A Pilot Study of Knowledge and Attitudes toward HPV and HPV Vaccine in an Appalachian Kentucky County

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Abstract

Objective: To identify potential knowledge and attitudinal barriers to parental intention to vaccinate adolescent/teenage girls against Human Papillomavirus (HPV) infection.

Methods: 58 parents completed a 31-item Likert-scale survey distributed through a county Health Department. Data collection began in late February 2008 and continued for 6 weeks. At this point, 61 surveys were collected. Three surveys did not meet the criteria for inclusion into the study.

Discussion: The authors designed this study to provide useful information to Kentucky's healthcare providers and policymakers as they address knowledge and attitudinal barriers toward HPV and HPV vaccine. Results can be applied to potential policy mandates, educational practices and prevention efforts.

Conclusion: The relatively high rate of morbidity and mortality from cervical cancer in some Appalachian Kentucky counties demanded further study to identify factors that promote or inhibit prevention and early intervention. This study contributes to that effort by identifying barriers to parental willingness to vaccinate girls before they initiate sexual activity and become infected. Addressing these issues will enable health professionals to take action to decrease exposure to HPV, a causative factor for cervical cancer, one of a number of health disparities that affect Appalachian Kentucky counties.

Introduction

Human papillomavirus (HPV) is a common sexually transmitted infection that is transmitted through genital contact, usually through vaginal or anal sex. According to the American Cancer Society (2007), about 6.2 million people in the United States are diagnosed with HPV infection each year. HPV is the most commonly occurring sexually transmitted infection in the US (Soper, 2006).

Though research has identified over 100 strains of HPV, only 15-20 types are known causes of cervical cancer and genital warts. HPV has also been identified as a causative factor in 35-50% of vulvar and vaginal cancers and may be linked to cancers of the anus and penis (Barrett, Bissell, 2006). Both males and females can contract HPV. At least 50% of sexually active people will become infected with HPV in their lifetimes. Most will contract the virus soon after becoming sexually active.

In June 2006, the Food and Drug Administration approved Gardasil, manufactured by Merck, for use in females ages 9-26. This vaccine protects females from HPV strains 6, 11, 16 and 18. Types 6 and 11 are identified causes of 90% of genital warts and types 16 and 18 are high-risk HPV strains that cause 70% of cervical cancers. Ideally, this vaccine should be given to females before they become sexually active, to prevent an HPV infection. The vaccine is most effective in females who have not acquired any of the 4 types covered by the vaccine.

Cervical cancer is the second most commonly occurring form of cancer in the United States, according to the CDC. Kentucky ranks 2nd in the nation in deaths from cervical cancer and 12th for overall prevalence of the disease (CDC, 2007). The annual incidence rate of cervical cancer in Kentucky is 8.8%, comparable to the national rate of 8.7% (State Cancer Profiles,

2007). However, cervical cancer rates in Appalachian Kentucky counties exceed the national and state averages.

An effort to mandate the HPV vaccine by the Kentucky legislature for all 6th grade girls in Kentucky met heavy opposition in March 2007 and was voted down (Vos, 2007). In February 2008, the legislature introduced the bill again (KY HB 346) and is currently seeking senate approval. If approved, KY HB 346 will allow parents to opt out of the mandate.

While some lawmakers, physicians and health educators have worked diligently to encourage citizens to take advantage of the first ever cancer vaccine, some parents of adolescent and teenage girls appear to resist the opportunity to immunize their daughters against this common infection. Based on parental opposition to the initial bill to mandate the HPV vaccine, this study was designed to examine cultural attitudes and knowledge about HPV vaccine, along with financial, social, and religious barriers and physician/vaccine mistrust as they may influence parental decisions regarding vaccinating their daughters.

Literature Review

To gain insight into the factors that affect a parent's choice whether to seek the vaccine (or not) for their daughters, Dempsey, Zimet, Davis and Koutsky (2006) found that while providing HPV information sheets to parents did improve knowledge about the vaccine, there was not a statistically significant difference in HPV vaccine acceptability between those who received information sheets and those who did not. Attitudes and life experiences appeared to be more important factors than knowledge in influencing parental choice.

