and one's own experience; but in my own four years in Eastern Africa, with constant contact with patients suffering from malaria (mainly *Plasmodium falciparum* and *P. vivax*), I saw a number of patients with malaria, proved on blood slide, who, I had no doubt, had taken recommended antimalarial drugs as directed. My colleagues with similar experience and I felt there was no doubt that, at the very least, pockets of relative or absolute resistance to both the above drugs existed, and tended to recommend either one of the pyrimethamine combination drugs, such as Maloprim (pyrimethamine plus dapsone) or Fansidar (pyrimethamine plus sulphur). We used chloroquine, despite its dangers when taken over a prolonged period and the theoretical danger of developing chloroquine resistance. It is entirely reasonable to assume that a number of cases were due to poor patient compliance, but entirely unreasonable to suppose that, when one is dealing with a large number of expatriates with average or above-average intelligence, all such cases are due to this. The potential danger of inadequate prophylaxis was underlined by two cases in which relatives of my patients, after a "safari holiday" on inadequate prophylactics, died after return to Europe; in both cases, as they had been taking what was thought to be an appropriate prophylactic drug, the diagnosis of malaria had not been seriously considered, even on hospital admission. One of my patients, while on leave in England, developed cerebral malaria while being investigated for "influenza" in an English district general hospital.

Perhaps, when consideration is given to ways in which the taking of prophylactic drugs may be emphasised to the public, more thought should be given to communication with doctors in those areas of the world where malaria is endemic, and which attract large numbers of tourists. Theoretically, pyrimethamine and proguanil are the correct drugs to use in many areas of the world; theoretically, persons contracting malaria in these areas cannot have taken the drug correctly; in practice, this is just not so, and there is a real danger to visitors who rely on the advice given to them by their practitioners, who, reasonably enough, rely on expert advice given to them.

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Polio immunisation and travel

SIR,—Many recent articles, including the document produced in September by the Office of Health Economics, have brought attention to the problem of low levels of immunisation against poliomyelitis. Although the DHSS claims an overall immunisation coverage against polio approaching 80%, a number of surveys have confirmed the existence of areas where no more than 50% of children have received a full course of polio vaccine. In spite of the probability of autoimmunisation between children in a community, there clearly must be a risk that considerable numbers of children and adults are currently susceptible to infection with polio. There must be a risk of epidemic spread should the "wild" virus be reintroduced from infected areas.

The purpose of this letter is to draw your attention to the magnitude of this risk. Several

surveys in countries popular in the tourist circuit, such as Thailand and Egypt, have shown that the prevalence of residual paralysis after polio is much higher than has been officially reported to the World Health Organisation. Our own surveys in several tropical countries have shown an annual incidence of 37 cases per 100 000 children, approximately 15 times the reported incidence.

Clearly, our priority must be to eliminate the disease in those countries still harbouring endemic transmission, but almost as important should be the inclusion of polio immunisation as a prerequisite for all travellers to the tropics and the maintenance of high levels of immunisation in the developed world. The minor risk of vaccine-associated cases is outweighed by the potential tragedy of polio among travellers and the risk of further epidemics in polio-free countries.

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Measles and vaccine protection

SIR,—I believe Dr G A Jackson may have misinterpreted his data on measles and measles complications among vaccinated and unvaccinated individuals (4 August, p 332).

Most epidemiologists would apply a statistical test to the measles complication rate observed in those vaccinated ($18/147 = 12.2\%$) and those unvaccinated ($34/348 = 9.8\%$). The chi-squared test using the Yate's correction factor indicates that these two rates are not significantly different ($\chi^2 = 0.43$, $P > 0.05$). There is also no significant difference in the proportion of vaccinated and unvaccinated cases classified as being severe.

More importantly, the complication rates in the two groups—even if different—cannot be used to assess correctly the protection afforded by measles vaccine (that is, the vaccine efficacy). Rather, one needs to know, as Dr Jackson points out, the measles attack rate of vaccinated (AR_{vac}) and unvaccinated (AR_{un}) individuals. Dr Jackson's table provides only the proportion of measles cases which were either vaccinated or unvaccinated. The vaccine efficacy (VE) is the percentage reduction in the measles attack rate attributable to measles vaccine—that is, $VE = [(AR_{un} - AR_{vac})/AR_{un}] \times 100$. Reported measles vaccine efficacy has been at least 90% in most studies.¹²

When the data necessary to calculate vaccine efficacy are available, it is essential to realise that as the proportion of vaccinated individuals in a community increases, the proportion of measles patients with a history of previous vaccination will increase.¹³ These cases are a result of primary vaccine failure, which can be expected in 5-10% of vaccine recipients who fail to seroconvert and are thus unprotected.⁴ Dr Jackson should not therefore be surprised that almost one-third of his patients had been vaccinated. Ideally, when 100% of the population has been vaccinated, 100% of the few measles cases which may occur will be in persons who have been vaccinated. Causes of primary vaccine failure, in addition to the inherent 5-10% non-seroconversion rate, are, as Dr Jackson notes, improper vaccine shipping, storage, and handling.¹ Waning vaccine-induced immunity (that is, secondary measles vaccine failure) has not been observed.¹⁴

As measles vaccine coverage increases, a

full understanding of the concept of vaccine efficacy becomes increasingly important. Along with surveillance data, it is one of the best tools to illustrate to the public that vaccines are safe, useful, and effective.

