

modest alkalosis causing vasoconstriction (pH about 7.4-7.5) this difference increased to 0.53 kPa (unpublished observations). Forster *et al* have found unsatisfactory correlation between arterial and arteriased venous samples for partial pressure of oxygen.⁴

Capillary or venous sampling to estimate arterial blood gas pressure has been used for many years,²⁻⁴ and several other indirect methods have also been used.⁵ While some results have been encouraging, the conclusion that such methods should become routine is probably still premature. If knowledge of the arterial blood gas pressures is important in determining management in potentially life threatening conditions then the arterial blood gas pressures should be measured.

JAIDEEP J PANDIT
Lecturer in medicine

St Hugh's College,
Oxford OX2 6LE

- 1 Dar K, Williams T, Aitken R, Woods KL, Fletcher S. Arterial versus capillary sampling for analysing blood gas pressures. *BMJ* 1995;310:24-5. (7 January.)
- 2 Cooper EA, Smith H. Indirect estimation of arterial P_{CO₂}. *Anaesthesia* 1961;16:445.
- 3 Knill RL, Clement JL. Ventilatory responses to acute metabolic acidemia in humans awake, sedated, and anaesthetised with halothane. *Anesthesiology* 1985;62:745-53.
- 4 Forster HV, Dempsey JA, Thomson J, Vidruk E, Dopico GA. Estimation of arterial P_{O₂}, P_{CO₂}, pH and lactate from arteriased venous blood. *J Appl Physiol* 1972;32:134-7.
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Capillary sampling is routine in Germany

EDITOR.—Capillary blood sampling for measurement of blood gas pressures and pH, described by Khavar Dar and colleagues, has been normal practice in Germany for many years.¹ Arterial puncture is performed only when an indwelling line is needed. Use of a scalpel blade is unnecessary and dangerous. A blood lancet (Monojector lancet device, Sherwood Medical) provides enough blood for the capillary tube and can be used on the finger as well as the ear lobe.

A BERNHARDT
Senior house officer in anaesthetics

Kettering General Hospital NHS Trust,
Kettering NN16 8UZ

- 1 Dar K, Williams T, Aitken R, Woods KL, Fletcher S. Arterial versus capillary sampling for analysing blood gas pressures. *BMJ* 1995;310:24-5. (7 January.)

Mount Everest study supports use of capillary samples

EDITOR.—Like Khavar Dar and colleagues, we have investigated the differences between arterial and capillary estimations of blood gas pressures, although under different circumstances.¹ We used a blood gas analyser (Ciba Corning 248) to measure blood gas pressures in 52 members of the 1994 British Mount Everest medical expedition at Mount Everest base camp (altitude 5300 m) in Nepal. Capillary samples were preferred because of our concern about the hazards of arterial puncture. To compare arterial and capillary values, four researchers also underwent arterial puncture. Arterial samples were taken without local anaesthesia from the radial artery with a 25 gauge needle; capillary samples were taken by puncture of the medial aspect of the thumb, which had been warmed in a glove or by holding it in the axilla. Blood gas pressures and acid-base values were compared with a paired *t* test.

Differences (arterial minus capillary) were non-significant for partial pressures of carbon dioxide (-0.59 kPa (95% confidence interval -1.63 to 0.16 kPa); P=0.09) and oxygen (0.215 kPa (-0.8 to 1.35 kPa); P=0.54) as well as pH (-0.0065 (-0.08 to 0.0055); P=0.66). Capillary standard bicarbonate concentration was significantly higher than the arterial concentration (-2.5 mmol/l

(-4.31 to -0.84 mmol/l; P=0.018). There were no complications from the blood sampling, and, in contrast to Dar and colleagues' finding, little discomfort was reported with arterial puncture, perhaps because of the smaller diameter needle used. Although the numbers are small, our data support the use of capillary blood sampling in patients and research subjects, both in wards and on mountains.

PETER W BARRY
Clinical research fellow

Department of Child Health,
University of Leicester,
Leicester Royal Infirmary,
PO Box 65,
Leicester LE2 7LX

NICHOLAS P MASON
Registrar in anaesthetics

Royal Hallamshire Hospital,
Sheffield S10 2JF

DAVID COLLIER
Research coordinator,
British Mount Everest medical expedition 1994

Department of Clinical Pharmacology,
St Bartholomew's Hospital,
London EC1A 7BE

- 1 Dar K, Williams T, Aitken R, Woods KL, Fletcher S. Arterial versus capillary sampling for analysing blood gas pressures. *BMJ* 1995;310:24-5. (7 January.)

