however, is open to error. A considerable educational effort would be required to alter established prescribing habits. To complicate matters further, the title of the products on the datasheet does not reflect the name printed on our stock of the reformulated product. Omnopon Paediatric is actually packaged and labelled as Omnopon 10 with no reference to paediatric on the box.

We believe that the risk of the wrong strength of Omnopon being prescribed and administered is great and does not warrant its continued use.

DIANE KETLEY
T O'CARROLL

Leicester Royal Infirmary,
Leicester LE1 5WW

1 Committee on Safety of Medicines. Genotoxicity of papaveretum and noscapine. *Current Problems* 1991 June (No 31).

**We sent this letter to the manufacturer, who replied as follows.

EDITOR,—After *Current Problems* warned about the potential genotoxicity of noscapine Roche Products considered that there were two possible options. These were either to discontinue the product or to reformulate it without the noscapine component. The weight of opinion from the medical profession seemed to support a continuing therapeutic requirement for the mixed alkaloid preparation.

Having decided to reformulate Omnopon preparations, we reluctantly changed the prescribing recommendations to include doses expressed as volumes. This was thought to be less confusing than listing the three ingredients separately as the active ingredient could no longer be referred to as papaveretum. This situation is likely to remain until such time as we can negotiate a redefinition of papaveretum or establish a separate term to encompass the three constituent alkaloids in their fixed proportions.

Meanwhile, we are listening to the views of those such as Diane Ketley and T O'Carroll and are looking at the best way of revising the product's labelling to minimise the possibility of dosing errors. A dosing chart for Omnopon is available from our drug information and surveillance department for easy reference.

D ROBSON

Roche Products,
Welwyn Garden City,
Hertfordshire AL7 3AY

Visual problems in the elderly population

EDITOR,—R P L Wormald and colleagues confirm the common and disabling nature of cataract in the elderly population.¹ Unfortunately, the size of their study population produces confidence intervals too wide to be useful in planning and contracting.

To take an example, in the population aged 65 and over Wormald and colleagues quote the prevalence of cataract that reduced vision to less than 6/18 as 5.8% (95% confidence interval 3.0% to 9.9%). It is useful to know the prevalence of cataract that reduces vision to this level as patients are likely to complain of visual difficulties² and may be referred to an ophthalmologist.³ Such information may then be used to adjust activity levels in contracts. If the estimated prevalence and confidence interval are applied to a health district with a population of 45 000 people aged over 65, however, the estimated number of people affected is 2610, but with a confidence interval of 1350 to 4455. When factors such as relative contra-indications to intervention and refusal of treatment are quantified the variation in the number referred

and treated is likely to be even greater. Therein lies the difficulty for both purchasers and providers of health care.

Studies of incidence and prevalence provide an important measure of the burden of a disease in the community; unless these studies are rigorously conducted with a population of suitable size (in this case around 50 000; A K McCallum, unpublished MFPHM thesis) the implications for services are merely intelligent guesstimates.

A K MCCALLUM

South West Durham Health Authority,
Bishop Auckland,
County Durham DL14 7BB

Division of Public Health Medicine,
Northern Regional Health Authority,
Newcastle upon Tyne NE6 4PY

- 1 Wormald RPL, Wright LA, Courtney P, Beaumont B, Haines AP. Visual problems in the elderly population and implications for services. *BMJ* 1992;304:1226-9. (9 May.)
- 2 Trevor-Roper PD, Curran PV. *The eye and its disorders*. Oxford: Blackwell Scientific, 1984.
- 3 Featherstone PL, James C, Hall MS, Williams A. General practitioners' confidence in diagnosing and managing eye conditions: a survey in south Devon. *Br J Gen Pract* 1992;42:21-4.

Cataract in developing countries

EDITOR,—Andrew R Potter expresses a point of view with which few people would wish to disagree—namely, that if a technology is cheap and quick by all means use it.¹ We would add safety and efficacy as other important variables. Though intracapsular cataract extraction with correction of aphakia with spectacles is indeed inexpensive, quick, and, in good hands, a safe method of curing blindness due to cataract, questions have been raised about the quality of visual rehabilitation in the longer term. Intracapsular cataract extraction with correction of aphakia has been almost universally replaced by extracapsular extraction with intraocular lens implantation in those countries able to afford the necessary technology.

