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Child Care Health Dev. Author manuscript; available in PMC 2017 July 01.

Published in final edited form as:

Child Care Health Dev. 2016 July ; 42(4): 582–587. doi:10.1111/cch.12331.

"I Think They're All Basically The Same": Parents' perceptions of human papilloma virus (HPV) vaccine compared to other adolescent vaccines

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Abstract

Background—Human papillomavirus (HPV) vaccination is recommended for routine administration at ages 11–12 years. However, uptake is lower than for other vaccines that are also routinely recommended for adolescents (MCV4 and Tdap). Understanding parental perceptions of HPV vaccine compared to other vaccines may help to inform strategies to increase uptake.

Methods—Parents and caregivers (n=45) of adolescents ages 10–18 years from a low-income, ethnic minority population participated in a qualitative study. Interviews were transcribed verbatim and coded for emergent themes.

Results—Many participants perceived the HPV vaccine to be similar to other routine vaccines. Noted similarities included the vaccines' ability to prevent disease, similar methods of administration, and belief in health care providers' recommendation. Some parents noted the greater benefit of HPV vaccine in preventing cancer, which was viewed as a serious disease. Parents also noted the different mode of transmission (sexual) for HPV, which evoked mixed opinions.

Conclusion—Overall, most participants viewed the HPV vaccine in a positive light and similar to other adolescent vaccines with the added benefit of cancer prevention. Strategies that treat all three vaccines equally such as presenting them similarly as a 'bundle' to parents or considering policy initiatives such as school entry requirements might help increase raise coverage for HPV vaccine.

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Findings from this work will be presented as a poster presentation at the 2015 American Public Health Association Annual Meeting, Chicago, IL. All the authors listed above contributed significantly to the design and conduct of the study and preparation of this manuscript.

Conflicts of Interest Statement

There are no conflicts of interests to declare.

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Keywords

Human papillomavirus (HPV); adolescent health; vaccine; immunizations; pediatrics; parental perception; minority groups

Introduction

Human papillomavirus (HPV) is the most common sexually transmitted infection (STI) in the United States(Weinstock *et al.* 2004) and a major cause of six types of cancers and genital warts(Steinau *et al.* 2013). In a nationally representative sample of young adults between the ages of 15–24 years, over 17 million American women and men had a prevalent HPV infection between 2003 and 2006(Satterwhite *et al.* 2013). Nearly all cases of cervical and anal cancer (>90%) and most (63–75%) cases of penile, vulvar, vaginal, and oropharyngeal cancers are attributed to HPV(Gargano *et al.* 2012, Steinau *et al.* 2013). Currently, there are three approved vaccines to prevent HPV (Cervarix, Gardasil, and Gardasil-9)(Harper 2009). The American Academy of Pediatrics (AAP) and the Advisory Committee on Immunization Practices (ACIP) recommend that three doses of vaccine be routinely administered to preteen boys and girls at age 11–12 years (2012, Petrosky *et al.* 2015). Despite these recommendations, uptake and completion of HPV vaccine remain suboptimal in the United States. The 2014 National Immunization Survey-Teen (NIS-Teen) found that only 60% of females and 42% of males between the ages of 13 and 17 years had received at least one dose of the HPV vaccine(Reagan-Steiner *et al.* 2014). This is compared to 87.6% coverage for Tdap (tetanus, diphtheria, and pertussis) and 79.3% for MenACWY (meningococcal conjugate vaccine), the other two vaccines that are recommended at the same ages(Reagan-Steiner *et al.* 2014).

Several barriers to HPV vaccination have been identified including lack of healthcare provider (HCP) recommendation, lack of adequate information, questioning the need for vaccination at a young age, and concerns about safety and side effects (Hendry *et al.* 2013, Holman *et al.* 2014). Recent attention has focused on one of the strongest influences on HPV vaccine uptake that is receiving a strong recommendation from a HCP (Holman *et al.* 2014, Rosenthal *et al.* 2011). For example, in one study, parents who received a strong recommendation from HCP had 2–7 times the odds of agreeing that HPV vaccines were safe, and that the vaccine prevents against cervical cancer (Staras *et al.* 2014). Another study found a 4-fold increase in vaccine uptake after receiving strong recommendation by a HCP (Rosenthal *et al.* 2011). These findings underscore the importance of parent-HCP communication in uptake and completion of the HPV vaccine.