Geographical relations between patients and general practitioners

EDITOR.—Scott A Murray and colleagues draw attention to the geographical relations between patients and general practitioners in an urban area.¹ In rural areas lists are low, travel is a major factor for patients and doctors, and there is the additional, and potentially perverse, factor of rural practice units. Remuneration heavily based on capitation penalises rural practitioners, and rural practice units are intended to offset this partially. Unfortunately, no worthwhile limits are placed on the distribution of these payments, with the result that urban practices may be tempted to extend their range of operations to attract or retain rural practice units. Likewise rural practices may be tempted to extend their ranges to maintain numbers of patients in the face of urban encroachment. This is plainly self defeating, jeopardises standards of care, and precipitates ever more frenetic work rates for the practitioners.

A balance must be struck between safeguarding standards of care, the freedom of patients and doctors to choose each other, and the continued viability of rural practices. I propose the following amendments to the regulations. They do not prevent doctors and patients from choosing each other but do encourage reevaluation of the relationship and the motives in maintaining it.

Firstly, no practice whose main premises are in a town with a population of over 8000 should be eligible for rural practice units.

Secondly, rural practice units should be payable from the existing 3 mile range, in 1 mile increments, up to but not beyond a point 3 miles from the next practice. Patients beyond this limit should neither attract payments nor count toward the 20% threshold for payment.

Thirdly, patients living in areas that are beyond the limits of a neighbouring practice's area should be offered an interview with the independent medical adviser or community health council in order to determine that their preferences and needs are being adequately met and that they are fully acquainted with the options open to them.

The independent medical advisers of family health services authorities may care to speculate on practitioners' ability to fulfil their contractual obligations to particularly far flung patients. It is flattering to have one's ego stroked by patients

asking to remain registered when they move much closer to another practice. It is treading a path paved with good intentions and obscured by a fog of folly to accede.

Murray and colleagues reflect my view: "The enthusiastic recommendation of a neighbouring practice may allow some patients to feel that they will have continuity of care despite changing surgeries." I have every confidence in my neighbouring practices and do not hesitate to direct patients to them when they move. Having patients and doctors crossing on the road as they travel to see each other in adjacent manors makes no sense at all, especially in a rural area.

STEVEN FORD
General practitioner

Haydon Bridge,
Northumberland NE47 6HJ

- 1 Murray S, Graham L, Dlugolecka M. How many general practitioners for 1433 patients? *BMJ* 1995;310:100. (14 January.)

Paracetamol and self poisoning

EDITOR.—Keith Hawton and colleagues' unsubstantiated comment that "prevention of fatal self poisoning with paracetamol is now an urgent issue" is not supported by information on fatal self poisoning.¹ In England and Wales in 1992 the number of deaths due to overdoses of medicines was 1951, of which 144 were due to paracetamol poisoning. The number of deaths due to poisoning with analgesics obtained over the counter, including paracetamol, has been declining steadily, from 322 in 1975 to 191 in 1992 (the latest year for which full data are available). Furthermore, the number of deaths due to paracetamol poisoning fell in 1991 and 1992 (Office of Population Censuses and Surveys, personal communication).² Altogether 116 of the 144 deaths due to paracetamol poisoning were probably suicides; while paracetamol is by far the most widely used medicine for therapeutic purposes in Britain, it is responsible for fewer than 3% of all suicides (Office of Population Censuses and Surveys, personal communication).²

Any preventable death is cause for concern, but it is important not to exaggerate the importance of paracetamol poisoning in the overall context of fatal overdoses of medicines and suicide. It is especially important that perceived urgency should not lead to hasty attempts to do something—particularly something as speculative as the measures offered by Hawton and colleagues—at the expense of an analgesic that contributes much to the safe day to day management of pain by many millions of people.

JOHN B SPOONER
Chairman

Paracetamol Advisory Group,
Paracetamol Information Centre,
London SE1 2ND

- 1 Hawton K, Ware C, Mistry H, Hewitt J, Kingsbury S, Roberts D, *et al*. Why patients choose paracetamol for self poisoning and their knowledge of its dangers. *BMJ* 1995;310:164. (21 January.)
- 2 Office of Population Censuses and Surveys. *Mortality statistics: injury and poisoning 1992*. London: HMSO, 1994: table 10. (Series DH4 No 18.)

Preventing suicide

EDITOR.—We agree with Greg Wilkinson that additional resources are required for the identification and treatment of people with mental illness.¹ Australian statistics show a high incidence of suicide among people with mental illness. These same statistics, though, refute the contention that there is "no good evidence of benefit from such commonly cited measures as seeking to influence the means available." Even a cursory examination