Just prior to FDA approval of the vaccine, Hopenhayn, Christian, Christian and Schoenberg (2007), measured women's acceptance of the vaccination for themselves and for adolescent girls in two Kentucky Appalachian counties in which the incidence and mortality

rates of cervical cancer were among the highest in the United States. Hopenhayn, et al carried out a telephone survey of 629 participants. They included questions pertaining to awareness of HPV, acceptability of HPV testing and vaccination, smoking behavior and demographics. They found that 85.2% of respondents were interested in receiving the HPV vaccine for themselves. Younger women were more accepting of the vaccine and smokers were almost three times more likely to support receiving the vaccine. In comparison, respondents reported that it was much less acceptable to give the vaccine to girls, ages 10-15, than to themselves (67% compared to 85.2%). Again, women who smoked were almost four times more likely to be accepting of giving the vaccine to girls. Married women were least likely to approve of a vaccination for girls. Higher income levels and higher educational attainment had a negative effect on acceptance while the respondents with the lowest incomes were more likely to favor a vaccination for girls.

As we seek to gain a better understanding of parental attitudes toward the HPV vaccine in Appalachian Kentucky communities, we recognize that historical data is limited on this subject. Prior research supported the need to design health education materials and campaigns in Appalachia with an understanding of cultural differences in the region. Denham, Meyer, Toborg and Mande (2004), used thirty-two focus groups in five Appalachian regions to study how beliefs and practices impacted the maintenance of health and the prevention of disease. Findings from this project emphasized the key role that mothers play in the health of family members. Furthermore, the study suggested that Appalachian women need messages that convince them of their capacity to make a difference in the unhealthy beliefs and behaviors of family members. Education that was free of moralization or attack was found to be more likely to have a positive impact.

Soper (2005) calculated that the cost of treating HPV over a lifetime, $2.9 billion, is second only to HIV in total medical cost for men and women, ages 15-24. Based on an incidence rate of 500,000 cases of HPV infection per year, the annual medical cost for treatment of anogenital warts in all age groups was $167.4 million in 2000. The economic burden weighs heavily on legislators as they consider the implications of mandating the vaccine for adolescent girls. Authors of the current study hypothesize that the cost of HPV vaccine to parents, many of whom have no insurance, will affect their decision to vaccinate or not. Each dose costs $120.00 out of pocket and three doses are required for adequate protection.

Conner (2007) investigated the impact of religious values and belief systems on health decisions that parents make for their children. Connor found that parents who have conservative belief systems were concerned that vaccination could undermine abstinence teaching, encourage sexual promiscuity and give girls a false sense of security regarding STD infection. However, Connor reported that many Christian organizations have issued policy statements supporting the vaccine, providing it is a matter of individual choice and not a legal mandate.

In addition to cost and belief systems, Sussman, et al. (2007) found that counseling strategies designed to emphasize prevention, involving parents in all aspects of discussion of the vaccination, and expressing sensitivity to cultural norms played key roles in maximizing positive attitudes toward vaccinating adolescent girls against HPV. Authors of the current study chose to examine the influence of a family physician's recommendation for the HPV vaccine.

Gonik (2005) stated that acceptance of vaccines among parents varies widely and that overall confidence remains high. However, the author acknowledged that many Americans distrust drug companies and public health policies. Concern over potential side effects can be a

common barrier to vaccination (Gonik, 2005). The vaccine has been tested on thousands of young women worldwide and no serious side effects have been found (Robb-Nicholson, 2007). The longest study thus far has lasted five years (Robb-Nicholson, 2007). Mistrust of drug companies was considered for the current study to identify if mistrust is a possible barrier for some parents who choose not to seek the vaccine. Current pharmaceutical research is underway to determine if a need for a booster vaccine exists.

