Weekly measles notifications in 1987-8 (when last measles epidemic occurred) and 1994, England and Wales

their stage of development, to break chains of transmission. When the campaign was planned different methods of delivering services were tested. The cost of preventing an epidemic was estimated at around £20m for the vaccine, publicity, and immunisation services. The cost of an epidemic was estimated to be around £60m. These calculations took account of the burden of illness and death, the primary care and hospital costs for illness in children, and the burden to the children's parents (a third of a million working days lost). Pilot studies before the campaign showed that high coverage could be achieved through public health teams and that this approach was more cost effective than other options. Experience showed that this was correct. In one month the teams reached 90% coverage of 12 annual birth cohorts of children, a tremendous achievement. The participation of general practitioners undoubtedly contributed greatly to the success.

It is sad that the Primary Care Virology Group did not involve the Department of Health in its discussions. Had it done so, Higson might have been better informed about the countries where these campaigns have been undertaken and might have better understood our campaign strategy.

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1 Higson N. Measles campaign. *BMJ* 1995;310:192. (21 January.)

Immunising infants at risk of hepatitis B

Parent held vaccination card may improve uptake

EDITOR,—Claire P Smith and colleagues report a protocol for giving hepatitis B vaccine to the babies of mothers who are carriers of hepatitis B.¹ For the past 10 years I have been trying to ensure immunisation of all the babies at risk of infection within the West Midlands region as part of clinical trials of hepatitis B vaccine²⁻⁴ and, more recently, in line with the Department of Health's recommendations.⁵ Since 1974, when universal antenatal screening started in the West Midlands, we have regularly communicated with hospital obstetricians regarding the risk of infection during delivery and with paediatricians regarding the protection of the babies. I communicate with over 20 maternity units across the West Midlands region. More recently, in response to failures to complete courses of vaccine initiated in maternity units, we have also contacted patients' general practitioners direct and provided additional information packages to local community paediatricians.

The key person in ensuring continuing care of the baby at risk is the mother, and at the suggestion of one of our busiest maternity units we produced a hepatitis B vaccination card. Its design is compatible with the parent held child health record

(the red book) used in most health districts in Britain, and it can be inserted as a page or slotted into the transparent wallet at the front of the book. Once this is in the mother's possession she can see that the appropriate boxes are ticked when vaccine is given. The card is being piloted at the moment for comment from users and to work out the best strategy for its use.

I am interested to know if there is support for the wider use of such a card and would be grateful for any comments readers may have.

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- 1 Smith CP, Parle M, Morris DJ. Implementation of government recommendations for immunising infants at risk of hepatitis B. *BMJ* 1994;309:1339. (19 November.)
- 2 Boxall EH, Tarlow MJ. Hepatitis B vaccine in the prevention of perinatally transmitted hepatitis B infections: initial report of a study in the west midlands of England. *J Med Virol* 1986;18:255-60.
- 3 Wheeley SM, Boxall EH, Tarlow MJ, Gatrad AR, Anderson J, Bissenden J, et al. Hepatitis B vaccine in the prevention of perinatally transmitted hepatitis B infection: final report on a west midlands pilot study. *J Med Virol* 1990;30:113-6.
- 4 Wheeley SM, Jackson PT, Boxall EH, Tarlow MJ, Gatrad AR, Anderson J, et al. Prevention of perinatal transmission of hepatitis B virus (HBV): a comparison of two prophylactic schedules. *J Med Virol* 1991;35:212-5.
- 5 Department of Health, Welsh Office, Scottish Office Home and Health Department, Department of Health and Social Security (Northern Ireland). *Immunisation against infectious disease*. London: HMSO, 1992.

Community programme boasts initial success

EDITOR,—Claire P Smith and colleagues report the difficulties they experienced in Manchester in ensuring a high uptake of second and subsequent immunisations offered to infants at high risk of acquiring hepatitis B infection neonatally.¹ Early last year the then South East London Health Authority (health commissioners for the boroughs of Lambeth, Southwark, and Lewisham) commissioned a community based programme in an attempt to improve rates of completion of immunisation against hepatitis B among high risk infants. Previous follow up arrangements for infants at risk had been hospital based, had followed varying immunisation schedules, and had had a poor completion rate.

The new service is provided by a single community team covering an area of complex ethnic mix (including west African, Vietnamese, Turkish, Caribbean, and South American families) with roughly 9000 births a year. The key workers in the new programme are the antenatal and paediatric liaison health visitors, who are established in their roles. Their job descriptions now include responsibility for promoting links among the antenatal teams, the virology service, the neonatal paediatric team, and the primary care team. The health visitors are working towards streamlining procedures in each hospital and also have the responsibility for ensuring that the infants receive their second immunisation at home at the age of 1 month. The home visit is used as an opportunity to explain in greater detail the immunisation programme and to discuss with the family the wider implications of the mother's hepatitis B status. The health worker is accompanied on this visit by a trained interpreter from the family health services authority's interpreting service if this is necessary.

Since the service was established last April 61 infants have been enrolled on the programme. Of the 50 infants eligible for their second immunisation, 45 have now received it. None has been lost to follow up.

The responsibility for giving the third and fourth immunisations rests with the family health visitor, and the immunisations are carried out at

the family's general practice surgery, the local infant welfare clinic, or the child's home at the age of 6 months and 1 year. The programme is administered by one of the child health clerical officers, who uses a locally written computer software program that generates letters and appointments and orders vaccine.

We hope that this community programme will sustain its initial success and prove an effective method of delivery of both vaccine and health education.

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- 1 Smith CP, Parle M, Morris DJ. Implementation of government recommendations for immunising infants at risk of hepatitis B. *BMJ* 1994;309:1339. (19 November.)

BCG vaccination programmes may provide useful guidance

EDITOR,—We agree that "selective vaccination policies create enormous practical difficulties, especially where most of the affected babies are from ethnic minority groups."¹ We have had similar problems with a selective neonatal BCG vaccination programme in Milton Keynes. In one respect BCG vaccination is easier than vaccination against hepatitis B because only one injection is given, but in another respect it is more difficult because the group at risk is hard to define. Coverage is also difficult to monitor because the denominator (those at risk) is often unknown and the numerator (vaccinations performed) may be poorly recorded.

As in Manchester,¹ the question of need for vaccination is discussed in the antenatal clinic with the help of written material. The midwives enter into the antenatal records (both written and computerised) whether the neonate is likely to be in a group at risk. This serves two purposes. Firstly, when the details of delivery are entered into the computer a form requesting BCG vaccination is automatically printed out. This reminds staff to give the vaccine and to return the form to the community child health department, where details are entered into the department's computer. Secondly, a list of those at risk is stored in the obstetric computer and can be compared with data from the child health computer to estimate vaccine coverage.

This system was introduced in 1991, and vaccination coverage increased from 19.3% (95% confidence interval 13.4% to 25.2%) in 1990 to 77.5% (73.6% to 81.3%) in 1993. This method could be adapted to similar diseases such as hepatitis B and sickle cell disease.

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- 1 Smith CP, Parle M, Morris DJ. Implementation of government recommendations for immunising infants at risk of hepatitis B. *BMJ* 1994;309:1339. (19 November.)

Drug resistant tuberculosis

EDITOR,—Concern is growing over the spread of drug resistant *Mycobacterium tuberculosis*. New evidence suggests that this spread may be increasing in certain sections of the British population. The recent advances in molecular techniques have equipped us with the means to make substantial