

Survey of parents' attitudes to the recommended *Haemophilus influenzae* type b vaccine program

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A survey was conducted in a general pediatric practice to determine parents' attitudes to and compliance with the recommended *Haemophilus influenzae* type b vaccine program. Of 133 families surveyed 127 (95%) responded to the questionnaire. About one third of the parents did not have their children vaccinated. The decision against vaccination was made despite parent education, follow-up telephone contact and the pediatrician's expressed support of the vaccine program. Most of the respondents (86%) had no previous knowledge of the vaccine. The factor of greatest concern was the possibility of an adverse reaction. This concern was significantly more common among the parents who decided not to have their children vaccinated than among those who had their children vaccinated ($\chi^2 = 6.52, p < 0.025$). One third of the parents who indicated that they intended to have their children vaccinated required a telephone reminder. The findings suggest a need for public education about the vaccine, with particular emphasis directed at allaying fears about side effects.

La présente enquête, réalisée dans une clientèle privée de pédiatrie, cherchait à faire connaître l'opinion des parents et leur acceptation quant à la vaccination maintenant recommandée contre l'*Haemophilus influenzae* du type b. De 133 familles pressenties, 127 (soit 95%) ont répondu. Un tiers environ des parents n'ont pas fait vacciner leurs enfants, en dépit de l'information

qui leur a été donnée, de rappels téléphoniques et de la recommandation, faite par le pédiatre, de ce vaccin. La plupart des répondants (86%) ne le connaissaient pas déjà. L'inquiétude s'exprime surtout quant à la possibilité de réactions indésirables, ceci le plus souvent chez les parents qui refusent le vaccin que chez ceux qui l'acceptent ($\chi^2 = 6,52, p < 0,025$). Dans le cas de ces derniers, il a fallu un rappel téléphonique une fois sur trois. Le tout fait penser que le public a besoin d'être informé de ce vaccin et rassuré quant à ses effets secondaires.

The "physician-knows-best" method of immunization practice has been severely tested during the past decade. In 1974 the parents of a child who had become paralysed after receiving live oral polio vaccine successfully sued for damages as a result of the intrinsic risk of the virus in the vaccine.^{1,2} In 1977 the association of swine influenza vaccine with the unexpected complication of Guillain-Barré syndrome was widely reported in the US media.^{1,2} In 1982 the first of many major television network programs giving adverse publicity to pertussis vaccine was broadcast. It has been suggested that these media events have led to public fears about diphtheria-pertussis-tetanus vaccine, to the formation of a group of parents (Distressed Parents Together) who believe that their children have been injured by the vaccine and to an increasing number of lawsuits.³ In 1986 the Infectious Diseases and Immunization Committee of the Canadian Paediatric Society speculated that the success of immunization has caused parents to become less concerned about the target disease and more concerned about rare adverse effects.⁴

The association between demographic factors and compliance with vaccination has been exam-

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ined.^{5,6} There have, however, been no formal studies designed to measure parents' attitudes toward and compliance with immunization programs.

Haemophilus influenzae type b vaccine was licensed in Canada in February 1986. The Canadian National Advisory Committee on Immunization (NACI) has recommended that all children receive the vaccine at 24 months of age and that children aged 25 to 60 months also be considered for vaccination.⁷ The NACI's statement was followed by a press conference sponsored by a manufacturer of the vaccine. In metropolitan Toronto (where our study was carried out) there have been numerous press, radio and television reports about the vaccine but no formal physician or public health education measures.

Recently one of us (D.H.S.) and some colleagues conducted a survey to determine the attitudes of Canadian physicians to the recommended *H. influenzae* b vaccine program and their compliance with the program.⁸ Only 42% of the family physicians and 57% of the primary care pediatricians expressed intent to recommend the vaccine to the parents of all patients for whom it was indicated.

Given the introduction of a new vaccine program, evidence of noncompliance among a large proportion of physicians and the suspicion that parents are concerned about other vaccines routinely given in childhood, we felt that a survey of parents would prove informative. Our purpose was to determine parents' attitudes to the recommended *H. influenzae* b vaccine program and the factors affecting compliance in a general pediatric practice in which the vaccine was recommended.

Methods

All 133 families in a general pediatric practice who had children eligible to receive *H. influenzae* b vaccine were included in the study. The families were surveyed from June 2 to Aug. 31, 1986. The parents were contacted either by telephone (with a request to attend the office to receive information about the vaccine) or when they presented in the office for an unrelated reason. The parents were given an information sheet about the vaccine and a short questionnaire designed by us. They were told that they could keep the information sheet and that completion of the questionnaire was voluntary. All parents were given an opportunity to discuss their concerns about the vaccine with the pediatrician.

The information sheet included educational material on the nature and risks of *H. influenzae* b disease and on the expected benefits and risks of the vaccine,⁹ recommendations of the responsible medical advisory bodies, cost and the recommendation of the child's pediatrician.