Gaps in the Literature

Authors of this pilot study speculated that negative peer reaction to vaccination from those in a parent's social network might serve as a social/emotional barrier to seeking the HPV vaccine for their daughters. Prior research did not address how parents feel they may be viewed by others if they choose to vaccinate their daughters. The authors sought to determine if the views of one's peers is a key variable in helping a parent decide for or against vaccination.

This pilot study was designed to address the limitations of existing literature on this topic by addressing levels of knowledge and attitudes including religious, social and financial views. The results of this study will be used to inform the design of larger studies in the Appalachian region.

Methods

Research Design

This quantitative study was designed as an exploratory pilot project using a self-report survey research design during one point in time. The Buffalo Trace District Health Department was chosen as the data collection site because investigators viewed it as an agency that serves a cross-section of the population in Mason County.

The authors carried out an extensive review of the literature, then designed a 31-item survey based upon the review. We designed the survey to evaluate specific barriers and beliefs that may influence parental intention to vaccinate children against HPV. The survey was administered once to each respondent. Data collection began during late February, 2008 and continued until April 2008. A cover memo explaining the purpose of the study and participant's rights was distributed with the survey. The pilot study received approval from the Institutional Review Boards of the University of Kentucky and the Kentucky Cabinet for Health and Family Services.

Data Collection

This research was conducted in a rural county in Appalachian Kentucky. The initial time frame for distribution of the survey was 4 weeks. Two additional weeks were added at the end of this term due to a personnel change during weeks three and four in the office of the health department which resulted in surveys not being distributed the final week. Thirty-seven surveys were collected during the initial 4 week period. Twenty-four additional surveys were collected during the two-week extension.

Recruitment of Subjects

Seven male and fifty-one female parents of children up to age 18 served as a convenience sample for this study. Parents of children served by the Buffalo Trace District Health Department in Mason County were asked to voluntarily respond to a questionnaire about HPV and HPV vaccine when they came to the Health Department for services. Those who agreed to participate were given a cover memo and survey, seated in a quiet area of the waiting room, and was asked to place the completed survey in a locked box upon completion.

Survey Design

The survey requested demographic information including gender and age of the parent respondent; gender and ages of children; education and income. The survey also included items pertaining to religious affiliation, frequency of attending religious services, participant's knowledge about HPV and HPV vaccine, and perceived likelihood to vaccinate in general and when taking other considerations into account: cost, physician and drug company trust/mistrust, peer reaction and concern about promoting sexual activity among young girls. Most items were assessed using a 5-point Likert scale with responses ranging from strongly agree to strongly disagree. This survey tool was designed to provide acceptable frequency scales for all items included, therefore useful descriptive analysis could be obtained. (See Appendix A for a copy of the survey questionnaire.)

Analysis

The first author analyzed the data using SPSS 15.0 to compute frequencies and other descriptive statistics on all variables. Fifty-eight of the 61 individuals who completed the survey met the criteria for the study. Three surveys were disqualified for not meeting study protocol, including respondents who had no children or children over age 18.

Results

Fifty-eight respondents, 7 male and 51 female, completed surveys at the Buffalo Trace District Health Department. Participants ranged in age from 18 to 57 years old. The median age of the respondents was 31 years. Twenty-six percent of respondents reported having some high school education or a GED. Twenty-one percent had a high school education, 43% had some college, and 9% held a 4 year degree or higher. Over half, (59%) reported an annual income below $19,999, while 24% earned $20,000-$39,999 and 14% earned over $40,000 a year.

Survey participants had a total of 124 children ages 0-18 years. The median age was five and the mean age of the children was seven. Fifty-two respondents reported having at least one female child, while six respondents had a male child only. Forty-eight children were male and seventy-six were female. Data obtained from the Buffalo Trace District Health Department indicate that 701 females between the ages of 0 and 19 received services through May 31, 2008, while only 470 males of the same age received services. According to Mason County Health Educator, Allison Adams (personal communication, June 17, 2008), some difference may be due to the increased number of services available to females, such as reproductive health services and family planning.

