at the Evelina children's department, Guy's Hospital, two children were found to have developed unilateral lower motor neurone facial palsies as the presenting sign of their hypertension. It is therefore important to measure the blood pressure in every child with a facial palsy.

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¹ Lloyd AVC, Jewitt DE, Lloyd Still JD. *Arc Dis Child* 1966;41:292-4.

² Hulse JA, Taylor DSI, Dillon MJ. *Lancet* 1979;iii:553-6.

Secretory otitis media and grommets

SIR,—Many general practitioners would agree with the conclusion of your leading article that the conservative management of secretory otitis media deserves greater support than it currently enjoys (14 February, p 501). However, it would seem premature to suggest co-trimoxazole as the medication of first choice, especially as this is based on one paper, as yet unpublished. Furthermore, experience in general practice does not tend to support it.

A recent survey¹ analysed the antibiotic prescribing patterns for upper respiratory tract infections and acute otitis media by general practitioners in children who subsequently developed secretory otitis media. This was compared with the antibiotic prescribing patterns for upper respiratory tract infections and acute otitis media in a matched group who had not developed secretory otitis media. No significant difference was found for penicillin, ampicillin, and erythromycin. Co-trimoxazole alone was more frequently prescribed for those who developed secretory otitis media than for the controls (Fisher's exact test $p=0.024$). The clinical significance of this is doubtful, but it does contradict the suggestion in your article.

The same survey confirmed a strong association with atopy, which has been suspected for many years²; but scant attention was paid to it in your article. Another interesting point was raised by the general practitioner survey. It showed that previous acute otitis media had been twice as common in those with secretory otitis media, yet nine of the 68 patients studied developed secretory otitis media without ever having had a single attack of acute earache. These findings support the view that the aetiology of secretory otitis media per se is allergic rather than infective.

It could be argued that infection and the accumulation of secretions in the middle ear share a common aetiological factor like functional occlusion of the Eustachian tube by an immature anatomy, enlarged adenoids, or allergic oedema. I wonder if it might be worth exploring a possible side effect of co-trimoxazole in inhibiting mucus secretion or reducing the middle ear goblet cell population quite apart from its bactericidal action? In the meantime the pathogenesis of secretory otitis media seems to remain as obscure as ever and its management, by specialist and generalist alike, haphazard.

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¹ Schutte PK, Beales DL, Dalton R. *J Otol Laryngol* 1981;95:17-22.

² Draper WL. *Laryngoscope* 1967;77:636-53.

Effect of a low pertussis vaccination uptake on a large community

SIR,—The report of a study of the epidemiology of pertussis in West Glamorgan during a recent epidemic (3 January, p 23) is valuable.

Although the relatively low rate of bacteriological confirmation prevents an unqualified acceptance of the epidemiological data, the findings are nevertheless of considerable interest and importance in respect of the surprisingly low degree of protection afforded by the vaccine in recently immunised children (under-5s in table II, under-4s according to the text) and also the high prevalence in adults. Whereas the authors suggest that this is in some way related to the "weight of infection" because of the low uptake of vaccine in the population at risk, it is also arguable that it is in precisely these circumstances that the efficacy of a vaccine can be assessed. It could also be argued that a much smaller proportion of the population than hitherto claimed needs to be immunised to achieve satisfactory herd immunity when an efficient vaccine is available.

The relatively low protection rate in older children has been reported in another study, and is thought to reflect the waning protection expected from a killed bacterial vaccine.¹ This may also account for the relatively high proportion of cases in adults, since we have a population of young parents immunised against pertussis in early childhood who are now virtually unprotected against the disease. Although the recent epidemic of pertussis almost certainly reflects the low uptake of pertussis vaccine in the past quinquennium, I suggest that naturally waning herd immunity in the community generally is also a contributory factor. Similar considerations also apply to other diseases such as poliomyelitis.

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¹ Lambert MJ. *Public Health Reports, Washington* 1965;80:365-9.

Status epilepticus treated by barbiturate anaesthesia

SIR,—We were interested in the Short Report by Dr Markku Partinen and others (14 February, p 520). We report a case illustrating a potential pitfall of such treatment.

A 20-year-old mentally retarded, aggressive epileptic woman was admitted in November 1979 in status epilepticus of some four hours' duration. She had not taken her usual medication owing to vomiting caused by a severe urinary infection. Diazepam by incremental intravenous doses to a total of 40 mg, followed by continuous intravenous infusion, and later by intramuscular phenobarbitone, failed to control her convulsions. After intubation she was given intravenous thiopentone 100 mg followed by a continuous infusion in 0.9% saline at a rate of 2-3 mg per minute, with effective control of her convulsions. Dexamethasone was given for cerebral oedema and for aspiration of vomitus before intubation, along with broad-spectrum antibiotic therapy. Good control of her convulsions was maintained with thiopentone, but when the vehicle was changed from 0.9% saline to 5% dextrose frequent convulsions resumed. It was realised that a drug interaction had occurred, rendering thiopentone less effective. Adequate control was again rapidly achieved when 0.9% saline was substituted.

Thiopentone is strongly alkaline, the 2.5%

solution having a pH of about 10.5; and dextrose is, of course, acid. The data sheet for thiopentone sodium mentions incompatibility with acids, but does not specify that dextrose should not be used. If continuous thiopentone anaesthesia is to be more widely used for status epilepticus it is important that only saline is used as the vehicle.

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Urban hypothermia

SIR,—I was intrigued by the letter by Dr R Bowesman (7 February, p 474) on the Petersfield hypothermia tube. The device, shown so clearly in the diagram, and now in its 10th stage of development (one wonders, perhaps, at the results of the first nine), has interesting features: firstly, the passage of gases in a unilateral direction, although there is no mention of a one-way valve system; and secondly, the length of the tubes, with an effective volume of 347 ml each. Even if we allow for the perforations in the carbon dioxide tube, this represents a combined volume of more than 600 ml for both tubes, well above the tidal volume of an elderly patient at rest. In the present design both tubes allow rebreathing of expired air and, being of the same diameter, each will take half of the air to be exchanged with each breath (say 250 ml). This volume is less than the capacity of the tubes, which therefore act as "dead space." The width of the tubes will allow a certain amount of fresh air to mix with expired air to offset this problem.

With regard to the temperature rise, I note that there is no mention of the amount of insulation used. The thickness of the bedclothes would determine the rate of temperature change to a great extent.

There are other factors to be considered, but I would suggest a valved two-pipe system to avoid the rebreathing problem. The valves could be fashioned from thin plastic or rubber sheet and affixed, one for each tube, at opposing ends at little extra expense. I hope that my suggestion, which I feel will improve the safety of this device, will be of use to Dr Bowesman for his future modifications.

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* * * We sent this letter to Dr Bowesman, who replies below.—Ed, *BMJ*.

SIR,—Dr Bickford Smith asks (1) why valves have not been used; (2) about the size of the tubes in relation to the tidal volume; (3) about the mixing of expired air and fresh air. These matters have been considered, and experiments made with earlier attempts to produce an efficient tube system.

(1) Ball valves of plastic, or rubber flaps, tend to stick with the moisture from condensation. These have both been tried out. (2) Tidal volume in the expiry air tube is much less than the volume of the whole tube, and there is an entry of some fresh air by that tube as well as by the intake tube. The raised carbon dioxide level will increase the rate and depth of respiration to 20-25 a minute