without any conversion factor. No difficulties have been encountered in practice with very small doses when suitably calibrated syringes are used, except in the very rare cases when less than 4 units are prescribed. Plastic U-100 syringes are already available and, with care, can be used repeatedly. They cannot at present be obtained through the NHS on FP10 forms, but plastic syringes can even now be prescribed by hospital doctors.

To change to U-100 as the sole strength of insulin will require much planning and organisation and an intensive educational campaign is an essential part. A co-ordinating officer will need to be appointed to organise the many aspects of the changeover and will be supported by a small advisory committee representing the professions, insulin manufacturers, syringe manufacturers, pharmaceutical industry, and diabetic patients. The co-ordinator and the committee will enlist the support and patience of professional groups and diabetics, and will also draw on the considerable experience of colleagues in other countries who have already introduced U-100 insulin.

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Are breast-fed babies still getting a raw deal in hospital?

SIR,—We wholeheartedly endorse the sentiments expressed in your recent paper (13 October, p 891). Furthermore, we would like to elaborate on two points.

Despite its small quantities, colostrum is finely adapted to meet the needs of the newborn infant over the first days of life. It is a dynamic fluid whose composition alters daily. In a recent study (Verrier Jones, Serenyi, and Lister, unpublished data) we examined samples of colostrum on the third, fifth, seventh, and ninth days after birth (table).

The results show that there are progressive increases in fat and lactose, with a reduction in protein and mineral content. In addition, colostrum contains macrophages, which provide its cellular anti-infective properties. Indeed, colostrum has been aptly named "white

blood." Clearly, if an infant is to obtain optimum amounts of colostrum then he must be allowed to feed on demand.

We also wish to point out the fallacy of giving dextrose supplements instead of breast feeds to satisfy the infants' thirst. Studies¹ on breast-milk composition during a breast-feed show that after four to five minutes of feeding there is a steep rise in lipid content. The milk from the early part of the feed provides water and the later milk is richer in calories. Thus by taking a short breast-feed the thirsty infant can use the early milk for satisfying his or her water requirements.

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¹ Crawford, M A, *et al*, *Current Medical Research Opinion*, 1976, 4, suppl 1, p 33.

SIR,—I read the article "Are breast-fed babies still getting a raw deal in hospital?" (13 October, p 891) with interest because, as a midwife, I have spent many years helping women establish breast-feeding at home.

There are other aspects of the management of these breast-fed babies which would also contribute to their disadvantaged state. Sucking time was restricted to three minutes at the beginning—yet this hardly allows the let-down reflex to occur, let alone provides a nutritionally satisfactory feed. Although it is not specifically stated, the continued restriction of total sucking time to 10 minutes at each breast usually goes with this pattern of management.

I would question the practice of giving the breast-fed baby dextrose feeds instead of breast milk during the night. If the bottle-fed babies were to be controls, surely they should have been deprived of milk feeds in the same way?

The current practice of timing the frequency and duration of breasts feeds originated in this country in 1913, when Sir Frederick Truby King's teachings were first published.¹ Has not the time come for hospitals to stop interfering with a process which, in normal mothers and babies, is perfectly orchestrated?

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¹ Truby King, F, *Feeding and Care of the Baby*. London, Society for the Health of Women and Children, 1913.

A and E departments for children

SIR,—In the series of articles by your special correspondent on accident and emergency services, until the one on the staffing of

departments (3 November, p 1119) no mention has been made at all about the problem of children attending such departments. Where numbers are available the paediatric component of the work is from about 23% up to as high as 30% of the total attendances. Apart from medical and surgical conditions which bring them there, the complicated nature of many of the social conditions which are intermixed with these means that these are unlikely to be picked up or certainly unlikely to be dealt with adequately in the sort of atmosphere which applies to the average large accident and emergency department.

I wish that paediatricians would be much more forceful in seeing that the particular needs of such children are properly catered for. If it is not possible to have a paediatric accident and emergency department attached to a children's hospital, it surely should not be impossible in a big city to have one department which may run in parallel with an adult one but which has medical and nursing staff who have paediatric training and interest. Apart from the benefit to children, this would make it much easier to look into the particular problems of accidents and acute illnesses in childhood.

Although a period of paediatric training is included in the senior registrar's four-year programme, for the next few years it is likely that many if not most of the senior registrars will be appointed to consultant posts before they reach this stage and in consequence will have had no postgraduate experience in paediatrics.

