

RESEARCH ARTICLE

To Consent or Decline HPV Vaccination: A Pilot Study at the Start of the National School-Based Vaccination Program in Sweden

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ABSTRACT

BACKGROUND: Parents' beliefs about human papillomavirus (HPV) vaccination influence whether they allow their daughters to be vaccinated. We examined the association between parents' refusal and sociodemographic background, knowledge and beliefs about HPV, and the HPV vaccination in relation to the Health Belief Model.

METHODS: The sample consisted of 200 (55%) parents of children aged 11-12 years in the Swedish national vaccination program. Data were collected using a self-reported questionnaire. Most parents (N = 186) agreed to the vaccination. Pearson's chi-square, Fisher's exact test, and the Mann-Whitney *U* test were used to analyze data.

RESULTS: Declining parents saw more risks and fewer benefits of HPV vaccination but no differences in beliefs regarding the severity or young girls' susceptibility to HPV were found. There was an association between refusing the HPV vaccine and lower acceptance of previous childhood vaccinations, and their main source of information was the Internet. Parents who declined the vaccine believed it could adversely affect condom use, the age of their daughter's sexual debut, and the number of sexual partners.

CONCLUSION: Parents should have the possibility to discuss HPV and HPV vaccine with a school nurse or other health care professionals, and should have access to evidence-based information on the Internet.

Keywords: health beliefs; Health Belief Model; HPV vaccination; school-based vaccination programs; school nurses.

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The human papillomavirus (HPV) is the world's most common sexually transmitted infection (STI). At least 12 HPV types are classified as carcinogenic.¹ HPV-16 and HPV-18 are related to >70% of cervical cancers, and HPV 16 is associated with anal, oropharyngeal, vaginal, vulval, and penile cancer.² Prophylactic HPV vaccination can prevent against infection and disease caused by targeted HPV types.^{3,4} Most Western countries have implemented national HPV vaccination programs for young girls, and countries with

school-based vaccination programs tend to have the highest vaccine uptake.^{5,6} To provide the best protection, the vaccine should be administered to young girls⁷ before they become sexually active.³ In Sweden, all children are offered vaccinations free of charge in the national vaccination program. The vaccinations are nonmandatory and parents have to consent and mothers are often the decision-makers.⁸⁻¹⁰ Inoculation with the quadrivalent HPV vaccine was introduced to the Swedish school-based vaccination program in 2012 for

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girls from 10 to 12 years of age. The national goal is to have an uptake of at least 90%. In the first year, 79% of girls received at least 1 dose.¹¹ The high uptake of the HPV vaccination reflects the high vaccine acceptability in general among parents in Sweden; other childhood vaccinations have an uptake above 95%.¹²

It is not clear whether the parents' sociodemographic background has any influence on whether they let their daughter receive the vaccine or not. Ogilvie et al¹³ found few differences between the participants in their study, but more highly educated parents were less likely to accept the HPV vaccination.¹³ Studies performed in Sweden before the national program was implemented provided conflicting results. For example, Dahlstrom et al¹⁴ indicated that parents with a higher level of education were less likely to accept the HPV vaccination, but a register study by Leval et al found the opposite.⁷ Ethnicity also seems to have a mixed effect on vaccine uptake. Our previous focus group study showed that women representing the largest immigrant groups in Sweden, ie, those arriving from North Africa, the Middle East, and Southeast Asia where access to screening and national vaccination programs are limited, were in favor of the HPV vaccination.¹⁵ Nevertheless, British studies found that an immigrant background was associated with a lower likelihood of vaccination,^{16,17} whereas Ogilvie et al¹³ found that country of origin made no difference. The studies^{7,14-17} show conflicting findings and the Swedish studies were performed before the implementation of the national HPV vaccination program. In Sweden, the population has a favorable attitude toward vaccinations in general. However, vaccine hesitancy is a growing challenge. One reason might be that many individuals have not experienced the diseases against which the vaccinations protect. Fears of side effects increase the perceived risk of getting the disease. Thus, there is a need for more research regarding vaccine hesitancy.¹⁸