Unfortunately, a number of studies have shown variability in the strength and consistency of recommendations from HCP to immunize adolescents against HPV. A statewide study of HCP found that a low proportion recommended the HPV vaccine as part of routine care for boys (46%) and girls (76%) ages 11–12 years (McRee *et al.* 2014). Other studies of both parents and HCP found that HCP underestimated the importance of vaccinations to parents and overestimated parental hesitation about the method of vaccine administration (Healy *et al.* 2014, Niccolai *et al.* 2015). HCP's inaccurate perceptions of parental concerns about

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HPV vaccine may result in them offering this vaccine differently from other routine vaccines, resulting in lower HPV vaccine uptake. When HCP recommend HPV vaccine in the same manner as they do other vaccines, uptake rates are higher than when they introduce HPV vaccine differently (Perkins *et al.* 2014).

Understanding parental perceptions of the HPV vaccine, in relation to the other adolescent vaccines could help to develop strategies to increase uptake and completion of the HPV vaccine regimen. To address this gap, we analyzed data from qualitative interviews conducted with parents and caregivers of adolescents.

Methods

Study Population and Recruitment

The methods for this research project have been previously described (Hansen *et al.* 2015). This study was carried out in the state of Connecticut, located in the northeastern region of the United States. In Connecticut, as in much of the U.S., HPV vaccination is typically offered during a clinical encounter with a health care professional, and not in a school-based setting as in many other countries such as UK and Australia. Forty-five parents and grandparents (subsequently referred to as parents) of adolescents receiving care at a primary care/adolescent clinic were recruited to participate in the study. The clinic serves a predominantly low-resource, racial and ethnic minority community. This population was chosen in order to understand factors associated with low rates of HPV vaccination in a population that has an elevated risk for cervical cancer incidence and mortality(Singh *et al.* 2004, Watson *et al.* 2008).

The inclusion criterion to participate in the study was having at least one child between the ages of 10–18 years. Possible participants were approached in the waiting room area of the clinic by study staff and offered the study. Those who expressed interest after a brief introduction were scheduled for a study interview. Purposive sampling was utilized to achieve diversity in racial/ethnic group representation in the study sample. The Yale University Institutional Review Board approved the study protocol and procedures. Written informed consent was obtained from all participants prior to enrollment in the study, and participants were reimbursed US $20 for their time.

Study Design

Participants completed in-depth, face-to-face, semi-structured interviews conducted by trained interviewers. An interview guide was developed and revised after feedback from experts in the field of sexual health and pediatric medicine. The core questions included in the interview elicited responses about peoples' experiences and attitudes towards the HPV vaccine. To address this particular research question, parents were asked, "Do you view the HPV vaccine as the same or different from other vaccines your child may have received?" Participants were asked to compare to HPV vaccine to other childhood and adolescent vaccines such as meningococcal, Tdap (Tetanus, Diphtheria, Pertussis), chickenpox, and flu. Follow-up probing questions were asked for elaboration as needed. The interviews were

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conducted in a safe and private location and took place between May 2013 and June 2014. Interviews were audio-recorded and transcribed verbatim.

Data Analysis

Qualitative analysis software (ATLAS.ti 7, ATLAS.ti Scientific Software Development GmbH, Berlin) was utilized to analyze participants' responses using a contextual strategy. Key themes were identified from transcribed interviews by two independent coders. After eight interviews were complete, the study team met to review codes and their meanings. Codes and themes were discussed to resolve initial differences. Two investigators then coded the remaining interviewers, and code reports were analyzed for emergent themes across the interviews.

