

Impact of Vaccine Cost and Information About Complications of Varicella on Parental Decision Regarding Varicella Vaccine

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ABSTRACT

Background: The influence of providing information about complications of disease and vaccine cost on parental decision to vaccinate against varicella was assessed.

Method: During telephone interviews of 330 parents of infants aged 9 months, parents were asked if they would agree to have their child vaccinated and were presented information first about varicella complications and then about cost of the vaccine.

Results: When complications were explained but information about cost was not, 94% of parents were favourable toward having their child vaccinated. When complications were not explained but cost was presented, this percentage was only 34%. When both cost and complications were presented, 60% of parents were favourable toward the vaccine.

Interpretation: In improving receptivity towards varicella vaccine, parents should always be presented data regarding varicella complications by their health care provider.

In May 1999, the National Advisory Committee on Immunization recommended universal use of varicella vaccine to reduce the incidence of varicella and prevent its complications.¹ Children aged 12 months or older should receive a single dose of varicella vaccine. In May 2000, only 4% of 1-year-old children had received this vaccine over the previous 12 months in the Quebec City area (N. Boulianne, personal communication, June 2000). Use of varicella vaccine is still limited for at least two reasons. First, varicella is often perceived as a benign disease,²⁻⁴ despite the fact that the number of medical consultations, hospitalizations and complications is large.^{1,5-8} It is likely that much of this information remains unknown by the public and should it become known, demand for the vaccine would increase.⁹ Second, parents currently have to pay approximately \$80 CAN (~ \$50 US) for the vaccine. Because other childhood vaccines are provided free of charge through publicly funded programs, paying for this vaccine may deter parents from having their children vaccinated. We conducted a study to estimate the proportion of parents who would decide to vaccinate their child against varicella if they were presented information about the frequency of varicella complications, and the proportion who would decide not to vaccinate because of the cost of the vaccine.

METHODS

A sample of 330 infants aged 9 months was randomly selected from the regional computerized vaccination registry of the Quebec City area. This registry includes an almost complete census of 9-month-old children residing in the area. Parents were called by telephone by medical students in February and March 1999. They were initially asked if they believed that a varicella vaccine was useful and if they would agree to have their child vaccinated. For those who were favourable, they were asked if they still wanted the vaccine considering the \$80 cost. Those who then decided against vaccination were asked if they would change their decision after they were read the following information on complications: 50% of cases consult a physician; 2% develop a skin infection which requires antibiotic; 1/500 cases is hospitalized; 1/50,000 develops a serious

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neurological complication; 1/130,000 dies; the risk of flesh-eating disease (invasive *Streptococcus pyogenes* β hemolyticus group A (IS β HGA)) is 40 to 60 times greater than normal during the varicella episode; and the efficacy of the vaccine is 90%.¹ Similarly, those who were not willing to vaccinate their child initially were presented the complications and asked if this would alter their decision. Those who were initially favourable were then asked if they would still want vaccine for their child, knowing that they would have to pay \$80.

RESULTS

Overall, 71% (233) of parents were successfully contacted and all agreed to participate. Before being provided any information about the cost of the vaccine or the complications of disease, 83% (193) of parents were interested in having their child vaccinated (Figure 1). Among these 193 favourable parents, 59% changed their opinion when told the cost of the vaccine, but more than half of them were favourable again when cited the complications. Among the 40 parents who were not interested initially, 63% became favourable after they were cited the frequency of complications. That is, in the case where no cost information was provided and complications were explained to those not initially interested, 94% (193 +25) of parents were favourable toward having their child vaccinated. In the scenario of parents who were initially favourable being provided cost information alone and parents not initially favourable not being provided information about complications, only 34% (80) of all parents were interested in having their child vaccinated. When both cost and complications were presented, 60% (80+53+16) of parents were favourable toward the vaccine. Cost apparently had a greater impact on parents than information on varicella complications, as evidenced by the smaller number of parents favourable to the vaccine after being given information on these two issues (149) than before (193).