Almost half (48%) of participants reported their religious preference as Protestant. Fourteen percent responded as Catholic, 22% reported having no religious preference and 10% expressed their religious preference as "other". Twenty-nine percent attend church most weeks and 42% reported attending a few times a year. Twenty-eight responded as never attending religious services.

Knowledge about HPV and HPV vaccine was measured by asking participants to respond to three direct statements. The first item stated "I am aware that there is a vaccine that can prevent cervical cancer". Sixty-nine percent strongly agreed that they were aware that a vaccine is available while 19% somewhat agreed. Overall, the majority of respondents (88%) agreed that they were aware that a vaccine existed. The second item stated "HPV (Human Papillomavirus) is a sexually transmitted infection". Seventy-four percent agreed with the statement "HPV is a sexually transmitted infection". The final knowledge question stated "HPV can cause genital warts". The results were equally divided. Fifty percent did not know or were unsure if HPV was a causative agent for genital warts while the other half of respondents reported knowing this. An

additional statement was incorporated to learn if participants knew the HPV vaccine was available at the local Health Department. Responses from this statement indicate that almost half (43%) did not know if the vaccine was available at the Health Department.

Table 1

Response Frequencies on HPV Knowledge Statements

	"I am aware that there is a vaccine that can prevent cervical cancer" (N=58)	***"HPV is a sexually transmitted infection" (N=58)***	***"HPV can cause genital warts" (N=58)***	***"The HPV vaccine is available at the local Health Department" (N=58)***
Strongly Agree	**40 (69%)**	**30 (51.7%)**	**17 (29.3%)**	**26 (44.8%)**
Somewhat Agree	**11 (19%)**	**13 (22.4%)**	**12 (20.7%)**	**7 (12.1%)**
Neither agree or disagree	**3 (5.2%)**	**10 (17.2%)**	**20 (34.5%)**	**22 (37.9)**
Somewhat Disagree	**0**	**1 (1.7%)**	**2 (3.4%)**	**0**
Strongly Disagree	**4 (6.9%)**	**4 (6.9%)**	**7 (12.1%)**	**3 (5.2%)**

In addition to knowledge, items were incorporated to measure direct attitudes toward HPV and HPV vaccine. Participants were asked to respond to the statement "Getting the HPV vaccine would be beneficial to a young girl's future health". Eighty-eight percent agreed that the

vaccine would be beneficial and only 12 % disagreed. Thirty-one percent of respondents agreed that getting the HPV vaccine would send a message to young girls that it is O.K. to have sex. Fifty-two percent disagreed and 17% were undecided. When asked to respond to the statement "I am concerned that my daughter may be affected by cervical cancer someday", 69% indicated agreement that they were concerned, when combining strongly agree and somewhat agree responses. Over one-fourth indicated that they were not concerned.

The authors developed a set of four statements to measure the effect peers may have on a parents decision to vaccinate or not vaccinate their daughters. Forty-one percent agreed with the statement "I would be more willing to get this vaccine for my daughter if I knew other parents who were doing so". Fifty-eight percent said that knowing other parents had made the decision to vaccinate their daughters did not make a difference in their decision. Over 3/4ths of respondents agreed that they were not concerned about what others thought about their choice to vaccinate or not when asked to respond to the statement "I am not concerned about what other parents think of my child getting this vaccine" and only 15% expressed fear that family and friends would view them as "bad parents" if they sought the vaccine for their child. The majority (63%) agreed that they could serve as a role model for other parents by getting this vaccine for their daughter.

When asked to respond to the statement "I believe my religion would support this vaccine for girls", 17% thought their religion would support the vaccine. Thirty-two percent indicated that they did not believe that their religion would support the vaccine while 51% did not know. Sixty-seven percent of respondents agreed that they would not seek the vaccine because of their religious beliefs and 24% neither agreed nor disagreed that religion would be a factor in their decision. Only 16% thought that others in their church would seek the HPV

vaccine for their daughters. Thirty-eight percent didn't think other members would seek the vaccine for their daughters and 46% did not know.