There are arguments for and against both intracapsular and extracapsular cataract extraction, either with or without intraocular lens implantation, in developing countries. The patients' requirements, the equipment and facilities available, and the training and experience of the eye surgeon dictate that the treatment of cataract will also differ according to local circumstances. Controlled trials addressing these complex questions are being undertaken, and their outcome should be awaited.

Potter refers disparagingly to the World Health Organisation's document on the use of intraocular lenses in developing countries.² Intraocular lenses are already being introduced in many developing countries. The purpose of the WHO report is to provide information to allow states to formulate their own policies in such a way as to avoid the mistakes made in the industrialised countries during the evolution of intraocular lenses while maximising the use of limited health care resources. We believe the report to be a valuable and forward looking document, which reflects the views of experienced ophthalmologists and international non-government organisations working in the developing world to eliminate curable blindness.

WHO's prevention of blindness programme has closely collaborated with a group of 10 non-government organisations, forming the consultative committee. The result has been the development of activities and programmes in 83 of 106 countries in which blindness is a public health problem. In addition, WHO, with non-government organisations, has organised workshops and produced publications on childhood blindness; the local preparation of low cost eye medicines; manpower development for eye care in Africa; low cost spectacle production; the distribution of ivermectin

for the treatment of onchocerciasis; and use of intraocular lenses for cataract surgery in developing countries. Rather than criticising WHO, those concerned with the control of blindness should be encouraging WHO's prevention of blindness programme for its valuable initiatives and its efforts to work together with ministries of health and non-government organisations to reduce blindness globally.

DAVID YORSTON

Christoffel Blindenmission,
East Africa Regional Office,
PO Box 58004,
Nairobi,
Kenya

ALLEN FOSTER

Christoffel Blindenmission,
c/o International Centre for Eye Health,
London EC1V 9EJ

- 1 Potter R. Developing countries and medical progress. *BMJ* 1992;304:1249. (9 May.)
- 2 World Health Organisation. Use of intraocular lenses in cataract surgery in developing countries. *Bull World Health Organ* 1991;69:657-66.

Adrenaline in allergic emergencies

EDITOR,—We disagree with the advice on the correct route for administering adrenaline in allergic emergencies given in both Thomas Hedner and colleagues' paper¹ and Gregory Y H Lip and Malcolm J Metcalfe's letter in reply.² The advice perpetuates the widespread ignorance among British junior doctors regarding anaphylaxis and misconceptions about the role of adrenaline.³ Intravenous adrenaline (5-8 µg/kg) is the foundation drug in treating grade III or IV anaphylactoid reactions (Ring's classification), and case reports of myocardial reactions with intravenous adrenaline do not stand close scrutiny.⁴

In an unpublished survey in which 30 senior house officers from all accident and emergency departments in the north west were interviewed (by MG) 21 did not name adrenaline as the essential drug for this treatable life threatening emergency and 27 did not know the dose and how to calculate the concentration of adrenaline in mg/ml from ampoules marked 1:1000 and 1:10 000.

Our department has now got a clear protocol for anaphylaxis, which is part of our induction course for new casualty officers.

M GAVALAS
J MYERS

Accident and Emergency Department,
Newham General Hospital,
London E13 8RU

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Altitude induced illness

EDITOR,—A J Pollard's editorial on altitude induced illness provokes me to make several partial refutations and further comments.¹

Firstly, not all rapid ascents to altitudes above 2500 m are characterised by acute mountain sickness. Indeed, in the Mount Everest region of Nepal the incidence of acute mountain sickness has been recorded as 49% among trekkers who flew to 2800 m.²

Secondly, the ascent schedule mentioned is not widely recognised.³ The rule of thumb should be that above 3000 m, each night should be spent on

average not more than 300 m above the last, with a rest day every two or three days (or every 1000 m). The emphasis on distances between sleeping sites is important and implies that excursions in excess of these heights can be undertaken as long as they are followed by a descent before sleeping. On the Mount Everest and other trekking routes in Nepal the recommended itineraries conform to the above formula and are well accepted by trekkers.

