Are women ready for the HPV vaccine?☆

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Abstract

Objective. An HPV (human papillomavirus) vaccine will be available soon. Because vaccination for both boys and girls will be critical to reduce the incidence of this disease, we evaluated the willingness of women to accept the HPV vaccine and to consent to having their children vaccinated.

Methods. A 20-item questionnaire was distributed to women who had children between the ages of 8 and 14 years, the likely age range of the children who will be targeted to receive the vaccine.

Results. 200 women completed surveys. The median age for the respondents was 34.4 years (range, 23–53 years). 77% of the women surveyed would be willing to accept an HPV vaccine for themselves. 67% who had a daughter (n = 156) and 66% who had a son (n = 137) would consent to have their child vaccinated. Those not accepting the vaccine cited the risk of unknown adverse effects or their current lack of sexual activity. Women who would not consent to have their children vaccinated cited the risk of unknown adverse effects and their belief that their children are not sexually active. Male children not directly benefiting from the vaccine were also a reason for not considering the vaccine for sons. A history of an abnormal Papanicolaou smear was not associated with willingness to accept the vaccine.

Conclusions. This pilot study demonstrated a willingness of women to accept the HPV vaccine for themselves and their children. Gynecologists and gynecologic oncologists must focus not only on the diagnosis and treatment of cervical cancer but also on its prevention.

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Keywords: Human papillomavirus; HPV vaccine; Cervical cancer

The human papillomavirus (HPV) is one of the most common sexually transmitted infections in the United States [1,2]. Approximately 5.5 million people develop genital HPV infections each year [1]. The highest rates for HPV occur in women between the ages of 18 and 28 [1]. It is estimated that 24% of 15-year-old girls, 38% of 16-year-old girls, and 62% of 18-year-old women have had sexual intercourse [3]. In addition, those at increased risk for cervical cancer, including minorities and low socioeconomic groups, frequently begin sexual activity at a younger age [3,4].

HPV infection causes both cervical cancer and preinvasive cervical disease (i.e., cervical dysplasia or cervical intraepithelial neoplasia). Up to 80% of patients with intraepithelial neoplasia show evidence of HPV infection [5,6]. Almost all cases of invasive squamous cell cervical cancer are associated with HPV infections [7,8].

The efficacy of HPV vaccines has recently been demonstrated in clinical trials. Koutsky et al. [9] were among the first investigators to report on a vaccine against one of the oncogenic risk types of HPV. In their study, the HPV-16 vaccine reduced the incidence of both HPV-16 infection and HPV-16-related cervical intraepithelial neoplasia. Currently, prospective studies are evaluating various vaccines that contain all high-risk subtypes of HPV. If an HPV vaccine is proven effective in clinical trials, HPV vaccination may be proposed as part of a routine general health examination. Universal immunization of HPV-negative
women and men would reduce the incidence of cervical cancer worldwide [10].

Although the advantages of such a vaccine are evident, risks and adverse effects are associated with these vaccines including erythema (4–25%); pain (36–71%); swelling (0–21%); and pruritis (0–4%) [11]. In addition to these physical effects, there are potential social barriers that would need to be overcome if the general population is to universally accept the HPV vaccine. One such barrier is that the vaccine would have to be administered to individuals before they became sexually active. Another barrier is that the indication for the vaccination would be to prevent a possible sexually transmitted disease. Approval of and consent to such a procedure could face resistance for a variety of personal, cultural, and religious reasons. Finally, although only one half of the population (i.e., women) are at risk for cervical cancer, most children (both boys and girls) would have to be vaccinated to reduce the incidence of the disease worldwide.

The primary objective of this study was to evaluate the potential acceptance of an HPV vaccine by women with children between the ages of 8 and 14 who visit their physician for routine health care and to determine whether these women would consent to having their daughters and sons vaccinated.

Methods

After approval was received from the institutional review board, surveys were distributed between February 2004 and September 2004 to women with children between the ages of 8 and 14 years. These respondents were accrued from the adolescent medicine clinics and gynecology clinics at The University of Texas-Medical Branch in Galveston, Texas. Potential participants (women with children) were approached by a research assistant to determine their willingness to participate in the survey. Surveys were available in both English and Spanish. Those who were unable to read English or Spanish were excluded.

We used a 20-item questionnaire developed by our group (Table 1). All participants received an educational component consisting of current facts about cervical cancer and the HPV vaccine and a summary of the potential benefits and risks of the HPV vaccination (Table 2). The first part of the questionnaire collected demographic, socioeconomic, and personal health information. The second part asked questions related to the acceptance of an HPV vaccine for themselves and willingness to give consent to have their children vaccinated.

Descriptive statistics were used to evaluate patient responses. Subgroup analyses were conducted according to race, highest level of education, socioeconomic status, history of abnormal Papanicolaou smear, and religion. Chi-square analysis was performed to compare the results from these groups. The Mann–Whitney test was used to compare ages between groups.

Results

To date, 200 surveys have been completed. Table 3 lists demographic information for these individuals. Fifty-two percent of the women had a history of an abnormal Papanicolaou smear, and 4% had a personal history of cervical cancer.

Seventy-seven percent of the women surveyed would be willing to accept an HPV vaccine for themselves. Demographic characteristics did not affect the acceptance of the vaccine. Specifically, there were no differences in the patterns of acceptance when participants were grouped by religion, education, race, or income. The women who would not accept the vaccine for themselves cited the risk of unknown adverse effects or their lack of sexual activity.

Sixty-seven percent of the women who had a daughter (n = 156) and 66% who had a son (n = 137) would consent to have their child vaccinated. The women who would not consent to have their children vaccinated cited the risk of unknown adverse effects and their belief that their children are not sexually active. The fact that male children would not directly benefit from the vaccine was also cited as a reason for not accepting the vaccine for sons.