The current study indicates that about half of respondents worry about side effects of the vaccine. Fifty-three percent did not express worry over vaccine side effects. When asked to respond to the statement "I do trust drug companies that make the HPV vaccine", 57% disagreed and 43% agreed that they do trust drug companies. Cost was a factor for some with one-fourth of respondents agreeing that the cost of the vaccine may prevent them from seeking it for their daughters. Thirty-two percent indicated that cost would not be a factor in their decision and 40% did not know. Three-fourths (75%) of participants agreed that they would be more willing to vaccinate their children if their doctor recommended it. Only 25% said a recommendation from their physician would not make a difference in their decision.

Finally, the survey included two direct statements to measure parental intention to vaccinate their children or intent to recommend vaccination for family members and one regarding views toward a mandatory vaccine requirement for young girls. Participants were asked to respond to the statement "I intend to get the HPV vaccine for my daughter and/or recommend it for female family members". Over half (64%) agreed that they intended to seek the vaccine for their daughters or recommend it for female family members. Nine percent disagreed that they would seek or recommend the vaccine and 27% were unsure. When responding to the direct statement "I believe that the HPV vaccine should be mandatory for all girls entering middle school", 37% said they believe it should mandatory while 27% said it should not be mandatory. Thirty-six percent had no opinion about a mandated HPV vaccine requirement.

Table 2

Response Frequencies on Intention to Vaccinate and Belief that Vaccination should be Mandatory

	"I intend to get the HPV vaccine for my daughter or recommend it for female family members" (N=58)	***"I believe that the HPV vaccine should be mandatory for all girls entering middle school" (N=55)***
Strongly Agree	**21 (36.2%)**	**8 (14.5%)**
Somewhat Agree	**16 (27.6%)**	**12 (21.8%)**
Neither agree or disagree	**16 (27.6%)**	**20 (36.4%)**
Somewhat disagree	**2 (3.4%)**	**8 (14.5%)**
Strongly Disagree	**3 (5.2%)**	**7 (12.7%)**

Discussion

This pilot study offers a foundation for the design of larger studies within Appalachian regions to better understand the level of knowledge and influence of attitudes held by parents who will need to make a decision to seek or not seek the HPV vaccine for their daughters. Findings from this study show that adult parents have knowledge that the HPV vaccine exists but less than half knew that it (the vaccine) is available at the local Health Department. In addition, the majority of parents knows that HPV is a sexually transmitted infection but had limited knowledge that this STI can cause genital warts as well as cervical cancer. Notably, the majority of parents were concerned that their children could be affected by cervical cancer in the future and thought that the HPV vaccine would be beneficial to a young girl's future health. This view seems likely to increase the chance that parents will vaccinate their daughters, but the fact that one-third of parents expressed fear that the vaccine would promote sexual activity among young girls might serve as a barrier to vaccination.

On a social level, this study found that opinions and attitudes of peers had little effect on decisions of parents to vaccinate or not. Three-fourths of parents said that they were not concerned about what others thought of their decision to vaccinate their daughters but indicated that knowing other parents who did get the vaccine would increase the likelihood that they would too. A major finding of the study revealed that a majority of respondents felt that they could be a role model for other parents by getting the vaccine for their daughter.

Findings suggest that religious and personal belief systems may influence a parent's decision to vaccinate their daughters. About one-third did not believe that their religion would support the vaccine and over half pointed to religious beliefs as a reason not to seek the vaccine. Although these statistics suggest that a number of respondents might choose not to vaccinate

their daughters for religious reasons, sixty-four percent of parents endorsed a statement that they intended to vaccinate their daughters. Therefore, while religious views and support from a parent's religious community may be a factor for some, parents participating in this study indicated that their religious beliefs were not a key dynamic when making a decision to vaccinate or not.