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Antibiotic lavage for peritonitis

SIR,—Your recent leading article "Antibiotic lavage for peritonitis" (22 September, p 691) was a timely reminder of an important part of the treatment of patients with severe peritonitis. However, it was remarkable that you did not refer to *operative* antibiotic peritoneal lavage and instead directed attention to postoperative dialysis-type antibiotic peritoneal lavage exclusively. This latter method is highly labour intensive and not without complications, among which the most frequent is fluid and electrolyte overload and the most serious is intestinal fistulation from prolonged contact with large-diameter tube drains. In addition to these practical disadvantages, there is neither clinical nor experimental evidence that postoperative antibiotic peritoneal lavage is necessary after operative antibiotic peritoneal lavage.¹

The efficacy of large-volume, high-concentration operative antibiotic peritoneal lavage has been demonstrated most clearly in catastrophic experimental faecal peritonitis.² The very high survival rates which were achieved by this treatment are persuasive evidence that in clinical practice the combination of operative antibiotic peritoneal lavage and full-spectrum systemic antibiotic support will be adequate treatment for the majority of patients with even the most severe peritonitis. Postoperative antibiotic peritoneal lavage should be added to these simpler measures in the small group of patients in whom it is not possible to remove a potential source of reinfection of the peritoneal cavity.

Operative antibiotic peritoneal lavage is not a widely used technique. To some extent it was discredited by delayed recovery from neuromuscular blocking anaesthesia after aminoglycoside antibiotic lavage.³ Few surgeons considered

Changing composition of colostrum

	Day 3	Day 5	Day 7	Day 9
Total protein (g/l)	29	22	22	23
Whey protein (g/l)	14.68	9.34	9.92	10.31
Lactoferrin (g/l)	4.7	4.0	3.9	2.8
IgA (g/l)	0.82	0.47	0.43	0.36
Human albumin (g/l)	0.63	0.7	0.6	0.61
Fat (g/l)	25.1	28.5	37.1	35.3
Lactose (mmol/l)	59.3	58.3	66.0	67.0
Calcium (mmol/l)	7.4	9.9	8.2	7.4
Phosphate (mmol/l)	4.62	5.78	4.88	5.7
Sodium (mmol/l)	81.2	82.8	72.8	61.1
Potassium (mmol/l)	62.5	44	35.6	48.6

alternative antibiotics for operative lavage. Van Prohaska used oxytetracycline (1 g/l) and achieved low mortality rates and very low wound infection rates.⁴ To my knowledge Mr A B Matheson in Aberdeen has used tetracycline hydrochloride (1 g/l) since 1964 with subjectively impressive results. Bacterial resistance to tetracyclines is eliminated at these high concentrations.⁵⁻⁸

Personal experience with tetracycline hydrochloride operative peritoneal lavage (1 g/l) has been extensive. In recent years it has been supplemented routinely by full intravenous doses of gentamicin and clindamycin before, at, and after operation for five days irrespective of the source of peritonitis. The results in a series of 105 patients treated in this way will be reported elsewhere.⁹ Among these patients 30 were treated for perforated or gangrenous colon. There were two unrelated deaths, two related deaths, three minor wound infections (10%), and one pelvic abscess. The related deaths were the result of unnecessary risks—namely, failure to resect gross diverticular disease and anastomosis involving proximal unprepared colon with subsequent leakage. Twenty-six patients were treated for perforated or gangrenous small bowel or gall bladder. There were two unrelated deaths and three unavoidable related deaths, and there were no septic complications. The unavoidable related deaths were the result of late presentation with superior mesenteric arterial occlusion and massive gut infarction for which no procedure was practicable.

Mr M K Browne (20 October, p 1004-1005) has stated his results in a combined group of 33 patients with peritonitis of apparently similar origins treated with tauralin peritoneal lavage. The absence of mortality in his series is commendable but the wound infection rate is high (43%) and certainly does not justify his suggestion that "a return to the Listerian concept of antisepsis might be indicated." Indeed, on a cautionary note, one should reflect that the use of antiseptics in the peritoneal cavity during the Listerian era did much to discredit peritoneal lavage at that time.¹

Although successful surgery for peritonitis depends on many factors, even the most experienced surgeon will improve his overall results by the invariable use of large-volume, high-concentration operative peritoneal lavage with a broad-spectrum antibiotic of low toxicity, and will seldom have recourse to postoperative lavage.

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¹ Stewart, D J, *Antibiotic Peritoneal Lavage in the Treatment of Peritonitis*. ChM thesis, University of Aberdeen, 1978.

² Stewart, D J, and Matheson, N A, *British Journal of Surgery*, 1978, **65**, 57.

³ Kucers, A, and Bennett, N McK, in *The Use of Antibiotics*, 2nd edn, pp 178, 192, 234. London, Heinemann Medical, 1975.

⁴ Van Prohaska, J, *Surgery*, 1967, **62**, 77.

⁵ Steigbigel, N H, Reed, C W, and Finland, M, *American Journal of Medical Science*, 1968, **255**, 179.

⁶ Kislak, J W, *Journal of Infectious Disease*, 1972, **125**, 295.