Parents generally make decisions about their child's vaccinations and the results of previous studies^{13,19-21} show that this follows a complex procedure. Parents who agreed to let their daughters have the vaccine believed in its efficacy¹³ and that it protected them against severe disease.²¹ Other factors associated with their acceptance were a doctor's recommendation and the fact that they had agreed to previous childhood vaccinations.¹³ Parents who declined cited reasons such as concerns about side effects^{13,20} and long-term safety.^{19,21} They also believed that their daughters were too young^{13,21} or they did not perceive that there was a risk of HPV infection.²¹ Another common barrier to accepting the vaccination was insufficient knowledge or information about the virus and the vaccine.^{13,19} Other factors that might influence the decision about vaccination are subjective norms and emotions.²² Information from social media and the

internet may also influence the decision.^{23,24} The quality of the information varies; information from public agencies as well as anti-vaccine movements is available.²⁵

We recently carried out 2 qualitative studies^{8,9} exploring why parents refused or agreed to let their daughters have the HPV vaccination.⁸ The main reasons why parents agreed were that they trusted the recommendations from the authorities and that they wanted to protect their daughter from a severe disease.⁸ Refusal was more complex.⁹ Parents who declined the vaccination believed their daughters were too young and not physically or psychologically mature enough. Other reasons were a lack of information and not pleased with the information from the school health, doubts regarding the safety and efficacy of the vaccine, and mistrust in the government's recommendation.⁹ The previous recommendation by the Swedish government to vaccinate against influenza type A (H1N1) was the main reason,⁹ as it was recently linked to an increased risk of narcolepsy, especially in children and adolescents.²⁶

The Health Belief Model (HBM) is commonly used to explain an individual's behavior concerning his or her health. The HBM mainly predicts the intention to take action and not actual behavior. The model has previously been used in studies on people's intentions and behavior regarding influenza vaccination,²⁷ attitude to and decision about the HPV vaccination^{15,20,28,29} and in interventions with the aim to increase HPV prevention.³⁰⁻³² The HBM includes 5 central constructs. *Perceived susceptibility* refers to how likely someone thinks they are to develop a disease or condition. *Perceived severity* is how serious someone feels the condition is. *Perceived benefits* are the individual's beliefs about the benefit of taking action to reduce the threat of the disease. *Perceived barriers* refer to a person's perception of any negative aspects of a recommended health action. *Cues to action* are defined as the triggers for a recommended health action, such as a healthcare professional's recommendation to vaccinate.³³ Therefore, according to the HBM, it is important for a person to recognize the risks of an HPV infection. They also need to feel that the benefits outweigh the disadvantages of taking the recommended action, in this case consenting to the HPV vaccination. Modifying factors such as age, sex, ethnicity, and education can influence a person's perception and health behavior. The main limitation of HBM is that it is a cognitive model that does not take into account the emotional aspects of the individual's behavior.³³

To achieve high levels of vaccine coverage, it is essential to gain a greater understanding of why parents refuse to let their 10- to 12-year-old daughters receive the HPV vaccination at school. The aim of this study was to examine the association between the parents' refusal and their sociodemographic

background, their beliefs regarding information about HPV, their knowledge of HPV and the HPV vaccination, and their beliefs regarding HPV and the HPV vaccination in relation to HBM.

Based on previous studies the following hypotheses were evaluated concerning parents—ie, that those not giving consent:

- had a higher level of education;
- were not pleased with the information provided by school health authorities;
- used mainstream mass media as their main source of information; and
- held less favorable beliefs regarding HPV vaccination.

METHODS

This small-scale project took place in the beginning of the introduction of the HPV vaccination program. We used a cross-sectional approach for this pilot study, with data collected using a self-report questionnaire. The group consisted of parents living in a municipality in central Sweden, who had been offered the HPV vaccination for their 10- to 12-year-old daughters at the start of the national HPV vaccination program in spring 2012.