Acetazolamide is of proved prophylactic value for altitude illness, but protection is not necessarily complete. Whether this drug should be offered to all travellers to high altitude is debatable. Indications for prophylaxis include rapid ascents and a history of altitude illness.⁴ Allergy to sulphonamides is a contraindication to use. One 250 mg tablet twice daily is as effective as a daily 500 mg slow release capsule, and there is evidence that lower daily doses can be used.⁴ Dexamethasone is not currently recommended for routine prophylaxis, but it may have a place in people who are allergic to acetazolamide or who must ascend rapidly for rescue or other purposes.⁵

Pollard's lack of enthusiasm for the portable hyperbaric chamber is disappointing. This device has had a major impact on the treatment of altitude illness, and few with experience of using it remain unimpressed by its effectiveness. Controlled trials are difficult to organise because of ethical considerations, but at least one study has had favourable results.⁶ Whenever possible hyperbaric treatment should be used in conjunction with descent.

Regardless of other considerations, for altitude illness the most important prophylaxis is a sensible graded ascent; the only definitive treatment is still descent.

DAVID MURDOCH

Kunde Hospital,
c/o Himalayan Trust,
PO Box 224,
Kathmandu,
Nepal

- 1 Pollard AJ. Altitude induced illness. *BMJ* 1992;304:1324-5. (23 May.)
- 2 Hackett PH, Rennie D. Rales, peripheral edema, retinal hemorrhage and acute mountain sickness. *Am J Med* 1979;67:214-8.
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Long term problems after obstetric epidural anaesthesia

EDITOR,—C MacArthur and colleagues' study of long term problems after obstetric epidural anaesthesia has important deficiencies.¹ In their discussion the authors point out that the results do not necessarily imply a causal relation, and, indeed, it is hard to imagine how initially uncomplicated lumbar epidural anaesthesia can cause long term tingling in the hands or migraine, for example.

Nevertheless, the authors prefer to emphasise the causal possibility in explaining the increased frequency of symptoms in the group who had epidural anaesthesia (which for some reason also includes women who had spinal anaesthesia). Nebulous phrases such as "initial stresses which in some cases required postpartum triggers" are used to fit the results of complex statistical techniques, although a more plausible explanation, such as the possibility of personality differences between women who request epidural anaesthesia and those who do not, is not even mentioned. A woman's

personality may affect her pain threshold, influencing her decision to opt for epidural anaesthesia, and may also independently influence the development of symptoms such as those described. The possibility of a slight difference in personality among the epidural group being responsible for a slight, albeit significant, increase in symptoms is conceivable and its absence from the discussion a serious omission. The control group shows that it is possible for a woman to develop these symptoms without having epidural anaesthesia.

The study received wide prominence in the lay press, and the public may, quite reasonably, have been impressed by the study's size. Most members of the public, however, are likely to confuse association with causation, with a detrimental effect on their perception of epidural anaesthesia. Though not wishing to be complacent about the potential effects of epidural anaesthesia, I think it unfortunate that the authors have failed to identify a more simple, alternative explanation for their results. For this reason, and the others given, I agree with the authors that different investigational methods are needed.

A M COHEN

Sir Humphry Davy Department of Anaesthesia,
Bristol Royal Infirmary,
Bristol

- 1 MacArthur C, Lewis M, Knox EG. Investigation of long term problems after obstetric epidural anaesthesia. *BMJ* 1992;304:1279-82. (16 May.)

AUTHORS' REPLY.—We agree with A M Cohen that differences in the pain thresholds or personalities of women opting for epidural anaesthesia may have influenced their later reported symptom rates. We sought evidence that this might be the case but could find none. This was discussed in our earlier paper¹ and in our reply to correspondence about that paper,² and also, and at length, in our book on the overall study.³ The journal's editorial staff and a referee asked us not to repeat these already published findings and discussions. We would, however, be happy to pursue these points further with anyone who, after reading the earlier publications, still has questions or comments. Cohen's note that women who had spinal anaesthesia were included in the epidural group is incorrect; these women (n=160) were analysed separately.

