years earlier, suggesting increased fatness between the two populations.

Our charts were derived from cross sectional data.

Our reason for correlating BMI with body fat estimates from skinfold thickness and bio-electrical impedance was to show the relationship between three measures of fatness estimation that are currently in common use.

- 1 Cole TJ, Freeman JV, Preece MA. Body mass index reference curves for the UK, 1990. *Arch Dis Child* 1995 (in press).
- 2 Rolland-Cachera MF, Cole T, Sempe M, Tichet J, Rossignol C, Charraud A. Body mass index variations: centiles from birth to 87 years. *Eur J Clin Nutr* 1991; 45: 13–21.

Trends in breast feeding in New Zealand

EDITOR,—Breast feeding is the best method of feeding young infants with health benefits for them and their mothers.^{1,2} Like other developed countries New Zealand suffered a postwar decline in its breast feeding rates that reached a nadir in the late 1960s. The reasons were multifactorial. They included changes in the status of women, with more women working outside the home; increased mobility with loss of contact with extended families and older women who could offer breast feeding support; a belief in the superiority of technology and science; and advertising of infant formulas as being superior to breast milk.³

The Royal New Zealand Plunket Society was established in 1907 and provides well child care to children under 5 years old in New Zealand. Plunket nurses (equivalent to health visitors in the UK) now see over 90% of infants under 1 year of age, usually from two to three weeks postpartum. Data collected since 1946 on breast feeding rates at the first contact with the Plunket nurse and the percentage of infants who see the Plunket nurse are shown in the figure. The data do not differentiate between exclusive or partial breast feeding.

The breast feeding rates in New Zealand and Great Britain⁴ 15 to 20 years ago were approximately the same. However, since then New Zealand's breast feeding rate has risen steadily and now around 84% of infants are being breast fed when seen by Plunket nurses as 2 to 3 weeks of age. This compares with a recent study of a cohort of 7% of New Zealand infants born in 1990–1 in which 94%

of them were breast fed at birth (Plunket Society, unpublished data).

The reasons for the increase in breast feeding rates, like the reasons for the decline, are probably multifactorial. These may include home visiting by Plunket nurses up to six to nine weeks postpartum; Plunket family centres, which are free day centres staffed by Plunket nurses who are lactation consultants where mothers with breast feeding problems can go; increased awareness of the benefits of and promotion of breast feeding, 'tots and toddlers' education programmes in schools for 13 and 14 year olds.

The increase in breast feeding rates is similar to that found by Hofvander and Sjolín in Sweden where the breast feeding rates rose from an all time low of 31% in 1972 to 62% in 1976–7 by using an information and education campaign about the superiority and value of breast feeding.⁵ The overall rate of mothers breast feeding their babies at birth in Great Britain has stayed around 63% since 1975⁴ and in some areas initial breast feeding rates are as low as 8%.⁶ These data show that the decline in breast feeding can be reversed and the breast feeding rate markedly improved in little over a decade.

CHARLES ESSEX
PAUL SMALE

Royal New Zealand Plunket Society

(Correspondence to: Dr Essex,
30 Hallowell Road,
Edgbaston, Birmingham B16 0LR)

- 1 Cunningham AS, Jelliffe DB, Jelliffe EF. Breast-feeding and health in the 1980s: a global epidemiological review. *J Pediatr* 1991; 118: 659–66.
- 2 Howie PW, Forsyth JS, Ogston SA, et al. Protective effects of breast-feeding against infection. *BMJ* 1990; 300: 11–6.
- 3 Dwyer J, Mayer J. The demise of breast feeding: sales, sloth or society? *Unicef. Priorities in child nutrition*. Vol II. New York. Unicef, 1975.
- 4 Office of Population Censuses and Surveys. *Infant feeding 1990*. London: HMSO, 1992.
- 5 Hofvander Y, Sjolín S. Breast feeding and recent information activities in Sweden. *Acta Paediatr Scand* 1979; 275 (suppl): 122–5.
- 6 Ferguson A, Tappin DM, Girdwood RWA, et al. Breast feeding in Scotland. *BMJ* 1994; 308: 824–5.