On the questionnaire the parents were asked whether they intended to have their children

vaccinated. They were also asked whether they were concerned about four factors that may affect parents' compliance with the recommended vaccine program: cost, possibility of immediate discomfort, possibility of an adverse reaction and necessity of vaccination. The parents were asked to rate their degree of concern as follows: not concerned, a little concerned, moderately concerned or very concerned. The parents were also asked whether they had had any knowledge about the vaccine program before reading the information sheet. In addition, we included one open-ended question on respondents' general attitudes to the vaccine program.

Parents who indicated that they intended to have their children vaccinated were given the choice of having the vaccination done the same day or booking a follow-up appointment. Parents who indicated that they were uncertain or who responded affirmatively but did not have their children vaccinated were contacted 2 months later by the office secretary and asked whether they would like the vaccine ordered on their behalf.

Results

All 133 target families were contacted, and 127 (95%) responded to the questionnaire. By the end of the study period 81 of the 127 respondents (64%) had had their children vaccinated; one third of the 81 had needed a telephone reminder before they acted. Of the respondents who complied 80% were initially reticent or wanted time to discuss the information with their spouse. Of the six families who did not complete the questionnaire one requested the vaccination. When contacted by telephone the other five families indicated that they had no desire to receive further information about the vaccine or to have their child receive it.

Table I shows the proportions of respondents who were moderately or very concerned about the four factors that may affect compliance. A higher proportion of the parents who decided not to have their children vaccinated than of the parents who had their children vaccinated were concerned

Table I — Proportions of families in a general pediatric practice who were moderately or very concerned about four factors that may affect parents' compliance with the *Haemophilus influenzae* type b vaccine program

Factor	% of families	
	Child subsequently vaccinated (n = 81)	Child not subsequently vaccinated (n = 46)
Cost of vaccine	0	11
Possibility of immediate discomfort	15	20
Possibility of adverse reaction	44	70
Necessity of vaccination	19	36

about the possibility of an adverse reaction ($\chi^2 = 6.52$, $p < 0.025$) and of the necessity of the vaccination ($\chi^2 = 4.34$, $p < 0.05$). There were no significant differences in the proportions of parents who were concerned about cost or the possibility of immediate discomfort.

A total of 109 of the families (86%) had no previous knowledge of the vaccine. The rates for the families who had their children vaccinated and those who did not were 86% and 85% respectively.

Discussion

About one third of the parents in our survey did not have their children receive *H. influenzae* b vaccine despite parent education, follow-up telephone contact and the pediatricians' expressed support of the vaccine program. All of the target families were contacted, and appointments were arranged at the parents' convenience. Therefore, although the summer vacation coincided with the study period, we do not feel that this adversely affected compliance. Why, then, was our compliance rate only 64%?

Fear of side effects was the main concern of the parents in our study. This fear was significantly more common among the parents who did not have their children vaccinated. Parents expressed anxiety about the possibility of short-term side effects (encountered with other vaccines) and unknown complications that might appear years later. Parents reported being greatly influenced by the adverse publicity about pertussis vaccine in the Canadian media. At the same time they were wary of *H. influenzae* b vaccine because most had no knowledge of it, despite the statement of the NACI,⁷ media publicity and the fact that our study took place 4 to 7 months after the vaccine was licensed.

The parents' concern was contrary to the well-documented safety of *H. influenzae* b vaccine. Bacterial polysaccharide vaccines are among the safest vaccines available. Reactions to *H. influenzae* b vaccine "are uncommon and are generally not severe, consisting of local soreness or fever. About 1% of recipients have a temperature higher than 38.5°C. Other systemic reactions are very rare."⁷

Inertia was observed even among the parents who complied: one third required a telephone reminder before they had their children vaccinated, even though most had indicated their intention to do so. A recent study on recalling patients aged 65 years or older for influenza vaccination showed that a telephone reminder by the office nurse markedly improved patient compliance and was the single most effective method used.¹⁰

Parents should be educated about each vaccine and the role it plays in the well-being of their children. Oral communication is often ineffective, as not all parents will retain the information or be

responsive to this form of education. Therefore, it is recommended that oral communication be reinforced by written material.⁹ To date, only one province (Alberta) has made an information sheet on *H. influenzae* b vaccine available to primary care physicians to facilitate this process. We designed an information sheet as part of our study. In an uncontrolled office trial we found that the information sheet reduced the time required to counsel parents and gave parents written material that served as a basis for discussion. In a study of physicians' attitudes to the vaccine, 70% of family physicians and pediatricians indicated that the time required for patient education was a major or minor concern.⁸ Therefore, the availability of such information sheets may improve physicians' compliance in educating patients. We believe that they should be standardized documents produced by the relevant medical association and distributed to all primary care physicians and parents of young children.

The parental attitudes measured in our study are in keeping with what immunization experts have suspected (but have not systematically quantitated).^{1-4,11} The responses suggest the need for public education about this and other vaccines routinely given in childhood, with particular emphasis directed at allaying fears about side effects.

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