Although we identified a possible causal mechanism for backache and showed evidence to support it,¹ we agree with Cohen that our results do not prove causality, and we stated this clearly in our paper. Indeed, this was why we called for further examinations of the problem with different investigational methods, including randomised trials, and we hope that we may prompt others, as well as ourselves, to take up this call.

C MACARTHUR
E G KNOX

Birmingham Medical School,
Birmingham B15 2TJ

M LEWIS

Birmingham Maternity Hospital,
Birmingham B15 2TH

- 1 MacArthur C, Lewis M, Knox EG, Crawford JS. Epidural anaesthesia and long term backache after childbirth. *BMJ* 1990;301:9-12.
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- 3 MacArthur C, Lewis M, Knox EG. *Health after childbirth*. London: HMSO, 1991.

Site of injection for vaccination

EDITOR,—I was sad to see the photograph used to illustrate Clare Dyer's news item on pertussis and brain damage.¹ This shows vaccination by injection into the left deltoid region close to the tip of the shoulder. Although the article relates specifically to pertussis vaccine, which is given by

intramuscular or deep subcutaneous injection, the photograph could be taken as implying that the site shown is acceptable for general use, including for BCG vaccination. My experience suggests that this is a popular misconception.

Referrals of children and particularly girls for management of hypertrophic scars and keloids resulting from vaccinations at the tip of the shoulder and high on the arm are common, and prevention is infinitely better than any available cure. Conservative management with silicones and topical steroid preparations is of limited value and associated with some morbidity, and intralesional steroid injections are painful and require general anaesthesia in children. The scar resulting from excision is longer than the original and equally prone to hypertrophy and keloid formation. Revision surgery may liberate encapsulated vaccine, resulting in a more violent vaccination reaction than the original injection and an even worse final scar when healing eventually ensues.

The Department of Health's guidelines regarding vaccination specifically exclude the upper arm above the deltoid insertion as a site for BCG vaccination,² and the *British National Formulary* advises that injections of BCG vaccine should be at the level of the deltoid insertion and not higher on the arm and also states that the tip of the shoulder should be avoided.³ The deltoid insertion lies roughly halfway between the tip of the shoulder and the lateral epicondyle of the humerus and definitely not near the site shown in the photograph.

The only vaccination for which a specific site on the upper arm is recommended is rabies; for all other injectable vaccines the upper and lateral surface of the thigh is a much better site as it has much greater muscle bulk, is far less prone to poor scarring, and is much less frequently exposed to view.

MARK HENLEY

North East Thames Regional Plastic Surgery Unit,
St Andrew's Hospital,
Billericay,
Essex CM12 0BH

- 1 Dyer C. Pertussis and brain damage. *BMJ* 1992;304:1652. (27 June.)
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Sigmoidoscopy in general practice

EDITOR,—Both Gregory P Rubin's short report¹ and the accompanying editorial² on proctoscopy and sigmoidoscopy in general practice cite the need for adequate training for general practitioners, but neither highlights the requirement for adequate disinfection procedures. Inadequate cleaning could result in the transfer of potentially harmful pathogens—for example, salmonella and hepatitis B virus.³

Rigid sigmoidoscopes can be easily sterilised in an autoclave after thorough cleaning. Flexible sigmoidoscopes, however, must be disinfected in glutaraldehyde as recommended by the British Society of Gastroenterology.⁴ Glutaraldehyde is an irritant disinfectant which, under the Control of Substances Hazardous to Health Regulations,⁵ must not be present in the working environment in concentrations above 0.2 ppm.⁶ It can cause sensitivity problems such as asthma, dermatitis, and sinusitis. Consequently the equipment required for handling it is more sophisticated and expensive than an autoclave. A closed automatic washer disinfectant or an open washer and disinfectant totally encased in a fume cupboard with an extractor system is required. Either system will cost about £15 000.