Results

The characteristics of the samples are presented in Table 1. A majority of the participants (84%) were female and identified as a parent to the child (89%). Almost half (49%) of participants self-identified as black, more than a third (36%) identified as Hispanic, 9% identified as mixed race, and 7% identified as white. The mean age of participants was 43.3 years (range 31–63 years). Previous analysis of data from this sample revealed general support for vaccination (Hansen *et al.* 2015). Illustrative quotes are presented below for each identified theme related to similarities to and differences with other vaccines.

Similarities between HPV and other adolescent vaccines

Parents recognized several similarities between HPV vaccine and other adolescent vaccines. A common similarity between HPV vaccine and other vaccines was that the HPV vaccine, like other routine vaccines, helps protect children from various diseases. One parent mentioned, "I feel that they (all adolescent vaccines including HPV) are all the same because they are protecting something for your kids' health. There's nothing different." (Mother, 36 years-old). More generally, some participants noted that all adolescent vaccines, including HPV, helped maintain overall health of adolescents and allowed for normal development into adulthood. One parent noted, "They are all to help maintain the healthy child and healthy into your adult life.They are all important to have." (Mother, 44 years old).

Other participants noted that the setting where HPV vaccine was administered and the staff that provided the shot were identical to those for other vaccines. One father stated, "I view it (HPV vaccines) as basically the same. It was given in the same place, the same setting, by the same people who I trust." (Father, 63 years old).

Past experiences with HCPs around vaccinations led parents to perceive the HPV vaccine experience as similar. As with other experiences with healthcare more generally, HCP recommendation factored into their experiences of the HPV vaccine. One parent noted, "I would have to say if pediatrics thinks that it's appropriate for her then I would be okay with it otherwise, you know, I wouldn't expect her to be sexually active but, I don't know for sure. I know about research and what's appropriate but generally speaking to be frank with you I pretty much rely on upon the doctors here." (Father, 63 years old).

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An added benefit: cancer prevention

Several parents stated that the HPV vaccine was additional benefit compared to other vaccines because of the ability to prevent cancer. One participant stated, "They're all important to me so I think it's no difference. With this one, you know, cancer and other things, this one's better. I know the other ones are important but this one is more like to prevent something like, it's, might cause a lot of problems for everybody so that one is good." (Mother, 39 years old). Another participant stated "It's very different because it will prevent more serious illnesses as far as cancer and sexually transmitted diseases. Not like the flu shot where it only prevents the cold or flu." (Mother, 36 years old). Another elaborated that the vaccine had the capacity to "save their [teenagers] life and for the long run. You know, with the cancer thing." (Father, 45 years old).

Differences between HPV and other adolescent vaccines

Some parents felt that the vaccine's connection with a sexually transmitted infection made it different from other routine vaccines. This evoked mixed reactions. As one parent noted, "I think the only thing that is different and is still kind of sinking in is that it's (sic) sexually transmitted disease. So that part is still not quite like measles or mumps or a chicken pox or polio or whatever else." (Mother, 32 years old). Another participant elaborated about the vaccine being related to sex and sexuality more generally, saying, "it is different because um it's probably the only vaccine that has to do with sexuality, while the others, are kinda like general diseases like the whooping cough, the chicken pox, it's more like general, this one is probably the only one that's related to sex." (Mother, 43 years old).

Limited STD knowledge

Another participant, who had previously discussed the ways in which HPV vaccine was similar to other vaccines, also described how levels of sexual activity among teenagers make them particularly vulnerable to infection. Consequently, she also viewed HPV vaccination as particularly important. She stated "This (HPV vaccine) is much more important to me than a flu shot or a chicken pox shot. Just with what's going on in the world with these kids now being knowledgeable to have sex. They don't realize that certain things when you get it, you can't get rid of. Genital warts can keep coming back and warts that's a hurtful thing." (Mother, 31 years old).

Discussion

In this study, we examined parental perceptions of the HPV vaccine as similar to or different from other recommended adolescent vaccines. Parents who viewed the vaccine as similar to other adolescent vaccines discussed its ability to prevent disease, the setting in which it was administered and HCP familiarity and recommendation. Parents who viewed the vaccine as different cited its' utility for cancer prevention and connection with sexual activity. Regardless of whether they believed the vaccine was similar to or different from other adolescent vaccines, many parents stated that it was better than other comparable vaccines because it prevented a very serious disease (cancer).

