

# PostScript

## LETTERS

### First do no harm...

A 9 day old infant presented to hospital with an erythematous, diffusely swollen right foot, shown in figs 1 and 2.

The infant had been slow to establish breast feeding and was not discharged from hospital until day 7 of life. Her father had noticed the inflamed foot during a nappy change earlier that morning. Both parents felt the infection was the result of a tight hospital name band. The firm plastic band had caused small lacerations to the right ankle prior to its removal.

Hospital name bands are useful in the identification of patients prior to the administration of drugs and are a simple tool in the prevention of abduction from hospital.<sup>1</sup> It can be very difficult to fasten the bands tightly enough for them to remain attached but not cause superficial lacerations, particularly if the child has dry, peeling skin. These bands can frequently be found adorning the floor or discarded items of clothing on postnatal wards.

As paediatricians we are urged to place the child's best interests at the centre of all clinical considerations. We have a responsibility to safeguard the reputation of paediatrics through our personal clinical practice. This child had an iatrogenic injury following a non-essential intervention resulting in hospital readmission. She received a full course of antibiotics, exposing her to the well documented risks of allergic reaction, nephrotoxicity, and vestibular and auditory damage.

Perhaps it is time for us to reconsider techniques for the attachment of hospital name bands to newborn infants. Although name bands could be manufactured using



Figure 2

softer materials, this would increase the ease with which such bands could be removed or switched. A more practical suggestion would be to label cord clamps with an identifier. Cord clamps do not fall off and cannot easily be removed by non-medical personnel. This technique could be combined with security tags, footprinting, and the retention of cord blood samples at individual hospitals' discretion.

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Consent has been obtained for figures 1 and 2

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### Reference

- 1 Stephenson T. Abduction of infants from hospital. *BMJ* 1995;310:754-5.

### Is fragmentation of schedules hampering the uptake of hepatitis B vaccine?

The rising number of recommended childhood vaccines can be challenging for parents for two reasons—up to eight clinic visits for immunisation alone in the first 18 months (including BCG and hepatitis B), and the concern regarding the number of injections given per visit.<sup>1</sup> This in turn may affect the uptake of newer, but nevertheless important vaccines such as hepatitis B (HB).

We reviewed the uptake of HB and other childhood immunisations of 23 at risk infants born to HbsAg positive mothers in a district general hospital over a four year period (January 1999 to January 2003) and studied the reasons for immunisation failure.

**Table 1** Uptake of HB and other childhood immunisations of 23 at risk infants born to HbsAg positive mothers

Immunisation	%
1st dose HB (in 1st 48 h) uptake	91.3
2nd dose HB (1 mth) uptake	73.9
3rd dose HB (2 mth) uptake	65.2
4th dose HB (12 mth) uptake	47.8
3 doses of DPT/Haemophilus influenzae type b (Hib)/MenC uptake	78.3
MMR (12-15 mth)	65.2
BCG	84.0

Maternal case notes, the local community computer database, and GP records were retrospectively reviewed. Families were contacted whenever possible to determine the reasons behind the non-compliance. Table 1 shows the results.

Our audit confirms the well known pattern of high initial uptake followed by exponential decline as reported in previous audits.<sup>2</sup> This has been ascribed to poor parental understanding about the importance of completion of the full course.<sup>2</sup>

However, we found out that out of 11 cases who had the 1st dose but missed subsequent doses, three (27%) had moved out of the area, three (27%) did not receive appropriate notification (due to change of name or address), and five (46%) felt that there were too many attendances to complete the immunisation.

The relatively high uptake of DPT/MenC/Hib and even MMR in comparison to HB suggest that this specific immunisation failure may be partly due to fragmentation as reported by 46% of the parents.

We feel that this low uptake of HB immunisation could be circumvented by giving second and third dose of hepatitis B along with the 1st and 2nd doses of DPT/MenC/Hib (at 8 and 12 weeks of age), either as a combination vaccine or as a separate vaccine.<sup>3</sup> The fourth dose of HB can be combined with MMR. We feel that there is a need for a larger national audit to address this issue as it can have an important implication on the immunisation schedule.