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¹ Hayden, G F, *Clinical Pediatrics*, 1979, 18, 155, 167.

² Marks, J S, Halpin, T J, and Orenstein, W A, *Pediatrics*, 1978, 62, 955.

³ Center for Disease Control, *Measles Surveillance 1973-1976*. Atlanta, Georgia, CDC July 1977.

⁴ Krugman, S, *Journal of Pediatrics*, 1977, 90, 1.

Smallpox vaccination

SIR,—The article on smallpox vaccination (8 September, p 617) coincided with a further case of accidental vaccinia which I saw at our eye hospital. A 5-year-old boy had sustained an accidental vaccinia of his left eyelids through contact with a family who had recently been vaccinated before going abroad.

Over the years I have seen a number of such cases. They are always worrying in case corneal involvement should take place with permanent scarring. It seems to me that such cases may become more common now that routine vaccination has been stopped and we have a totally susceptible childhood population. When vaccination is carried out would it not be wise to cover the vaccinated area to limit the possible spread to others?

In this recent case, as in previous ones, the Public Health Laboratory Service Laboratory at Colindale kindly provided hyperimmune gammaglobulin both for intramuscular injection and to be made up as a topical application in the form of eye drops.

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Smallpox vaccination in the Forces

SIR,—I have recently been approached by one of my patients who is a member of one of the Royal Naval reserves and who is about to go to Germany on his annual camp. He came to see me requesting smallpox vaccination since it was three years since he had had his last one, and produced for me a letter instructing him that he must obtain such vaccination before he joined his unit. I explained to him the situation with regard to the prevalence of smallpox in the world today and the requirement for vaccination, but while he appreciated my arguments he pressed for vaccination since he did not wish to be turned away from his camp.

It seems to me most strange that the Forces are still requiring smallpox vaccination in such circumstances and I should like to question this as a general policy.

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

SIR,—I was greatly encouraged to read the paper by Dr Phyllis Culley and others (13 October, p 891). At last the medical profession is coming to recognise what many nursing

mothers have always known instinctively—that the rigid regimen imposed by many maternity units impedes the successful establishment of breast-feeding.

Thanks to the enlightened attitudes of nursing staff in Sunderland Maternity Hospital five years ago, I was able to breast-feed my first-born on demand (and by demand I mean hourly if necessary for the first few days). The ward routine was not affected and he received no complementary feeds. Far from showing the usual weight loss, he recorded 2722 g at delivery and 3062 g four days later.

This contrasted markedly with an unhappy experience during a subsequent confinement in a hospital which insisted on a rigid feed schedule and supplementary bottle feeds, with consequent detrimental effects on both mother and child.

I hope that other hospitals will follow the advice and example of the Birmingham team and can only endorse their conviction that this will indeed allay many of the misgivings of women who are at present pressing for home delivery.

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Infant feeding practices: a cause for concern

SIR,—Dr J H Tripp and others (22 September, p 707) have done a great service in presenting a large number of data, in useful and assimilable form, regarding alternatives to cows' milk when breast-feeding is impossible. They correctly point out that goats' milk and other preparations all present problems; and even Prosobee, to which they give guarded approval, has too much protein and electrolytes. None of these preparations can, of course, protect the infant from infection or allergy (though goats' milk has an anecdotal reputation in this respect).

The only infant food that approaches at all closely the mother's milk is another mother's milk (a fact clearly appreciated by livestock farmers). Breast-milk banks are in use in various centres for special-risk neonates, but the amount collected could never be sufficient to cope with all the normal infants whose mothers cannot or will not breast feed. Over the last three years we have been collecting large volumes of donated breast milk for therapeutic use in older children and adults, with relatively little trouble or expense, and the paper by Dr Tripp and others stimulates us to relate our experience.

Prospective donors are recruited via the National Childbirth Trust, whose local groups act as contact foci for many expectant mothers (admittedly of a rather middle-class character). Pregnant women are issued with a leaflet explaining the uses to which breast milk can be put and inviting them to contact the group leader, after the baby is born, if they wish to donate any excess milk to the trust's milk bank. Milk (or colostrum) is collected into clean plastic bags, which are unused but not otherwise sterilised. Mothers may either catch the drops produced by the let-down reflex, express manually, or use a breast pump (the Kaneson is currently recommended as the most comfortable). One session can result in anything from 20 ml to 200 ml, which is immediately frozen in its bag, by the donor herself if she has a freezer or by a local group member if not. Each package is labelled with donor's name and date. From time to time all supplies collected by the group are gathered together by one to three freezer-owning members, and a van equipped with dry-ice refrigerator is dispatched to pick them up. Each donor's GP is

sent a questionnaire relating to the health of mother and child (including details of drugs, etc) and so far virtually 100% of the doctors have responded. Shortly before use packages representing 8-12 donors are thawed and tested for hepatitis antigen. Random samples (at least one from each donor) are also plated on to blood and MacConkey agar aerobically. So far no specimen has contained 3×10^6 organisms per litre (our rejection criterion) and none has contained hepatitis antigen or had a pH <7.0. The packages used for testing (small ones if possible) are then thrown away, and that donor is considered "cleared." The appropriate amount of milk (from cleared donors) is then thawed, pooled, dispensed into new plastic bottles, and refrozen, remaining in that state until use.