⁷ Martin, W J, Gardner, M, and Washington, J A, *Antimicrobial Agents and Chemotherapy*, 1972, **1**, 148.

⁸ Leigh, D A, *British Medical Journal*, 1974, **2**, 225.

⁹ Stewart, D J, *Journal of the Royal College of Surgeons of Edinburgh*, in press.

Pyrexia and mebendazole

SIR,—I was interested in the report of Dr I M Murray-Lyon and Mr K W Reynolds (3 November, p 1111) on pyrexia after mebendazole, since I have recently seen a patient with unexplained pyrexia while receiving mebendazole.

A 53-year-old black male Ghanaian was admitted for investigation of pruritus of two years' duration. He had had yaws in childhood and had been treated for hypertension for 15 years with methyl-dopa. In 1963 he had had eosinophilia and ankylo-

stoma duodenale infestation treated with bephenium. The eosinophil count returned to normal.

On admission he had an eosinophil count of 22% (total white cell count $10.5 \times 10^9/l$). The sickle test, filaria fluorescent antibody test (FAT), and amoebic FAT were negative. Stool and urine examinations for ova, cysts, and parasites were negative. TPHA test was positive and liver function tests normal. Although ankylostoma duodenale was not detected, it was decided to treat the patient with mebendazole 100 mg twice daily for three days. Within 12 hours of starting therapy he became pyrexial (temperature up to $39.5^\circ C$) and remained so until the day after his last dose. Blood cultures, urine cultures, and chest x-ray showed no evidence of infection and no malaria parasites were seen on a blood film. The total white cell count was normal.

The mechanism of fever in this patient was probably different from that in patients with hydatid cysts, since it occurred only while he was receiving mebendazole. It was probably an idiosyncratic reaction since mebendazole is poorly absorbed from the gastrointestinal tract and the lower doses used to treat hookworm have not previously been associated with fever.

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Retrograde spread of intrarectal hydrocortisone-containing foam

SIR,—The difference between our results with intrarectal hydrocortisone-containing foam in ulcerative colitis (30 June, p 1751) and those of Dr M J G Farthing and others (6 October, p 822) must be due to technical factors. The most important of these factors are (a) whether the distribution of radioactivity throughout the foam is even and (b) whether the addition of the label causes any changes in the physical characteristics of the foam.

In our paper we demonstrated the evenness of the distribution of the label throughout the foam when it is dispensed from the applicator by showing the similarity of gamma scans of the activity with standard black-and-white photographs of the foam. Unfortunately, Dr Farthing and his colleagues have not demonstrated the condition of the foam or the distribution of the isotope outside the applicator. This is just not acceptable when the study depends on the characteristics of the foam in the rectum.

It is also not clear from the paper exactly how Dr Farthing and his colleagues mixed the 0.5 mCi of technetium-99m sulphur colloid with the 5 ml of 10% hydrocortisone acetate foam. If the sulphur colloid was in solution then we consider, on the basis of our own studies of this type of labelling, that the characteristics of the foam would be altered and the distribution of the label uneven. Fig 1 shows the result of adding 0.1 ml of technetium-99m sulphur colloid to the foam in the applicator. Following agitation of the applicator to ensure mixing, the foam was expressed on to a black surface to produce the line shown on the left-hand side of the illustration. A gamma scan of the line of foam shows the isotope concentrated at one end. Fig 2 shows the effect of adding 1 ml of sulphur colloid to the foam and reveals that the distribution of isotope within the foam is certainly better. However, this procedure makes the foam very wet and when the plate was elevated to the vertical a further photograph and gamma scan shows the effect of gravity (fig 3). This effect was not witnessed in the method of labelling used by ourselves.

We feel that until Dr Farthing and his colleagues clearly demonstrate, as we have done, that their method of labelling does not affect the physical characteristics of the foam one has to assume that the difference in results was due to the effect of the labelling method on the foam.

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* * *The authors sent a copy of this letter to Dr Farthing and his colleagues, whose reply is printed below.—Ed, BMJ.

SIR,—Dr Hay and his colleagues raise some important points regarding the potential technical limitations of the use of technetium-99m for measuring retrograde spread of a hydrocortisone-containing foam through the colon, as described in our study (6 October, p 822) and their own (30 June, p 1751).

Their first point refers to the adequacy of mixing of the isotope with the foam, and by implication the effect that this might have on the assessment of retrograde spread. We added 200 μ l of technetium-99m sulphur colloid in

FIG 1—Effect of adding 0.1 ml of labelled sulphur colloid to the hydrocortisone foam.
FIG 2—Effect of adding 1 ml of labelled sulphur colloid to the hydrocortisone foam.
FIG 3—As in fig 2, with plate raised to the vertical showing effect of gravity.