Premenarchal endometrial shedding revealed by peritoneal dialysis

EDITOR,—In our centre three female patients have reached menarche while undergoing

Peritoneal and vaginal bleeding in three pubertal girls on peritoneal dialysis

Age (years)	Bleeding		Cycle length (days)
	Peritoneal (days)	Vaginal (days)	
14.1	1.5	0	22
	0.75	0	30
	1.5	0	27
	3.0	0	60
	7.25	7.0	—
13.0	3.5	0	41
	2.0	0	37
	2.0	0.5	41
	5.0	3.0	27
	0.15	0	—
15.3	1.0	0	38
	0.25	0	32
	0.25	0	—

peritoneal dialysis. All have shown cyclical blood staining of peritoneal dialysis fluid which preceded any vaginal bleeding (table). Microscopy of the stained dialysis fluid showed 2000–4400 red blood cells/ μ l and 0–20 white blood cells/ μ l and cultures of dialysis fluid showed no growth. The first two patients shown in the table went on to have regular menses with peritoneal fluid staining. The last patient underwent renal transplantation with removal of dialysis catheter and regular vaginal bleeding began six months later.

This observation is consistent with the finding that retrograde menstruation is almost universal in adult women^{1,2} and well recognised among adult women using peritoneal dialysis.³ Other premenarche cyclical changes or 'dawn phenomena' have been described and found important in the management of adolescent young women with other chronic conditions.⁴ Pubertal young women using peritoneal dialysis should be made aware of this phenomenon to avoid blood stained dialysis bags causing unnecessary anxiety and alarm for the patient and her family and unnecessary investigations or treatment by medical staff. Indeed, as this phenomenon is universal in our adolescent female population, young women should expect cyclical blood staining of their peritoneal dialysis fluid in the months before their periods begin.

The timing of this cyclical blood loss suggests it is endometrial in origin. The presence of blood in the peritoneal fluid for several cycles before any vaginal bleeding is seen may indicate that the cervical changes known to occur in late puberty are necessary to allow free blood flow into the vagina.⁵ This observation is consistent with endometrial development occurring before cervical maturation. In one case, a cycle of vaginal bleeding with peritoneal fluid staining was followed by a brief episode of peritoneal fluid staining without concurrent vaginal bleeding. This is consistent with retrograde menstruation occurring in preference to vaginal bleeding. Some young women approaching the menarche have monthly lower abdominal pain which, according to common folklore, is a sign that periods will soon begin. Such monthly pains may be caused by intraperitoneal blood from cyclical endometrial shedding.

Cyclical phenomena occurring before the menarche warrant further investigation which might include serial ultrasound of the ovaries and serial sex hormone and gonadotrophin levels. Adolescent women undergoing peritoneal dialysis have provided a window into these normal pubertal phenomena.

Percentage of new babies seen and breast feeding rates at first contact with the Plunket Society (1946–94); first contact is between birth and 3 weeks of age.

GILLIAN TURNER
MALCOLM G COULTHARD
Department of Child Health,
Royal Victoria Infirmary,
Newcastle upon Tyne NE1 4LP

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- 4 Brown KGE, Darby CW, Ng SH. Cyclical disturbance of diabetic control in girls before the menarche. *Arch Dis Child* 1991; 66: 1279-81.
- 5 Brook CGD, ed. *Clinical paediatric endocrinology*. 2nd Ed. Oxford: Blackwell Scientific Publications, 1989: 171-3.

Manganese in long term paediatric parenteral nutrition

EDITOR,—We strongly support the view of Reynolds *et al* that manganese should be measured routinely in all children on long term parenteral nutrition.¹ We would suggest that manganese should also be monitored in patients with prolonged cholestasis who haven't been on parental nutrition. We studied the whole blood manganese concentration and liver function tests in 10 patients with biliary atresia corrected by Kasai operation aged 8 months-17 years (mean 7.5 years). All patients were on normal diet and none had been on parenteral nutrition.

Hypermannesemia (>210 nmol/l) was detected in seven of the patients, six of whom had an alkaline phosphatase >1200 IU/l (150-1200 IU/l). In four of them the whole blood manganese concentration was potentially toxic (>360 nmol/l). No specific relationship was found between the blood manganese concentration and that of alanine transaminase and serum bilirubin. All the remaining three patients with normal blood manganese concentrations had normal alkaline phosphatase values. No obvious neurological effects were noted in any of the patients.