Questionnaire

The questionnaire was specifically developed for this study. It was based on earlier studies^{8,9,13,34} and clinical experience and comprised 46 questions grouped into 6 areas: (1) demographics of the participants and acceptance of previous childhood vaccinations and the vaccine against influenza A (H1N1); (2) beliefs about other vaccinations; (3) beliefs about the information provided about the HPV vaccination; (4) knowledge about HPV and HPV vaccine; (5) beliefs concerning sexual behavior; and (6) beliefs regarding HPV and the HPV vaccination based on the HBM constructs (benefits, barriers, severity, susceptibility, and cues to action). Cues to action comprised questions about the decision-making process. A 5-point Likert scale was used for questions about knowledge and beliefs in relation to the HBM and sexual behavior, with possible responses ranging from “completely disagree” to “completely agree.” In the results, “partially agree” and “completely agree” are jointly described as “agree.” A 5-point scale was also used to ask parents how pleased they were with the information provided when they were asked to give consent to vaccinate their daughter, with responses ranging from “very displeased” to “very pleased.” Similarly, for questions comprising the decision-making process, parents were asked to state the level of difficulty they had experienced when making the decision, ranging from “very difficult” to “very easy.” The single question regarding who made the actual decision about

HPV vaccination had 4 alternatives: by myself, with my partner, with my daughter or with another person. The remaining questions were either multiple-choice or dichotomized. It took about 10 minutes to complete the questionnaire.

The questionnaire underwent a rigorous validation process during 2 years, and both qualitative and quantitative methods were used:

- Construct and face validity³⁵ were tested on 30 female university students and mothers who were studying district and school nursing. The participants were asked to indicate whether they experienced any difficulties or ambiguity during completion of the questionnaire. Information was then shared during a feedback session.
- Discussions were undertaken with 8 experts in the field, who were asked to assess the relevance of the questions and confirmed their validity.
- The questionnaire was tested on 79 parents of daughters aged 11 to 12 years old. The parents were asked to give comments regarding the questions and the questionnaire. These parents are not included in this study. This resulted in minor modifications to the questionnaire.

Participants and Procedure

The parents of girls born in 2000, who were registered residents in a city in central Sweden, were eligible to participate. This city was selected because the vaccination program had been launched successfully in all schools in this region at the time of the study. In other areas, the vaccination program started 1 school term later.

The informative covering letter, questionnaire, and prepaid reply envelope were sent to the parents of 366 girls by a commercial company using addresses from the Swedish National Population Register, which includes all Swedish residents. Two reminders were sent. One questionnaire was returned due to the wrong postal address.

Data Analysis

Categorical data are presented as frequencies (N) and/or percentages (%), whereas ordinal, discrete, and continuous data are presented as means (M) and SD. For ordinal data, the mean is sometimes supplemented with the median (Md). We tested for differences between the parents who did and did not give consent for the HPV vaccination using Pearson’s chi-square or Fisher’s exact test for categorical data, and the Mann-Whitney *U* test for ordinal, discrete, and continuous data. IBM SPSS Statistics version 20 was used for all the data analyses and *p* values of <.05 were considered statistically significant.

Table 1. Characteristics of Parents According to Consent to HPV Vaccination (N = 200)

