Vaccine, yes; injection, no: maternal responses to the introduction of *Haemophilus influenzae* type b (Hib) vaccine

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SUMMARY

We used in-depth interviews with 23 mothers of babies aged 1–2 years to explore their response to the addition of Haemophilus influenzae type b (Hib) vaccine to the primary schedule. Acceptability of the vaccine was principally attributable to maternal perceptions as to the severity of meningitis, with a tendency to overestimate the efficacy of the vaccine. Advice from health professionals and the behaviour of peers contributed to its acceptance. Barriers to the uptake of the vaccine included suspicion regarding the newness of the vaccine, a fear of vaccine overload in such young babies, and the distress of two separate injections. There may be a limit to the number of antigens, and particularly the number of injections, acceptable to mothers.

Keywords: Haemophilus influenzae; Hib vaccine; parental attitude.

Introduction

THERE is little published data, either quantitative or qualitative, on the response of parents to the advent of a new primary vaccine. As part of a larger study examining the reasons for suboptimal vaccine uptake, we sought to establish the response of parents to the newly introduced Hib vaccine; specifically, how they viewed its necessity, safety, and the need for multiple injections.

Method

During the structured interview of a birth cohort of 343 mothers for a larger quantitative study on sub-optimal immunization uptake in Dublin, those meeting one or more of the following criteria were identified as suitable for follow-up qualitative in-depth interview. These were mothers who:

- were uncertain as to their likely immunization behaviour,
- expressed anxieties regarding the possibility of vaccine harm,
- favoured immunization owing to their experiences of measles or whooping cough,
- favoured immunization as a means of protecting their baby.

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A fifth group comprised mothers of babies whose immunization records at 12 months showed incomplete uptake ('defaulters').

Of 40 mothers meeting these criteria, 23, including nine first-time mothers, agreed to an in-depth interview that was carried out during their child's second year of life. Interviews were transcribed verbatim and analysed with the assistance of NUD*IST software.[1] In the absence of a body of literature on the acceptability of Hib vaccine, the theoretical framework used was that of grounded theory.[2]

Results

Hib vaccine uptake

The immunization status of the 23 babies is shown in Table 1. Three of the mothers had opted to omit Pertussis vaccine and one refused Hib vaccine saying she had been advised against it following her baby's hospitalization for meningitis.

Six mothers were defaulting on the primary vaccines of their babies, including Hib vaccine, at 12 months of age. Three of these were defaulting on their final immunization visits following negative experiences; in each case this was attributed to previously administered Hib vaccine. One was upset by her child's behaviour change in the vaccine aftermath compared with a sibling immunized before the advent of Hib vaccine. The second strongly resented the need for a second injection at each visit, while the third attributed a 'turn' after the second immunization visit to vaccine overload, blaming the addition of Hib vaccine to the schedule.

Perceived threat of meningitis

Acceptance of the new Hib vaccine centred primarily on mothers' perceptions of the severity of meningitis, which they knew was rapidly progressive and potentially fatal. A cluster of cases of meningococcal meningitis reported in the media since the birth of their babies increased this sense of threat and acted as a prompt to immunize. It also resulted in the perception that meningitis was more common than in previous generations. A remarkable proportion of mothers recounted hearsay experiences of meningitis among friends and neighbours, suggesting an over-liberal use of this diagnostic label at popular level. For many, the greatest fear was not recognizing meningitis in their children.

Acceptability of the new vaccine

Mothers wondered how adequately the newly introduced vaccine had been researched and tested. Almost all were aware that the vaccine did not protect against meningococcal meningitis, with some wondering, for this reason, if there was any point in consenting to it. Others believed that the vaccine was a virtual guarantee against any severe form of meningitis, including meningococcal. Some feared the vaccine might cause damage, including brain damage, or unanticipated adverse effects taking many years to manifest themselves. Some feared Hib vaccine might paradoxically precipitate or unmask meningitis in their babies, echoed in notions about Pertussis vaccine somehow precipitating epilepsy. Safety of the new vaccine was established principally by discus-

Table 1. Immunization behaviour and status of the 23 babies of the mothers interviewed, when aged 12 months.

	Vaccination status			
Vaccination choice	Complete	Incomplete	None	Total
Diptheria/tetanus	1	2	–	3
Diptheria/tetanus/pertussis	16	4	–	20
Hib	16	6	1	23

sion with peers, family, a trusted GP, and, particularly, their public health nurse. Mothers were reassured by an absence of adverse effects when other children received the vaccine. Ultimately, they balanced the risk of unlikely but unknown vaccine harm against the potentially fatal risk of meningitis and opted to immunize.

Vaccine overload and the need for a second injection

The majority of mothers were distressed by the need for a second injection during an immunization visit, describing it as 'cruel' and 'an insult' to the baby. They found it particularly hard to comfort a child who had received one injection in advance of the second. This resulted in a definite increase in the mother's anticipation of pain and distress at the next visit.

In parallel with the mothers' dislike of a second injection was the notion that babies were receiving too many antigens and at too young an age:

> *' ... 'Cos his body have fought off say some of the things first and say built up again and then fought off say the Hib. Rather than that was three, four, five things he had to fight off and he was only three months.'* (Mother 3.)

Mothers used hostile phraseology to describe their feelings on this issue: '*drastic amount*', '*an awful lot of ... medication to be pumped into their system in one go*' (Mother 20); '*an unreal amount of germs to slap into anybody*' (Mother 14). Despite their concerns about overload, most mothers were in favour of the convenience of two injections per visit as opposed to the alternative of more visits to complete the vaccine schedule.

There was some scepticism about the need for so many vaccines in the light of improvements in living circumstances and lower prevalence of many diseases. It was suggested that the medical establishment, and allied commercial interests, might magnify the threat of diseases to promote immunization. Some mothers made it clear that there was a limit to the number of vaccines they would tolerate on their child's behalf:

> '*I would eventually not get them all done because I mean you can't keep vaccinating for every single thing ... because you are pumping something into a child's immune system. They bring out one for a child having a runny nose, they bring out one for a child having a cough, they bring one out for a child having, you name it'.* (Mother 15.)

> '*and I am saying, Jesus, what are you getting injected against the 'flu for? It's only the 'flu. Oh no, now that can kill you, and all this, and you are saying to yourself, Jesus, what will they think of next?*' (Mother 2.)

Discussion

Acceptance of the newly introduced Hib vaccine among the mothers under study seems to be attributable almost exclusively to the perceived threat of meningitis that overcame any uncertainty regarding vaccine safety. However, any proposal to add new vaccines to the primary immunization schedule should note the resistance of these mothers, both to multiple injections and to possible vaccine overload.

Reports from pilot studies on Hib immunization note that parents would have preferred one injection but were not put off by a second.[3,4] However, 25% (94) of parents approached refused to take part in the pilot study.[5] Of these, 52% did so because of worries about the newness of the vaccine, but only 6% refused because of the need for a second injection. Booy,[6] also involved in pilot studies, found that 68% of those refusing Hib vaccine did so because of its newness and 15% because of the need for a second injection, while 2% refused all vaccines.

Resistance to the giving of two injections per visit is not confined to parents. Health professionals involved in the Hib pilot study also expressed reservations about multiple injections.[3] Thirty-seven per cent[7] and 59%[8] of surveyed physicians in the United States are unhappy to give three simultaneous injections during one visit following the introduction of universal Hepatitis B immunization. Our findings suggest that any antigens added to the present primary schedule will have to be incorporated into polyvalent vaccines if target levels are to be reached among more vaccine-resistant mothers.

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