As none of these patients had received manganese supplements, these results suggest that the hypermannesemia is primarily caused by impaired manganese excretion.^{2,3}

The patients studied by Reynolds *et al* had cholestasis as well as being on long term parenteral nutrition. While we agree that it is essential to limit intravenous manganese intake in these children, our study suggests that this alone may be insufficient to prevent or reverse the hypermannesemia.

Further work is required to study the effect

of chelating agents and/or agents promoting biliary excretion.⁴

A AZAZ
A THOMAS
V MILLER
IAN WARD
Department of Gastroenterology,
Booth Hall Children's Hospital,
Blackley, Manchester M9 2AA

G S FELL
Institute of Biochemistry,
Royal Infirmary,
Glasgow G4 0SF

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Management of anaphylactic reactions to food

EDITOR,—As immunologists involved in the provision of laboratory services for the investigation of allergic patients as well as patients with other immunological problems, we were concerned to read in Professor David's clinical review of food induced anaphylaxis that some immunology laboratories 'are routinely advising the use of adrenaline syringes for any child who is found to have food specific IgE antibodies (for example, positive RAST to peanut) regardless of the history'.¹

We wish to emphasise that clinical decisions such as that involved in the provision of preloaded adrenaline syringes must be made only on the basis of a full clinical assessment, preferably by a paediatrician, immunologist, or allergist involved in the diagnosis and management of patients with specific allergic disease. Interpretation of laboratory specific IgE (RAST) test results or skin prick tests, alone and in isolation is problematic as both false positive and false negative results can result from either type of investigation. It is our opinion that provision of direct clinical advice on the basis of laboratory results alone does not constitute good laboratory practice.

A G BIRD
H CHAPEL
Department of Immunology,
Oxford Radcliffe Hospital,
The Churchill,
Headington,
Oxford OX3 7LJ

(There were 18 other signatories to this letter representing consultant immunologists and professors of immunology from all regions of the UK and Republic of Ireland.)

- 1 Patel L, Radivan FS, David TJ. Management of anaphylactic reactions to food. *Arch Dis Child* 1994; 71: 370-5.

Professor David comments:

We welcome the endorsement that the decision to supply adrenaline syringes should be based on a full clinical assessment. We also welcome the recently published guidelines for good allergy practice from the Royal College of Physicians and the Royal College of Pathologists, which stress the need for paediatricians to be involved in the diagnosis and management of children with allergy or suspected allergy.¹ Perhaps the single most striking feature of running a service for children with suspected food intolerance is the high proportion of children who have other quite different, often important, and treatable disorders.

- 1 Royal College of Physicians and Royal College of Pathologists. *Good allergy practice. Standards of care for providers and purchasers of allergy services within the National Health Service*. London: Royal College of Physicians, 1994.

The irritable hip

EDITOR,—I read the article on the irritable hip by Fink *et al*¹ and the accompanying commentary by Taylor and Clarke with the prejudice of a parent of a son who had this very painful condition. Fink *et al* suggest a protocol which includes joint aspiration when fluid is diagnosed on ultrasound imaging. Although only one aspirate out of 36 was infected, no less than 28 children experienced immediate relief of hip pain after aspiration.

Taylor and Clarke suggest that benefit from aspiration may be only temporary. How then is more prolonged pain relief to be obtained? My son's earlier attacks were treated in hospital or at home with analgesics which were inadequate. His last attack was after I had joined the staff at Great Ormond Street, and George Lloyd Roberts put him straight into traction with complete relief. Fink *et al* state that traction does not influence outcome but as the prognosis is favourable anyway pain relief is surely the important issue.

JOHN F SOOTHILL
Pensylvania,
Lodge Lane,
Axminster,
Devon EX13 5RT

- 1 Fink AM, Berman L, Edwards D, Jacobson SK. The irritable hip: immediate ultrasound guided aspiration and prevention of hospital admission. *Arch Dis Child* 1995; 72: 110-4.