Cost of the vaccine was seen as less of a barrier to vaccination than we initially believed. Only a fourth of respondents agreed that it would prevent them from seeking the vaccine while forty percent stated that they did not know whether it would prevent them from seeking the vaccine. One explanation for this finding could be that they didn't know the total cost of the vaccine series. Thirty-two percent said it would not be an issue in their decision. Additional findings show that over half of parents mistrust drug companies and almost half were concerned about vaccine side effects. Further research is necessary to understand more clearly why parents feel a sense of mistrust toward drug companies. The high cost of pharmaceuticals as well as negative media attention linking vaccines to autism may play a role. In conclusion, a key finding of this study was that seventy-five percent of respondents agreed that they would be more willing to seek the HPV vaccine for their daughters if their doctor recommended it. This finding signifies the central role pediatricians and primary care physicians' play in a parent's knowledge and attitudes toward the HPV and their receptivity to the vaccine.

Application

Public Health clinicians and educators as well as pediatric and women's health physicians and mid-level providers are positioned to fill in educational gaps with knowledge that includes a comprehensive understanding of the health risks associated with HPV, including anogenital warts and cervical cancer. Health educators and providers must inform parents of the prevalence

of HPV and the risks of forgoing vaccination. Gonik (2005) found that a desire to protect their children and an understanding of disease severity were positively correlated with vaccine acceptance among parents. Furthermore, the concern about the role that the vaccine may play in promoting sexual activity is a complicated issue. The concern should be assessed on an individual level to identify cultural or religious beliefs that may impact a parent's attitude toward the vaccine when counseling parents about HPV and HPV vaccine. According to Gonik (2005) a parent's rejection of the vaccine was associated with a perception that the child was at low-risk for infection or with low concern about the severity of disease. Acceptance of the vaccine indicates a parent's acknowledgement for risk of infection and acceptance that their child was approaching an age at which sexual activity is frequently initiated. Furthermore, counseling should emphasize long-term protection from risks that could be encountered in young adulthood, marriage and from a prospective sexual assault should it occur.

Support from one's religious community and acceptance for the vaccine from a religious perspective remain a challenge for parents, health educators, and physicians as well as policymakers who seek to mandate the HPV vaccine. Conservatives argue that choosing to give the vaccine may undermine abstinence teaching and mandating it would limit parental choice in healthcare. Most Christian organizations who oppose the mandate cite other ways to prevent HPV infection, such as promoting abstinence. (O'Connor, 2007) Lawmakers uphold the long-term health benefits as the rationale for adding it to the approved list of mandatory vaccines. Physicians and educators are challenged to present factual information that can boost vaccine acceptance among parents in a way that does not undermine cultural norms and social values associated with sexual activity. Perhaps future research could concentrate on identifying differences in cultural and religious perspectives related to HPV vaccine and ones religious

preferences, especially those of minority populations. Those seeking policy mandates could benefit from more focused studies of cultural and religious issues of the vaccine to define specific barriers for those who are against making it a requirement.

Societal acceptance and views of peers appear to play a marginal role in individual decisions to vaccinate against HPV. The knowledge that the vaccine is accepted and used by a majority of others was important to parents in their decision. Parents indicated that they could serve as role models for others by endorsing the vaccine. Prior research in Appalachia points to mothers as the primary decision makers for healthcare decisions for their daughters. (Denham, et al, 2004) This detail could inform media advertising promotions and educational movements related to HPV. Such campaigns could seek to create awareness of the risks of not getting the vaccine and the benefits of choosing the vaccine by highlighting key informants and mothers. The same could be done within and across Appalachian communities by choosing those who are already seen as peers and role models to endorse the vaccine and describe how they made the decision to vaccinate. Promotion of the vaccine should not moralize or attack a parent's decision. Campaigns should address the issue with facts and also focus on the capacity of mothers to make beneficial healthcare decisions for their daughters.

Overall, the high percentage of parents who expressed an intention to vaccinate their children is encouraging. This indicates an enthusiasm among parents to choose options that are in the best interest of their daughter's future health. A higher percentage of parents were also in favor of mandatory HPV legislation than against. This speaks to the need for government agencies to provide funding and education for immunization in the best interest of society.