	Consenting (N = 186)		Declining (N = 14)		p-Value
Age, mean (SD)	43.2	(5.1)	42.6	(5.5)	.739
Number of children, mean (SD)	2.2	(0.8)	2.3	(0.8)	.089
Relationship to daughter					
Mother, N (%)	180	(96.8)	12	(85.7)	.079
Father, N (%)	5	(2.7)	2	(14.3)	
Country of birth					
Sweden, N (%)	170	(91.4)	12	(85.7)	.366
Other country, N (%)	16	(8.6)	2	(14.3)	
Highest level of education					
Primary education/secondary school, N (%)	47	(25.3)	4	(28.6)	.757
College/university/other education, N (%)	139	(74.7)	10	(71.4)	
Other legal guardian's highest level of education					
Primary education/secondary school, N (%)	84	(47.2)	5	(38.5)	.580
College/university education, N (%)	94	(52.8)	9	(61.5)	
Civil status					
Married to or cohabiting with the child's other legal guardian, N (%)	140	(75.3)	10	(71.4)	.753
Single or other civil status, N (%)	46	(24.7)	4	(28.6)	
Religious belief					
Christian/Islam/other, N (%)	124	(67.4)	8	(57.1)	.557
No religious belief, N (%)	60	(32.6)	6	(42.9)	
Importance of religion in the participant's life					
Very/quite big importance, N (%)	26	(14.3)	2	(14.3)	1.000
Not very important, N (%)	156	(85.7)	12	(85.7)	
Acceptance of other vaccinations					
Previous childhood vaccinations	184	(98.9)	12	(85.7)	.025
Vaccination against A (H1N1) swine flu	176	(95.7)	4	(28.7)	<.001

HPV, human papillomavirus; SD, standard deviation.

RESULTS

Just over half (55%) of the 366 parents who were approached completed the questionnaire. Most of the 200 questionnaires were completed by the mother, 96.8% in the case of the 186 parents who agreed to vaccination and 85.7% in the case of the 14 parents who declined. Table 1 presents parents' characteristics. These show that there were no differences in the characteristics of the declining and consenting parents. However, the declining parents were much more likely to have refused previous childhood vaccinations and also to have refused to have their child vaccinated against influenza A (H1N1), popularly known as "swine flu."

Parents' Beliefs Regarding Information About the HPV Vaccination

Parents stated that their main sources of information about the HPV vaccination were the school nurse (49.5%), mass media (29.0%), and the Internet (24.5%). Parents who refused permission were much more likely to list the Internet as their main source of information than parents who agreed (64.3% versus 21.5%, $p < .001$), were significantly less pleased with the information provided by the school nurse (mean 2.29 versus 3.84, $p < .001$) and found it more difficult to reach their decision (mean 2.79 versus 4.09, $p < .001$).

Parents' Knowledge About HPV and the HPV Vaccine

The majority of respondents (88.3%) agreed that HPV is an STI and just (3.5%) agreed with the false statement that people are always aware of an ongoing HPV infection. Less than one fourth (21.8%) were aware that HPV may cause cancer and 41.1% agreed that men could also be infected by the virus. The majority (83.5%) felt that women should have cervical smears, even if they had been vaccinated. There were no significant differences in knowledge between parents who declined or consented to the vaccination.

Beliefs Regarding HPV and the HPV Vaccine in Relation to the HBM

There were significant differences in beliefs about HPV and the HPV vaccination between declining and consenting parents, but no differences in beliefs regarding the severity of HPV or young girls' susceptibility to the virus (Table 2). Declining parents saw more risks and fewer benefits of their daughters having the HPV vaccination.

Cues to action. The majority (82.4%) of the respondents made the vaccination decision with the daughter's other parent and almost one fourth (23.1%) included their daughter in the decision-making process. There were no significant differences between declining or consenting parents. A total of

Table 2. Parents' Beliefs About HPV and HPV Vaccine According to Consent to HPV Vaccination in Relation to the Health Belief Model (N = 200)

