Adams has on another occasion described the occurrence of respiratory arrest 20 min after the administration of papaveretum in the post-operative period. I never use opiate pre-medication. In two of three cases in which respiratory arrest has occurred in patients to whom I have given fentanyl 25 µg/kg it has occurred 20 min after the administration of papaveretum, given in the postoperative period merely because the nursing staff had observed two consecutive stable blood pressure and pulse rate recordings.

If it is desired to use higher dose levels of potent narcotic analgesics to achieve "response-free" anaesthesia it is essential that we abandon the traditionalistic attitude to pre-medication on the basis. "Why should I change, it is what I have always used" for the safety of the patient, at the same time re-establishing clearly the criteria upon which the actual administration of postoperative analgesics should be based.

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Shoes for growing feet

SIR,—I would like to draw attention to the difficulties that parents face when they are trying to buy suitable shoes for their children.

A 9½-year-old girl was brought to me recently complaining of pain in her toes. She had relatively large feet, size 2½, and very broad. The shoes that she was wearing had a strap and buckle and were well made. However, the heel was 1 in (2.5 cm) high and sloping. When the girl wears her shoes her feet slide forward and the toes are crushed together. Indeed, the shape of the shoe looks nothing like the shape of the feet when they are out of the shoe. In discussion with her mother it became clear that the mother had spent a great deal of time and trouble looking for suitable shoes but that she had been unable to find any better than those shown to me.

I can personally confirm the difficulties which I have had finding suitable shoes for my 15-year-old daughter, whose school requires black, laced shoes. While I do not mind, indeed do not care, what she wears at parties. I insist on suitable shoes for normal wear. I have spent hours trekking from shop to shop looking for something suitable for her.

Is there no way that the medical profession can put pressure on shoe manufacturers to produce suitable shoes, stressing to them the deformities which can be produced in children by unsuitable footwear?

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Lactic acidosis, prostaglandin E₁, and colchicine

SIR,—You recently drew attention in a leading article (3 December, p 1436) to the dangers of phenformin-induced lactic acidosis. We have shown in a rat vascular preparation that phenformin stimulates the synthesis of a substance with the characteristics of prostaglandin (PG) E₁. We suggest that this offers an approach to the understanding of the lactic acidosis and to a new form of therapy. PGE₁ in the rat vascular preparation appears to block the effects of thromboxane (TX) A₂.¹ The similar effect of PGE₁ on TXA₂ actions in

platelets is well known.² Imidazole, an inhibitor of TXA₂ synthesis,³ prevents the conversion of pyruvate to acetyl-coenzyme A and diverts it to lactate instead.⁴ We have suggested that TXA₂ may be the key regulator of glycolysis and may be necessary for the oxidative metabolism of pyruvate.⁶ In its absence pyruvate seems to be converted to lactate. Phenformin may cause lactic acidosis because the PGE₁ whose synthesis it stimulates interferes with TXA₂ action.

If this is so then a stimulator of TXA₂ synthesis should reduce lactate formation. We have found that colchicine has the characteristics of a potent TXA₂ synthetase stimulator. Colchicine may be helpful in reducing lactic acid levels. Reduction of lactic acid production by leucocytes in inflamed joints is, of course, believed to be its mechanism of action in gout.⁷

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¹ Horrobin, D F, *et al*, *Canadian Journal of Neurological Sciences*. In press.

² Kernoff, P B A, *et al*, *British Medical Journal*, 1977, **2**, 1441.

³ Moncada, S, *et al*, *Prostaglandins*, 1977, **13**, 611.

⁴ Rossi, E C, *Blood*, 1967, **30**, 758.

⁵ Rossi, E C, *Thrombosis et Diathesis Haemorrhagica*, 1968, **19**, 53.

⁶ Horrobin, D F, *Prostaglandins: Physiology, Pharmacology and Clinical Significance*. Montreal, Eden Press. In press.

⁷ Malawista, S E, *Arthritis and Rheumatism*, 1968, **11**, 191.