Limitations

The major limitation of the research was sample size. Fifty-eight parents agreed to participate over a six-week period. Surveys were collected from only seven male parents. Survey size limited the type of analysis that could be attempted using the data collected. In addition, the survey instrument did not ask for ethnic information and therefore, information on minority participation could not be examined. Nevertheless, the primary goal of this research was to identify levels of knowledge and attitudes of parents toward HPV and HPV vaccine. Our findings are relevant as public health educators, physicians and policymakers seek to curtail cervical cancer rates in Kentucky. This study will also support designs for future research with larger populations.

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Appendix

Knowledge and Attitudes Toward HPV and HPV Vaccine in an Appalachian Kentucky County

Demographic Information:

1. Are you male _____ or female_____?

2. How old are you? _____

3. What county do you live in? _____

4. What are the sex and ages of your children?

_____

_____

5. What is your education level?

Some high school _____
GED diploma _____
High school graduate _____
Some college _____
Associate degree (2 year) _____
Bachelor degree _____
Masters degree _____

6. What is your average income level?

Below $10,000 per year _____
$10-$19,999 per year _____
$20,000-$29,9999 per year _____
$30,000 - $39,999 per year _____
$40,000 - $49,999 per year _____
$50,000 + per year _____

7. Do you attend church?

Never _____
A few times a year _____
A few times a month _____
Every week _____

8. My religious preference is:

Catholic _____
Jewish _____
Protestant _____
Muslim _____
None _____
Other (Please specify)_____

In this section, please rate the following statements:	Strongly agree	Somewhat agree	Neither agree or disagree	Somewhat disagree	Strongly disagree
	1	2	3	4	5
9. I am aware that there is a vaccine that can prevent cervical cancer.	1	2	3	4	5
10. HPV (Human Papillomavirus) is a sexually transmitted infection.	1	2	3	4	5
11. HPV can cause genital warts.	1	2	3	4	5
12. Cervical cancer can affect women sexually active women of any age.	1	2	3	4	5
13. Getting the HPV vaccine would be beneficial to a young girl's future health.	1	2	3	4	5
14. Getting the HPV vaccine will send a message to young girls that it is OK to have sex.	1	2	3	4	5
15. Getting the HPV vaccine will have no effect on a girl's sexual activity.	1	2	3	4	5
16. The cost of the HPV vaccine will prevent my family from getting it for my daughter(s).	1	2	3	4	5
17. I intend to get the HPV vaccine for my daughter and/or recommend it for female family members.	1	2	3	4	5
18. The HPV vaccine is available at the local Health Department.	1	2	3	4	5

19. I would be more willing to get this vaccine for my daughter if I knew other parents who were doing so.	1	2	3	4	5
20. I am concerned that my family and friends would view me as a bad parent if I allowed my daughter to get this vaccine.	1	2	3	4	5
21. I am not concerned about what other parents think of my child getting this vaccine.	1	2	3	4	5
22. I would be more willing to get this vaccine for my child if my doctor recommended it.	1	2	3	4	5
23. I can be a role model for parents by getting this vaccine for my daughter.	1	2	3	4	5
24. I would not seek this vaccine for my daughter because of my religious beliefs.	1	2	3	4	5
25. I believe my religion would support this vaccine for girls.	1	2	3	4	5
26. I believe that other parents who go to my church will get this vaccine for their daughters.	1	2	3	4	5
27. I would not want people who go to my church to know that my daughter got the HPV vaccine.	1	2	3	4	5

28. I worry that the side effects of the vaccine might be dangerous for my daughter.	1	2	3	4	5
29. I do trust drug companies that make the HPV vaccine.	1	2	3	4	5
30. I believe that the HPV vaccine should be mandatory for all girls entering middle school.	1	2	3	4	5
31. I am concerned that my daughter may be affected by cervical cancer some day.	1	2	3	4	5