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Figure 1

**Table 1** Hib IgG GMC, with 95% CI, following primary immunisations, a 4th dose, and at time of study for subjects who did or did not receive a booster dose of Hib in infancy, and proportions achieving concentrations  $\geq 0.15$  and  $1.0 \mu\text{g/ml}$  at time of study

	n	Hib IgG GMC, $\mu\text{g/ml}$ (95% CI)					p value
		After primary immunisation	After booster dose	At time of study	$\geq 0.15$ n (%)	$\geq 1.0$ n (%)	
Boosted infants:	26	0.18 (0.13 to 0.26)	3.42 (1.65 to 7.10)	0.23 (0.14 to 0.39)	14 (26%)	2 (8%)	<0.0001*
All							
Boosted infants:	12	0.08 (assigned)	1.21 (0.42 to 3.51)	0.25 (0.09 to 0.71)	5 (42%)	2 (17%)	0.80†
Post-primary <0.15							
Boosted infants:	14	0.37 (0.28 to 0.50)	8.30 (3.00 to 19.14)	0.22 (0.14 to 0.37)	9 (75%)	0 (0%)	
Post-primary $\geq 0.15$							
Non-boosted infants	7	1.60 (1.18 to 2.18)	NA	0.25 (0.04 to 1.61)	2 (29%)	2 (29%)	

\*† test comparing Hib IgG after booster dose and at time of study in subjects who had received a booster dose in infancy.

†† test comparing Hib IgG at time of study in subjects who had Hib IgG <0.15 or  $\geq 0.15 \mu\text{g/ml}$  after primary immunisations.

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## Hib IgG persistence following early booster dose

A diphtheria/tetanus/acellular pertussis–*Haemophilus influenzae* type b vaccine (DTaP–Hib), introduced to the UK in 1999, was associated with poor primary Hib responses<sup>1</sup> and a resurgence of Hib disease in the population.<sup>2</sup> Consequently, in 2003, the UK Department of Health undertook a campaign to immunise children aged 6 months–4 years with an additional dose of Hib. We have previously shown a significant rise in Hib titres following an additional Hib dose, given before one year, in infants with very low primary responses.<sup>3</sup> Here we describe how that response persists.

In our previous studies preterm infants with Hib IgG <1.0  $\mu\text{g/ml}$  following primary immunisations with DTaP–Hib<sup>1</sup> received a 4th dose of Hib conjugate before 1 year of age.<sup>3</sup> In this new study (LREC approved), 33 subjects from the previous studies were enrolled and blood was taken prior to the catch-up campaign. Mean gestational age at birth was 29.6 weeks (range 25–31.7 weeks). Twenty six had received a booster dose at <1 year of age (mean 0.62 years). Mean age at study was 2.89 years (range 2.25–3.41 years).

Hib IgG geometric mean concentrations (GMC) after primary immunisations, 4th dose, and at time of study, and proportions achieving concentrations of 0.15 and  $1.0 \mu\text{g/ml}$  are shown in table 1.

Nineteen subjects had previously had concentrations high enough to allow determination of post-4th dose Hib IgG avidity. Of these, seven had an IgG concentration on re-bleeding in this study sufficient to allow determination of avidity. The GM avidity index post-4th dose was 76.94 (95% CI 52.16 to 113.50), increasing to 138.19 (95% CI 71.70 to 266.33) at time of study ( $p = 0.10$ ).

Within three years of a 4th Hib dose, Hib IgG levels have fallen significantly and the proportion of infants with detectable Hib IgG is very low. There is evidence of avidity maturation over this time, but this should be interpreted cautiously given the small numbers.

If protection from Hib disease depends on a level of circulating Hib IgG and not simply on immunological memory, then our findings suggest that a single additional dose before 1 year may be insufficient in those with poor primary responses. Indeed, even children who had acceptable responses ( $>1.0 \mu\text{g/ml}$ ) to primary immunisations had low levels of Hib IgG in this study. It remains imperative that Hib surveillance continues and that the potential need for further Hib doses be kept in mind. In some infants one additional dose may be insufficient.

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- 3 Slack MH, Schapira D, Thwaites RJ, *et al*. Responses to a fourth dose of *Haemophilus influenzae* type B conjugate vaccine in early life. *Arch Dis Child Fetal Neonatal Ed* 2004;**89**:F269–71.

## CORRECTION

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M Wailoo, H Ball, P Fleming, *et al*. Infants bed-sharing with mothers (*Arch Dis Child* 2004;**89**:1082–3). The last author of this paper was spelt incorrectly and should be M P Ward Platt. We apologise for the error.