Benefits	Consenting (N = 186)			Declining (N = 14)			Declining (N = 14)			p-Value
	Md	M	(SD)**	Md	M	(SD)	Md	M	(SD)	
The HPV vaccine is effective in preventing condyloma	3	3.5	(1.2)	3	3.2	(0.4)	3	3.2	(0.4)	0.154
The HPV vaccine is effective in preventing cervical cancer	4	4.1	(0.8)	3	3.1	(0.8)	3	3.1	(0.8)	<.001
HPV vaccination is beneficial for health in general	3	3.4	(1.1)	3	2.5	(0.9)	3	2.5	(0.9)	0.004
I have trust in the HPV vaccination	4	4.2	(0.9)	2	2.2	(0.9)	2	2.2	(0.9)	<.001
Barriers										
The HPV vaccine can cause adverse effects	4	3.7	(1)	4.5	4.2	(0.9)	4.5	4.2	(0.9)	0.054
It is problematic that the HPV vaccination requires 3 injections	3	2.5	(1.3)	3	2.8	(1)	3	2.8	(1)	0.377
The efficiency of the HPV vaccine is unclear	3	2.7	(1.1)	4	4.2	(0.8)	4	4.2	(0.8)	<.001
The HPV vaccine is harmful	2.0	1.9	(0.9)	3	3.2	(0.8)	3	3.2	(0.8)	<.001
Severity										
The HPV infection is a serious health concern	5	4.4	(0.9)	4.5	4.1	(0.9)	4.5	4.1	(0.9)	0.218
Cervical cancer is a serious disease	5	4.6	(0.6)	4.5	4.4	(0.6)	4.5	4.4	(0.6)	0.214
Susceptibility										
Young women are at risk of contracting HPV	4	4.2	(0.9)	4	4	(0.7)	4	4	(0.7)	0.383
Young women are at risk of contracting cervical cancer	3	3.5	(0.9)	3	3.3	(0.7)	3	3.3	(0.7)	0.374

HPV, human papillomavirus; M, mean; Md, median; SD, standard deviation.

11 of the consenting parents (6%) had been advised not to vaccinate their daughter, usually by a friend, but none of the declining parents had received this recommendation.

Beliefs Concerning HPV Vaccination Influence on Sexual Behavior

There were significant differences regarding beliefs about the HPV vaccination's influence on their daughters' future sexual behavior. Declining parents believed the HPV vaccination could adversely affect condom use, the age their daughters became sexually active, and the number of sexual partners they had. Consenting parents, on the other hand, assumed that the HPV vaccination could increase awareness of STIs (Table 3).

DISCUSSION

In this study, we did not find any support for the hypothesis that parents who declined HPV vaccination had a higher level of education. However, we did find support for the hypothesis that they were less pleased with information provided by school health officials and used mainstream mass media as their main source of information. They also held less favorable beliefs of HPV vaccination. Parents who had not agreed to previous childhood vaccinations were also more likely to decline the HPV vaccine. Declining parents felt that vaccination offered more risks and fewer benefits and were more uncertain whether it would influence their daughter's future sexual behavior in an undesirable way.

Only 14 participants (7%) declined the vaccination for their daughter, which was surprising as our survey took place at the start of the national HPV vaccination

Table 3. Parents' Beliefs About HPV Vaccination Influence on Sexual Behavior According to Consent to HPV Vaccination (N = 200)

Statement Regarding HPV Vaccination	Consenting (N = 186)	Declining* (N = 14)	p-Value
Results in decreased condom usage			<.001
Agree, N (%)	22 (11.9)	3 (23.1)	
Neither agree nor disagree, N (%)	49 (26.5)	9 (69.2)	
Disagree, N (%)	114 (61.7)	1 (7.7)	
Results in early sexual debut			<.001
Agree, N (%)	1 (0.5)	1 (7.7)	
Neither agree nor disagree, N (%)	29 (15.6)	6 (46.2)	
Disagree, N (%)	156 (83.8)	6 (46.2)	
Results in increased number of sexual partners			<.001
Agree, N (%)	2 (1.0)	2 (15.4)	
Neither agree nor disagree, n (%)	30 (16.1)	5 (38.5)	
Disagree, N (%)	154 (82.8)	6 (46.2)	
Increases awareness of sexually transmitted infections			.014
Agree, N (%)	129 (69.4)	4 (30.8)	
Neither agree nor disagree, N (%)	27 (14.5)	7 (53.8)	
Disagree, N (%)	30 (16.1)	2 (15.4)	

HPV, human papillomavirus.