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The findings of this study are consistent with prior research that demonstrated high HPV vaccine acceptability in parents and guardians (Krawczyk *et al.* 2015, Olshen *et al.* 2005, Hansen *et al.* 2015). We found that regardless of whether parents perceived HPV vaccine to be similar to or different from other adolescent vaccines, a majority recognized the importance of the vaccine. It was interesting to note as well that many parents also expressed evolving views of HPV vaccine over the course of the interview. For several parents, initial thoughts focused on similarities or differences, but they also expressed at other times, additional viewpoints. Thus, it is possible that brief reflection about the vaccine might help to draw out deeper views. Importantly, participation in the interviews was not an education intervention but rather designed to elicit preconceived notions.

Our study findings suggest that HCP have a pivotal role to play in increasing initiation and completion of the HPV vaccine regimen. Regardless of parental views of HPV vaccine as similar to or different from other vaccines, a vast majority recognized its necessity and many described the vaccine as being more important than other vaccines. Parents' positive attitudes towards the HPV vaccine and their ability to strengthen their views based upon brief reflection provides the optimal environment for HCP to confidently recommend the vaccine. Strategies in which providers begin the discussion assuming parents will be accepting may save time. HCP may then educate those parents who expressed that they were not knowledgeable enough to make an informed decision. Providing parents with the benefits of the vaccine may help facilitate and expedite their decision-making process and thereby increase HPV vaccine uptake and completion. Other initiatives that combine the offering of other adolescent vaccines with HPV have had proven success and should also be considered when feasible(Gordon *et al.* 2013).

The findings of this study must be interpreted in light of various limitations. First, study participants were recruited from a single healthcare facility and may not be generalizable to other settings. In particular, our findings are most likely relevant to locations that do not have robust school-based vaccination programs. Investigating ways to increase HPV vaccine uptake in these communities may help decrease the elevated rates of cervical and other cancer. Secondly, we did not correlate these beliefs with actual vaccination behaviors. Thirdly, since only parents were interviewed for this study, adolescent and provider perspective are not present.

In conclusion, many parents noted important similarities between HPV and other adolescent vaccines. Though some differences were also noted, these generally did not detract from favorable opinions about HPV vaccine. These findings can help inform programs and initiatives aiming to increase HPV vaccine uptake and completion, especially in ethnic minority and low socioeconomic status communities. For example, policy initiatives for school entry requirements that are similar in many places for Tdap and MCV4 may not experience significant public opposition. Furthermore, health care providers can be confident in providing strong and consistent recommendations for immunizing their adolescent patients with reduced concern about parental hesitation.

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Acknowledgments

This work was supported by National Institutes of Health grants R21 CA163160, P30 MH062294, T32 AI00721, and UL1 TR000142. Funders had no role in design, implementation, or interpretation of this work. Its contents are solely the responsibility of the authors and do not necessarily represent the official view of NIH.

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Key Messages

Many parents view HPV vaccine as similar to the others for disease prevention with the added benefit of preventing cancer. Normalizing the recommendation for HPV vaccine along with MCV4 and Tdap may help to increase coverage. States may also consider similar policy initiatives such as school entry requirements.

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Table 1

Sample Characteristics (n=45)

Sex, n (%)	
Female	38 (84%)
Male	7 (16%)
Race/ethnicity, n (%)	
Black/African American	22 (49%)
Hispanic	16 (36%)
Mixed race	4 (9%)
White	3 (7%)
Relationship to child, n (%)	
Parent	40 (89%)
Grandparent	4 (9%)
Stepparent	1 (2%)
Age, years	
Mean	43.3
Range	31–63
Sex of child reported by parents, n (%)	
Male	39 (54%)
Female	33 (46%)
Age of child reported by parents, years	
Mean	14.7
Range	10–18