A history of an abnormal Papanicolaou smear was not associated with the women’s willingness to accept the vaccine for themselves or their children. The willingness to have their children vaccinated with the HPV vaccine was associated with whether the children had received all previously recommended vaccines (P = 0.001 for daughters and P = 0.004 for sons). Women who were willing to accept the vaccine for themselves were more likely to allow their children to be vaccinated (P < 0.001). The number of

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<th>Table 1</th>
<th>Information collected</th>
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<tr>
<td>1. Age</td>
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<td>2. Race</td>
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<td>3. Religion</td>
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<td>4. Highest level of education</td>
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<td>5. Household income</td>
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<td>6. Marital status</td>
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<td>7. Number of children</td>
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<td>8. Did your children receive all their vaccines?</td>
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<td>9. Did your children have any adverse effects from vaccination?</td>
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<td>10. At what age do you feel that sex education should be initiated?</td>
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<td>11. Do you have gynecologic exams performed regularly?</td>
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<td>12. Have you ever had an abnormal pap smear?</td>
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<td>13. Why was it abnormal?</td>
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<td>14. Have you ever had a colposcopy?</td>
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<td>15. Have you ever had a cone biopsy?</td>
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<td>16. Have you had a hysterectomy?</td>
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<td>17. If yes, was the hysterectomy performed to remove cancer or dysplasia?</td>
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<td>18. If the vaccine were to work at any age, would you accept the HPV vaccine for yourself?</td>
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<th>Table 2</th>
<th>Patient education statement</th>
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<td>Human papillomavirus (HPV) is a virus that causes many types of cervical cancers. Recent scientific studies have shown that a cervical cancer vaccine may be available within the next couple of years. This vaccine would work by preventing an HPV infection. HPV is transmitted through sexual contact. For the vaccine to prevent cervical cancer, it needs to be given before someone becomes sexually active. We are not sure what the recommended age of vaccination will be, but it will probably be between the ages of 10 and 14 years old. Currently, in the United States, about 13,000 cases of cervical cancer are diagnosed each year, and almost 5000 patients die each year from this disease. It is clear that an HPV vaccine would eliminate or reduce the number of cases of cervical cancer diagnosed each year. In addition, this vaccine may eliminate the need for yearly pap tests. The adverse effects of vaccination include allergic reaction, pain at the site of injection, and fever. Most of these adverse effects go away on their own, without long-term effects on health.</td>
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women evaluated who had a personal history of cervical cancer was insufficient to determine whether their history influenced their acceptance of the vaccine.

The participants believed that sex education in schools should be initiated at a mean age of 11.4 years (median, 11.3 years). Twenty percent of the women who did not want the vaccination for their sons and 14.3% of those who did not want the vaccination for their daughters indicated that sex education should not be taught in schools.

Discussion

For an HPV vaccination program to be successful, the vaccine must be effective in preventing infection and be accepted by the public. In our survey of women with children between the ages of 8 and 14 years of age, we found a general willingness to be vaccinated. In addition, the mothers of children who had received all recommended vaccinations in the past were significantly more likely to approve of the HPV vaccine for their children. In this cohort, the reasons for not accepting the vaccine included lack of efficacy, adverse effects of vaccinations, and unwillingness to vaccinate their sons, who were not at high risk for HPV-associated diseases.

Davis et al. [12] evaluated a similar population of patients (parents of children ranging in age from 10 to 15 years). The authors found that 55% of the parents were willing to accept the HPV vaccine for their children. After an educational intervention, 20% of those who initially did not want the vaccine were willing to have their children vaccinated. Their study made us aware of the importance of educating the public and preparing our patients for this potential intervention. Of interest, the patients who opposed the vaccination of their children believed that the children would be more likely to have sex if they received the vaccine. In contrast to our study, these investigators did not compare the acceptability of vaccinating boys versus girls.

In a population-based study in Cuernavaca, Mexico, Lazcano-Ponce et al. [13] surveyed mothers of adolescents about the acceptability of the HPV vaccine after they had educated the women about the vaccine. After receiving an explanation about the possibility of preventing cervical cancer with an HPV vaccine, 84% of the women interviewed said that they would allow their teenage daughter to be vaccinated. Participants were not asked about vaccinating their sons.

In our study and others [12,14], the potential adverse effects of the vaccine seemed to limit its acceptance. We did not find differences in the patterns of acceptance when participants were grouped by education level, religion, race, income, or other demographic factors. Willingness to accept the vaccine was high, regardless of differences in the participants’ educational level.

In a similar study regarding the hepatitis B vaccine, Bodenheimer et al. [15] found that the main factor associated with the acceptance of the vaccine was the perception of the risk of contracting hepatitis B. Other investigators have found that the perception of risk for sexually transmitted diseases is a main determinant of whether vaccines against these diseases are accepted [16–18]. If this is true for the HPV vaccine, vaccination programs may have limited success because only 50% of the population are at risk for cervical cancer and penile cancers are rare.

Resistance to an HPV vaccination program may also arise because HPV is a sexually transmitted disease. Cultural and social beliefs may play a role in the acceptance of this vaccine. Some parents believed that their children were not sexually active and therefore did not need this vaccine at such a young age.

There were several limitations to this study. It is difficult to determine the acceptance of a vaccine that is not yet available. There will be other unforeseen reasons why women may not accept the vaccine which are not addressed in this survey. In addition, this was a pilot evaluation. Our sample size was small and the survey, which we developed, was not rigorously tested for validity. However, we believe that this evaluation provides insight into future public health issues that may arise once an HPV vaccine becomes available. Future studies need to evaluate the acceptance of the HPV vaccine among adolescents to determine whether they would give consent/assent to such a vaccine.
References


