scans and if clinically important thromboses are treated. Raising the legs moderately can enhance the blood velocity³ and is easily continued after discharge. We agree that more research is needed, particularly large scale trials of alternatives to anticoagulant treatment.

J CALDER
Senior house officer in surgery

E CASHBY
Consultant general surgeon

St Richard's Hospital,
Chichester PO19 4SE

- 1 Todd CJ, Freeman CJ, Camilleri-Ferrante C, Palmer CR, Hyder A, Laxton CE, et al. Differences in mortality after fracture of hip: the East Anglian audit. *BMJ* 1995;310:904-8. (8 April.)
- 2 Kakkar VV, Cohen AT, Edmondson RA, Phillips MJ, Cooper DJ, Das SK, et al. Low molecular weight versus standard heparin for prevention of venous thromboembolism after major abdominal surgery. *Lancet* 1993;341:259-64.
- 3 Ashby EC, Ashford NS, Campbell MJ. Posture, blood velocity in common femoral vein, and prophylaxis of venous thromboembolism. *Lancet* 1995;345:319-21.
- 4 Duruble M. Prophylaxie des thromboses veineuses profondes. *Phlebologie* 1982;35:143-72.
- 5 Thromboembolic Risk Factors (THRIFT) Consensus Group. Risk of and prophylaxis for venous thromboembolism in hospital patients. *BMJ* 1992;305:567-74.

Casemix factors may not have been considered sufficiently

EDITOR,—The results of C J Todd and colleagues' audit report on 90 day mortality after admission to hospitals in East Anglia with fractured hip seem to suggest an impressive survival advantage if a patient is admitted to one particular hospital (hospital 6).¹ The authors state that this is probably due to factors associated with the care provided at that hospital.

How can the authors be sure that other casemix factors did not account for the observed differences in 90 day mortality? The favourable "process" measures reported for hospital 6 (low rates of pressure sores and wound infections and the early mobilisation of patients) may have reflected excellent care but could equally have been a result of less sick patients being admitted in the first place and this not being detected with the casemix measures