bearing-down reflex had been abolished, because these mothers exhibited the least accumulation of metabolic acidosis (those epidural mothers who retained the bearing-down reflex were rather more acidotic because, presumably, of the greater exertion involved).³ The important point, however, is that at each designated duration of the second stage the "epidural" infants were less acidotic at delivery than were the "non-epidural" infants.

It appears from the reports of their studies^{4,5} that Professor Derom and his colleagues found no significant difference in the acid-base state of neonates referable to epidural analgesia, but they did not introduce into their analysis the duration of the second stage as a variable factor. I would contend that in the circumstances under review it is the contrast between the absolute values of neonatal acidosis which is of importance, and not the difference between the values of feto-maternal gradients.

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¹ Pearson, J F, and Davies, P, *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 1974, **81**, 971.

² Pearson, J F, and Davies, P, *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 1974, **81**, 975.

³ Pearson, J F, and Davies, P, *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 1973, **80**, 218.

⁴ Thiery, M, et al, *European Journal of Obstetrics, Gynaecology and Reproductive Medicine*, 1977, **7**, 181.

⁵ Vroman, S, et al, *European Journal of Obstetrics, Gynaecology and Reproductive Medicine*, 1977, **7**, 159.

Analgesia in terminal malignant disease

SIR,—Drs C Drinkwater and R G Twycross (5 May, p 1201) gave a pertinent account of how good analgesia can be achieved by the oral route in nearly all cases of advanced malignant disease so long as there is undeviating adherence to a four-hourly regimen and a more venturesome approach to the dosage than most of us have been brought up to expect. Our experience at Michael Sobell House certainly bears this out; and we likewise find no place for the traditional *BNF* Brompton Mixture, which lacks flexibility. It is simpler to vary the required dose of morphine or diamorphine in a standard 10 ml of chloroform water.

There remain, however, a small number of patients who find relief only from injections, usually because of intractable vomiting, severe dysphagia, or sometimes simply because no other method seems to work. Frequent injections for any length of time, however, can themselves be an ordeal, especially for a patient who has already lost much weight.

The Pye syringe driver designed by Dr B M Wright for the Medical Research Council overcomes these problems by providing a means of giving a continuous subcutaneous or intramuscular infusion of morphine or diamorphine over a prolonged period (our longest was six weeks with only one change of injection site). The instrument is simple to use, effective, reliable, foolproof, and, being small and lightweight, allows complete mobility, since it is carried in a fabric arm holster. After an initial intramuscular loading dose has been assessed and given, steady optimum analgesia is maintained, free from the peaks and troughs which follow intermittent injections. The rate of administration may be

readily varied by the attendant but not the patient. We have found it convenient to reload once daily (a great boon in domiciliary practice), and total doses have varied from 50 mg to 360 mg of diamorphine in 24 hours.

The patient receiving 360 mg daily suffered exceptional pain from a bronchial carcinoma and was also our longest user. He remained ambulant to the last day of his life.

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Relief of postoperative pain

SIR,—We have been following the correspondence on this subject with interest because for the last six months we have been using slow infusion of pethidine for this purpose. Our procedure is so simple that, although our observations are uncontrolled, we think they are sufficiently promising to justify a brief preliminary report.

We give 1.3 mg/kg in 10 ml by slow intramuscular infusion over an eight-hour period, using a Pye syringe driver, so that even if through some mischance the whole dose were injected at once it would have little more effect than a normal four-hourly dose of 1 mg/kg. We do not therefore have to worry about respiratory depression or stop the infusion during sleep, as suggested by Scott.¹ The infusion is started as soon as the patient leaves the theatre, so that by the time full consciousness returns the blood concentration has reached an effective level.

The evidence for its effectiveness is that none of the 12 patients so far treated has complained of serious pain and most have been sleepy throughout the infusion. The infusions have been given only for the first eight hours after operation and no attempt has been made to vary the rate of infusion according to the patient's response, but this could very easily be done. We feel that this procedure is so simple and safe that it is suitable for use by nurses and that the more complex and labour-intensive systems advocated by Scott,¹ Fry,² Church (14 April, p 977), and Rosen and Vickers (12 May, p 1278) are probably unnecessary, though demand analgesia may well be desirable in obstetrics.

A fully controlled trial of the method, carried on for longer periods and including varying the rate of infusion according to the patient's requirements, is in progress and the results will be reported in due course.

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¹ Scott, J S, *American Journal of Obstetrics and Gynaecology*, 1970, **106**, 959.

² Fry, E N S, and Desphande, S, *British Medical Journal*, 1977, **2**, 870.

SIR,—In reminding us of the efficacy of self-administered narcotics for the treatment of pain in labour I think that Drs M Rosen and Professor M D Vickers (12 May, p 1278) may be mistaken in extending their experience to the treatment of postoperative pain.

The patients on whom they, and others, have based their experience are an entirely different group from those patients suffering from postoperative pain. The former are fit,

young, rational women experiencing intermittent pain, the interpretation of which is subject to an unpredictable psychological overlay. The postoperative patient—particularly the one for whom severe pain may increase morbidity—is in an older age group undergoing a stressful event at an age when he is less well equipped, physiologically, to cope with this stress. Psychologically, however, he may have considerably more resolve than the younger group. For these patients a self-triggered analgesic regimen would seem inappropriate, particularly in the immediate postoperative period, frequently a time of relative confusion and non-cooperation fuelled by postoperative hypoxia, cardiovascular instability, and inevitable polypharmacy. I have my doubts whether many of them could rationalise sufficiently to manage their own pain relief. Furthermore, the self-regulation technique must lead to swinging blood levels of analgesic similar to the intramuscular route, although of course the amplitude will be smaller.

I was therefore particularly interested to read that Dr Rosen and Dr Vickers are using a patient demand device for postoperative patients and that they have found that demand is reduced quickly over the first 24 hours. In my experience postoperative pain increases during the first 12 hours, then remains steady for a further 12 hours, and only starts to decrease later the second day. I put this down to the elimination of residual effects of anaesthesia, to wound oedema, and to early mobilisation. Hence I make provision for at least 36 hours' analgesia. Dr Rosen and Professor Vickers point out that this may lead to overkill and overdosage—quoting two cases from my paper (14 April, p 977). These two patients were, as I stated, receiving morphine 0.03 mg/kg/hour and not pethidine 0.3 mg/kg/hour; the cases occurred within four hours of returning to the ward and were spotted early by the nursing staff when the respiratory rate reached 10 per minute. I have used pethidine 0.3 mg/kg/hour in over 500 cases and overdosage has not occurred in any of them.

I would also add that although the technique I described was devised and first used in Australia it appears to work equally well in this country with a matching enthusiasm from the nursing staff. Finally, I know we must all swim with developments in microelectronic technology, but human contact cannot be bad and it is that too which is provided by close supervision from the nurses.

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Seat-belt legislation

SIR,—It is to be regretted that the Government has declared that it has no plans to introduce a new Bill on the compulsory wearing of seat belts (announced in a written answer in the Commons on 25 May 1979). This decision appears to have been taken without any further serious consultation with interested parties, either pro or con.

It is now up to the BMA and the Royal Colleges of Surgeons to take this matter up at the highest level in Government. The possibilities of saving some 1000 lives and 10 000 serious injuries per annum are not to be trifled with on the grounds that seat-belt legislation