In this way we have collected some 30-40 litres of breast milk a year from one relatively small group of donors. Apart from the hundreds of woman-hours donated gratis by the mothers and National Childbirth Trust organisers, the total cost has not exceeded £200 per year (that is, £5-7 per litre). This, of course, is much more expensive than "normal" infant feeds but is not prohibitive. We need not aim to provide the complete nutritional needs of a baby for very long (say one month), and the cost might be weighed against the infectious and allergic illnesses that the babies might otherwise have suffered later. If, as some believe, early bottle-feeding also causes ischaemic heart disease in later life,¹ the cost of breast milk is not that great after all. The only objectionable aspect of this food is the unpleasant taste and smell imparted by storage in plastic containers.

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¹ Austin, C, *The Cow and the Coronary*. Hicksville, USA, Exposition Press, 1979.

Drug names that look or sound alike

SIR,—I should like to make an important addition to the list of drug names that look or sound alike (6 October, p 836). On inquiring about the progress of a 40-year-old man who had presented with a stroke and malignant hypertension, I was told that he had "just had another dose of isoprenaline." He had, in fact, been given Apresoline (hydralazine) as ordered, and the effects on his blood pressure and mine were the exact opposite.

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SIR,—Mr H McNulty and Mr P Spurr (6 October, p 836) draw attention to drug names that look and sound alike and invite any additions.

A clerical officer aged 55 was seen by another doctor on 2 May 1979 with bilateral otitis externa. Fifteen Remotic (Squibb) capsules were prescribed, to be used thrice daily. The patient was told that the capsules looked like capsules of lighter fuel and that one end was to be cut off and the contents squirted into the ears three times a day.

On 5 May the patient's wife phoned to say angrily that the treatment had "made him bad" and unfit to drive. The chemist had dispensed 15 tablets of Rivotril (Roche, clonazepam) 0.5 mg, an orange tablet to be taken three times a day.

That a supposedly intelligent patient, having been told to use capsules of Remotic in the ear, should then eat tablets of Rivotril will surprise no one with 30 years in general practice.

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Diazepam for distressing procedures

SIR,—Dr E R Craven (6 October, p 867) rightly emphasises the patient's anxiety when confronted with a sternal puncture needle, and suggests marrow biopsy from the posterior iliac crest. No doubt this is a good idea, but when it comes to needles reassurance is difficult and time consuming. Moreover, some procedures such as lumbar puncture have an evil reputation and it may be impossible to allay anxiety.

Anxiety enhances pain and in my experience it is far easier and more effective to use intravenous diazepam as a premedication for these and other distressing procedures. Provided the dose is carefully titrated and provided the drug is avoided in patients with respiratory failure and obstructive airways disease, intravenous diazepam is extremely safe and allows one to perform a large variety of procedures without distress. The addition of Cyclimorph enables one also to undertake very painful procedures such as reduction of fractures and operations under local anaesthesia with exsanguinating tourniquets.

Resistance to diazepam builds up rapidly and large doses may be required for patients on long-term medication. I would therefore make a plea to restrict the use of diazepam to acute situations, where it is so effective. Continued medication with diazepam produces diminishing returns and long-term effects resemble those from alcohol—namely, depression and irritability. However, it is fortunate that benzodiazepines can be discontinued without serious withdrawal symptoms.

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Personality and breast cancer

SIR,—“Medicine and the Media” (20 October, p 996) contains an unjustified complaint that my account in *Now*! (5 October, p 60) of Dr Stephen Greer's work on personality and breast cancer made no mention of his paper in the *Lancet* (13 October, p 785) and adds (sarcastically?) that “perhaps it was just coincidence” that similar findings were reported that same week in the *Journal of the American Medical Association* (5 October, p 1504).

Well, for a start, it was just coincidence. And I made no mention of the *Lancet* paper because—if only out of enlightened self-interest—I try to be scrupulous about not breaking publication embargoes. Also, I am certain that Dr Greer would not have wished to break the embargo on his own paper (and can hardly be well pleased with an insinuation in the *BMJ* that he did so). My article therefore made no use of his paper. In any case, it was based on the actual questionnaire used in the Royal Marsden's trials rather than the paper about it, and my report depended chiefly on my own interview with Dr Greer. He did not even refer to his paper in our conversation and I was