DISCUSSION

In this study, cost and information about complications had a tremendous impact on

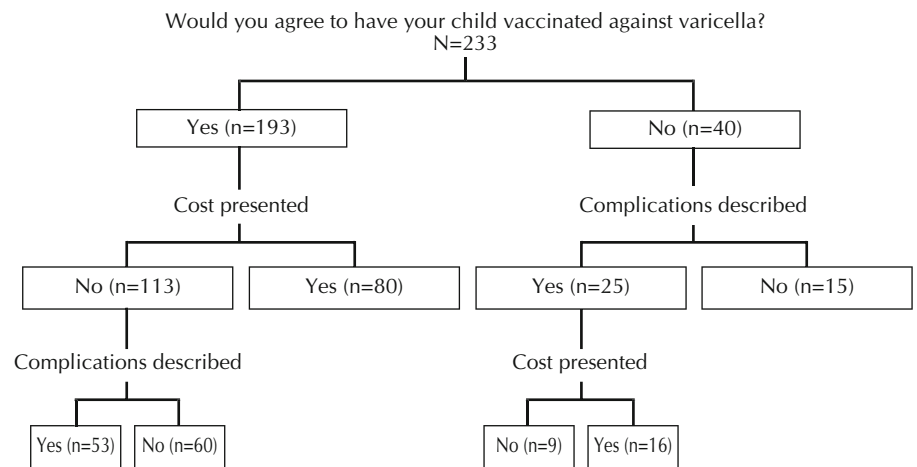


Figure 1. Parental decision according to information on varicella complications and vaccine cost

parental decision, with 94% approval under the most favourable conditions of providing information about complications but no information about cost. In contrast, under the least favourable conditions of cost explained but information about complications not provided, only 34% were favourable toward the vaccine.

This study provides only crude information and has several limitations. The data were collected in early 1999, just a few months after the vaccine was licensed in Canada and before the manufacturer launched public advertisements, and we do not know if parents' opinions evolved since that time. Information was collected by medical students during a phone interview and it is possible that answers may have differed during a face-to-face discussion between the parents and their usual vaccine provider. Finally, this study does not take into account how other important factors like family income, work days lost for child care during varicella, personal experience with varicella, and vaccine safety, affect parental decision. In spite of these limitations, given the great impact of information on varicella complications and vaccine cost on parents' opinions regarding varicella vaccination, these results are likely to provide valuable information.

The decision to accept varicella vaccination is taken after answering two questions. First, is the disease considered severe enough to be worth preventing? Second, does the severity warrant the cost of the vaccine and is it considered affordable? The answers to these questions reflect value judgements, not science. Science pro-

vides the data about the severity of the disease, its complications, the efficacy of the vaccine and its safety, but the decision about whether this disease should be prevented cannot come from science alone as this involves value judgements. In fact, scientific data support the use of the vaccine and there would be little debate if the cost of the vaccine fell as low as \$1 US per dose. When parents have to pay for the vaccine, they balance the cost and benefit of vaccination. The decision to spend money for the prevention of varicella competes with other needs, and the best that science can do is provide accurate facts. The final decision is a matter of personal values.

Health care professionals are obligated to obtain informed consent before administering a vaccine. To do so, they should present data about complications of disease and vaccine efficacy and safety as precisely as possible with figures rather than qualifiers (such as rare, high or frequent), which themselves carry judgemental values. Parents can then decide if the vaccine is too expensive or the risk of disease is too small. Health care professionals who do not consider varicella vaccine useful enough to recommend it, are also obligated to inform parents about the vaccine and the data regarding the disease it is meant to prevent. Parents of a child who sustains a complication of varicella with sequelae, who were not presented the option of the varicella vaccine during a previous visit for other vaccinations, could probably hold their physician liable. This does not mean that all health care providers have to agree

with the recommendation to use the varicella vaccine. Health care professionals are entitled to express their opinion and many studies have shown that physician recommendation is the most powerful factor in influencing vaccine acceptance.⁹⁻¹¹ However, recommendation for or against this or any vaccine should always be accompanied with data. Parents can then evaluate for themselves whether they agree or disagree with the recommendation and give truly informed consent or refusal.

RÉSUMÉ

Contexte : La décision des parents de faire vacciner leur enfant contre la varicelle a été évaluée avec ou sans information sur les complications de la maladie et pour un vaccin gratuit ou coûtant 80 \$ CAN (~50 \$ E-U).

Méthode : Au cours d'entrevues téléphoniques, 330 parents de nourrissons âgés de 9 mois se sont faits demander s'ils seraient d'accord pour que leur enfant soit vacciné et ont reçu de façon séquentielle de l'information sur les complications de la varicelle et le coût du vaccin.

Résultats : Dans la situation où les complications étaient expliquées et où on ne parlait pas du coût du vaccin, 94 % des parents étaient favorables à ce que leur enfant soit vacciné. Dans le scénario où le coût était présenté mais pas les complications de la maladie, ce pourcentage était seulement de 34 %. Quand les complications et le coût étaient présentés, 60 % des parents étaient favorables au vaccin.

Interprétation : Le médecin devrait toujours présenter aux parents les données concernant les complications de la varicelle.

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