Fluids for parenteral nutrition

SIR,—I read with interest the letter from Mr R C Smith and others (18 February, p 440) concerning the premixing of parenteral nutrition fluids within the hospital pharmacy. Their system does, however, suffer from three distinct disadvantages: (1) it is going to put a very heavy work load on the pharmacy department; (2) cost; and (3) if you wish to give a high-energy, low-volume isotonic, fat emulsion you must revert back to a multibottle system as amino-acids, carbohydrates, and other constituents of parenteral feeds are incompatible with these fat emulsions.

At this hospital we operate a 24-h intravenous additive service from our pharmacy department and in that service we have now included the setting up of parenteral nutrition regimens. We normally set up a three-bottle system of amino-acids, carbohydrate, and fat emulsion. Setting up the system takes place under full aseptic conditions under a laminar flow hood and includes the introduction of airways and giving sets to the bottles and the connection of the giving sets to a Y adapter. Any additives that have to be included are all added at this stage completely aseptically. The system is then taken up to the ward, explained to the nursing staff, and primed ready for them to connect to the patient.

The benefits of this system are that (1) all additives, giving sets, and airways are introduced into the containers under aseptic conditions, so the chances of bacterial contamination and sepsis are absolutely minimal; and (2) the system is set up every 24 h, again reducing the risk of bacterial growth. As it takes only about 20 min to set the system up and 5 min to prime it the cost in terms of labour is very small and the only pieces of equipment used are sterile hoods, masks, gowns, and gloves.

In conclusion, although our system uses multiple giving sets, by carefully explaining to the nursing staff how to set the drip rates we have had few problems. I feel the service that we operate from our pharmacy department has all the advantages of the system set up by Mr Smith and his colleagues but in addition the small work load associated with our system lends itself to be set up in any hospital with a pharmacy department.

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SIR,—Systems for provision of the nutrients required for 24 hours' intravenous feeding in a single sterile container are being developed in a number of hospitals. Mr R C Smith and his colleagues in Cardiff (18 February, p 440) have used the bottle container, while Powell-Tuck and Farwell at St Mark's Hospital, London, and ourselves have preferred the collapsible sterile plastic bag of 1 or 3 litre capacity (Baxter/Travenol). The plastic bag has the advantage that solution can be administered to the patient without the need for an airway to vent the container. The bag is presented to the pharmacy with sterile transfer set attached and facilitates the aseptic transfer of ingredients for the nutrient solution.

The letter from the Cardiff group gives the impression that any additives may be included in the bulk feeding regimen. While many electrolytes, vitamins, and trace elements can be included, a number of incompatibilities have been noted.¹ There may be particular problems with calcium salts and phosphate in the same solution and experience with the compatibility of fat emulsions is limited. More information and research on the compatibility of ingredients in these complex mixtures are required.

The use of intravenous feeding mixtures prepared in the pharmacy can simplify complicated feeding regimens and I agree with the conclusions of Mr Smith and his colleagues. The lessons learnt in adult practice need to be applied to the feeding of infants and neonates, where complexity of treatment may mean that commencement of intravenous feeding is delayed beyond the optimum time.

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¹ Giovanoni, R, in *Total Parenteral Nutrition*, ed J E Fisher, p 27. Boston, Little, Brown, 1976.

² Burke, A, in *Symposium on Total Parenteral Nutrition*, p 175. Chicago, American Medical Association, 1972.

Henry VIII and the NHS

SIR,—Dr J S H Lodge (11 February, p 370) submits historically inaccurate reasons for the closure of the monastic hospital at Tintern Abbey in the 16th century. The overriding cause was that at the dissolution the establishment at Tintern had dwindled to only 13 monks and an abbot compared with 80 monks in the abbey's heyday.¹ At the adjacent Abbey Cwmhir, in Radnorshire, there were only three monks left in 1536 out of an original establishment of 60.²

It follows that the closure of the hospital at Tintern was essentially due to staff shortages,