transmission should therefore be explored. As cases in infants now seem to be making a considerable contribution to endemic transmission (table), one approach would be to offer infants early measles vaccination before giving measles, mumps, and rubella vaccine in the second year of life. Studies to determine the serological response to early vaccination in infants of vaccinated and naturally immune mothers and the accuracy of a clinical diagnosis of measles in infants and older age groups are under way, together with theoretical studies to explore the impact of such a strategy.

An epidemiologically and logistically different approach to routinely offering two doses would be to attempt to vaccinate all subjects in a wide age range within a short time and thereby interrupt transmission. This has recently been done in the English speaking Caribbean, where over 95% of all children aged 1-15 in eight of the 17 islands were vaccinated within one month.⁵ To ensure elimination this initiative must be repeated periodically, the interval and targeted age groups being decided on the basis of epidemiological data such as the age specific prevalence of the antibody,⁶ and results of theoretical studies.

Clearly, further work is required to provide a sound scientific basis for deciding future policy. We suggest that in the short term the cost effectiveness of offering measles, mumps, and rubella vaccine to secondary school children should be decided locally on the basis of a district's previous uptake of measles vaccine and present age specific notification rates.

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Storing vaccines at the correct temperature

SIR,—Yogini Thakker and Sheila Woods¹ and Philippa Lewis² discuss storage of vaccines and management of the cold chain; Lewis has developed temperature record charts and guidelines. It seems that the developed world could learn some lessons from the Third World about managing immunisation programmes.

I have recently been working on an immunisation programme for Afghanistan, where health workers and vaccinators of varying educational backgrounds and limited training carry out immunisation. Most health workers can quote the correct storage temperatures for vaccines and know how these temperatures should be maintained and monitored while the vaccines are being transported from manufacturers in Europe to remote villages in Afghanistan. These journeys may take many months and present immense logistical problems owing to wide variations in temperature; lack of transport, roads, and power sources; and war.

Most vaccine, however, arrives and is stored in good condition as monitored by the vaccine monitor cards and freeze watches that accompany supplies of vaccine.

Lewis and all those working in immunisation would be advised to consult the excellent publication *Immunisation in Practice: a guide for Health Workers who Give Vaccines*.³ The EPI (expanded programme of immunisation) division of the World Health Organisation also supplies training material on all aspects of immunisation, including the use of cumulative temperature indicators such as the vaccine monitor card and freeze watch. This is the only means by which cumulative exposure of vaccine to both high and low temperatures can be checked during transport and storage. The effectiveness of this system of monitoring the cold chain has been repeatedly shown in developing countries, and I find it difficult to comprehend why the same standards of care are not adhered to in Britain. Perhaps in Britain some outbreaks of diseases that are preventable by immunisation could be explained by the reduced potency of vaccines damaged by storage at incorrect temperatures.⁴

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Immunisation of children born to mothers positive for anti-HBe

SIR,—We cannot agree with S V Beath and colleagues about the consensus view on hepatitis B immunisation that they describe.¹ The British Paediatric Association,² the American Public Health Association,³ the Department of Health,⁴ and the *British National Formulary*⁵ recommend a full course of vaccine and hepatitis B immunoglobulin for all children born to mothers who are positive for hepatitis B surface antigen irrespective of whether the mothers are positive for antibody to hepatitis B e antigen (anti-HBe). All these organisations emphasise the increased infectivity of people who are positive for hepatitis B e antigen but clearly state that detectable anti-HBe does not exclude infectivity; they state only that the risk is reduced.

Evidence of viral replication has been clearly shown in people positive for anti-HBe.⁶ Even if a mother has recently developed anti-HBe lack of infectivity cannot be presumed. Although the risk of infection may be low, the potential hazards are great.¹ The consensus is clear: all children born to mothers positive for hepatitis B surface antigen should be given prophylaxis.

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Harm minimisation for drug misusers

SIR,—John Strang and Michael Farrell provide valuable advice on managing drug misuse in their editorial on harm minimisation.¹ We wish to comment, however, on their statement that use of the pure opioid antagonist naloxone is probably associated with only minimal risk.

Though respiratory depression in opiate overdose may be fatal, using naloxone to reverse this central hypoventilation is not without hazard. Several authors have documented serious side effects associated with naloxone. These include the precipitation of withdrawal symptoms,² intense pressor responses, tachycardia, and pulmonary oedema. In one report two patients died immediately after receiving naloxone, probably because of release of catecholamines.³

In addition, the duration of action of naloxone given intramuscularly or intravenously is only 30-40 minutes. The opiates commonly misused, however, have a much longer duration of action, and their effects may re-emerge when the effect of the naloxone has worn off. Indeed, the knowledge that naloxone antagonises opiate overdose might encourage excessive self administration of opiates.

Though we agree that distributing ampoules of naloxone could be of some benefit in harm minimisation, we believe that the potential hazards outweigh this benefit.

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SIR,—We disagree with Michael Farrell and John Strang's rather proprietorial and parochial views about methadone treatment for opiate addicts.¹ They note that while "the Netherlands has relied on a harm reduction model with methadone maintenance, . . . the British programme has relied on shorter term use of methadone" and make a similar implication in their editorial on harm minimisation for drug users.²

It is true that many British clinics and general practitioners are now reluctant to prescribe long term maintenance despite the impressive evidence that generous dosage and flexibility about the duration of treatment are prerequisites for success.^{3,4} This reluctance, however, developed fairly recently and reflects morality and short term economics rather than therapeutic considerations. There are still NHS clinics that do not force patients off methadone before they are ready or offer generally inadequate and unpharmacological doses.

In any case, the authors' own unit has maintained a group of addicts on high doses of injectable heroin since the mid-1960s.⁵ We know of other NHS clinics that officially offer only short term methadone but are prepared to maintain a few patients indefinitely. The United States, which in some respects is very restrictive about methadone, nevertheless has several hundred clinics, both public and private, that prescribe methadone long term.

One of us directs a private addiction service that includes an oral methadone programme (average dose 79 mg a day). Far fewer patients would have to seek private treatment if they were not forced to endure inadequate doses or compulsory reductions