*Missing data (N = 1).

program. The association between declining previous childhood vaccinations and the HPV vaccination is supported by previous research.^{13,36} Declining parents were significantly less likely to have agreed to the vaccine against influenza A (H1N1), popularly known as swine flu. The parents declined the vaccine as they believed the risks outweighed the benefits and this backs up the results of our recent qualitative study, where parents expressed fear of side effects, especially narcolepsy, was one reason why they declined the HPV vaccination.⁹ General attitudes

toward vaccines have an impact on the attitude to HPV vaccination in particular.³⁷ Therefore, it is not surprising that the declining parents in this study reported lower acceptance of previous vaccinations. Although the number of parents who are skeptical about vaccinations in Sweden in general is small it is important to provide this group with evidence-based facts and emphasize that the safety and effectiveness of the HPV vaccination is continuously monitored. This is extra important because parents search information on social media, where strong and emotional arguments with poor factual base from the anti-vaccine movements often circulate.^{25,38}

Almost 50% of parents stated that their main source of HPV vaccine information was the school nurses. This is to be expected, because school nurses manage all aspects of school-based vaccinations, including information, informed consent, logistics, and the administration of the vaccine. Other childhood vaccinations (for children aged 0-6 and the catch-up HPV vaccination) are delivered at primary care centers. In our recent population-based study regarding school-nurses attitude to and experiences of the implemented HPV vaccination program we found that almost 8 out of 10 nurses had been contacted by parents who had concerns regarding the vaccine. Most of these questions were related to side effects.³⁹ Therefore, it is not surprising that there was an association between declining the vaccine and beliefs regarding information about HPV. These parents were less content with the information they received from the school health service and, to a large extent, listed the Internet as their main source of information. This is troubling as material on the Internet often is not checked for factual accuracy. We can assume that this type of biased information causes, or reinforces, parents' choice not to vaccinate. Insufficient information from the school health service has been found previously to be a reason for not consenting to the HPV vaccination.^{9,13,19,36,40} Therefore, we recommend that the information given to parents should be more focused on HPV and the HPV vaccine, including facts about the diseases HPV can cause. Most importantly, the information should clearly state that no adverse effects, such as autoimmune diseases, have been linked to the vaccine.⁴¹ It would be a good idea to give parents easily accessible links to evidence-based information as well as the information distributed by the school health service.

The declining parents were more uncertain whether the vaccine would have a negative impact on their daughters' sexual behavior, while consenting parents assumed it would increase awareness of STIs. This difference of opinion is interesting and is also supported by previous findings.^{8,9,13} A belief that the vaccine protects against all HPV types, or that it protects against all STIs, could lead to a false sense of security and a negative impact on future sexual and

reproductive health. Therefore, it is essential that girls have accurate information about what the HPV vaccination really protects them against. Age-appropriate information could be distributed in schools by the school nurse or other health care professionals.³⁹

We believe that the HBM is useful as it helps to understand the factors associated with the decision to consent to or decline the HPV vaccination. However, it must be emphasized that HBM is a cognitive model and does not consider the emotional aspects regarding parents' decision. The Theory of Planned Behavior (TPB) is another widely used theory of health behavior which has previously been used in studies about attitudes to HPV vaccination.^{13,16} According to the TPB, attitude and subjective norm, as well as perceived behavioral control, have an impact on the intention to vaccinate. The ability of HBM and TPB to predict HPV vaccination has been compared by Gerend and Shepard who found that the theories overlap to a great extent.²² Declining parents considered the risks outweighed the benefits and had concerns about the vaccine's efficacy and safety. Therefore, it is not hard to understand why these parents chose to decline. This is in line with other studies.^{20,29,42,43} Parents want to make a decision they believe is in the best interest of their child.^{9,44} The concerns about the vaccine's possible harmful effects on their daughter's future health that we documented are in line with previous research,^{9,13,45} although no adverse effects such as narcolepsy have been linked to the HPV vaccine.⁴¹ This highlights the importance of clear and transparent health communication from the government. Lack of trust in the government is quite a new phenomenon in Sweden where previously the government's recommendations have been almost universally trusted regarding health issues. Lack of trust is an emotional barrier that can be hard to regain, resulting in a lower attendance in future public health and vaccination programs.^{9,46} The consenting parents expressed opposite beliefs, as they considered the benefits outweighed the risks. They trusted the vaccine more and believed it was beneficial for their daughters' health. Consequently they had their daughter vaccinated to protect her from a severe disease.⁸

A majority made the decision with the other parent but, almost one fourth of the parents also included the daughter in the decision-making process. This finding is supported by previous research^{8,47} and illustrates the parents' effort to act in the best interest of the child, taking into consideration their daughter's autonomy and well-being.⁹ One way to overcome these barriers and to support parents to make a more favorable decision regarding vaccinations would be to invite hesitant parents to further discussions with school nurses or other health care professionals. This is important because health care professionals play a key role in providing information about HPV^{8,48} and

their recommendation has been identified as a trigger, or cue to action, for parents to consent to the HPV vaccination.²⁰ This is in line with our recent school-based educational intervention that indicates that the school nurse can act as a cue to action regarding HPV vaccination.⁴⁹ School-based vaccination programs are convenient and accessible for parents.⁸

Limitations and Strengths

This was a pilot study and the main limitations of this study were the small sample size and the limited number of parents who declined vaccination of their child. Although we believe that the results are fairly representative in the similar context, they need to be interpreted with caution. Further research with a larger population is needed to investigate, in more detail, which behavioral factors influence parents' decisions. Another limitation is the response rate of 55%, a problem which is, sadly, common for postal questionnaires in Sweden. Similar response rates have been found in another relevant study.¹³ Finally, the majority of the participants were Swedish-born women with a university degree and we do not know if this has affected the results. However, we believe that one strength was the representativeness of those taking part, as all parents in the municipality who were offered the vaccination for their child in the school-based vaccination program were eligible. There were no sociodemographic differences between the groups of declining or consenting parents in our data. As a result, the data were not affected by responses from different socioeconomic subgroups. The area we selected had a coverage rate of 93%, compared with the national figure of approximately 80%, and this area still has one of the highest uptake in Sweden.¹¹

Future research should focus on efforts regarding HPV prevention among boys and education and information about HPV should include boys as well as girls. This would be beneficial for the public health and help decrease the overall burden of HPV.

Conclusion

Parents who declined the HPV vaccination for their daughter saw more risks and perceived fewer benefits of the vaccination. They considered the vaccine to be potentially harmful. Declining parents also were more likely to have sought information on the Internet, less likely to be satisfied with the information provided, and found it more difficult to reach their decision. The findings indicate a high level of uncertainty about the vaccination rather than a strong feeling against it.

IMPLICATIONS FOR SCHOOL HEALTH

School nurses play a key role in the successful implementation of the HPV vaccination program. The

main challenge for them, highlighted by our results, is how to provide adequate information to ensure that parents recognize the potential benefits of HPV vaccination. One way to achieve this would be to provide oral information, for example at parental meetings, in addition to the written information. Special efforts to reach hesitant parents should be introduced in school vaccination programs, striking a balance between individual autonomy and societal values. A flexible reminder and recall system is a proven method that may have this effect. Another way is to offer hesitant parents a dialogue with the school nurse, who should strive to listen to their concerns and acknowledge them in a nonjudgmental manner. As most questions often concerns safety issues, school nurses must be sufficiently educated regarding side effects and risks.

Human Subject Approval Statement

The Regional Ethics Review Board in Uppsala, Sweden approved the study (D. nr. 2012/48). Returning a completed questionnaire was taken as implied consent from individuals to participate.

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