Published in final edited form as:
Am J Mens Health. 2014 March ; 8(2): 167–174. doi:10.1177/1557988313505319.

Acceptability of HPV Vaccine for Males and Preferences for Future Education Programs Among Appalachian Residents

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Abstract

Appalachia is a geographic region with several disparities related to human papillomavirus (HPV) infection, yet little is known about acceptability of HPV vaccine for males among Appalachian residents. HPV vaccine acceptability and preferences for future HPV vaccine education programs were examined among residents of Appalachian Ohio. Focus groups and in-depth interviews were conducted with Appalachian Ohio residents between July and October 2011. Participants (n = 102 from 24 focus groups and 5 in-depth interviews) included four key stakeholder groups: health care providers, community leaders, parents with adolescent sons, and young adult men ages 18 to 26 years. Support for vaccinating males against HPV was high among participants, despite low awareness and knowledge about HPV vaccine for males. Participants reported three categories of potential barriers to vaccinating males against HPV: concerns about vaccine safety and side effects, access to care and vaccination logistics, and gender and cultural issues. Participants reported that HPV vaccine was viewed as being only for females in their communities and that receiving the vaccine may be emasculating or embarrassing to males. Participants suggested that future HPV vaccine education programs mainly target parents, include basic information about HPV-related diseases and HPV vaccine (e.g., number of doses, cost), and present the vaccine as having the potential to prevent cancer (as opposed to preventing genital warts). Acceptability of HPV vaccine for males was high among residents of Appalachian Ohio. Future HPV vaccine education programs in Appalachia should address common potential barriers to vaccination and help destigmatize vaccination among males.

Keywords

HPV; HPV vaccine; males; Appalachia

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Declaration of Conflicting Interests

The author(s) declared the following potential conflicts of interest with respect to the research, authorship, and/or publication of this article: PLR has received research grants from Merck Sharp & Dohme Corp., but has not received honoraria or consulting fees from this company. These funds were not used to support this research study.

Introduction

Human papillomavirus (HPV) vaccine became available for males in the United States in 2009, and the Advisory Committee on Immunization Practices (ACIP) first provided a permissive recommendation for administering the quadrivalent vaccine (against HPV Types 6, 11, 16, and 18) to males (Centers for Disease Control and Prevention [CDC], 2010). The permissive recommendation allowed for administration of the three-dose vaccine series to males ages 9 to 26 without making it part of their routine vaccination schedule (CDC, 2010). The ACIP updated its recommendation in October 2011 and currently recommends routine HPV vaccination for males ages 11 to 12 years with catch-up vaccination for males ages 13 to 21 (CDC, 2011). HPV vaccine can still be given to males as young as age 9 and through age 26 under the updated recommendation (CDC, 2011).

HPV vaccine offers important health benefits, as the vaccine is currently approved to prevent cervical, vaginal, and vulvar cancers in females and genital warts and anal cancer in both genders(U. S. Food and Drug Administration, 2011). About 4% of adult males in the United States report a prior diagnosis of genital warts (Dinh, Sternberg, Dunne, & Markowitz, 2008), and more than 2,000 new cases of anal cancer occur annually among males in the United States (American Cancer Society, 2013). Vaccinating males against HPV may also be important in protecting their female partners against HPV-related disease since HPV is highly transmissible between sexual partners (Reiter, Pendergraft, & Brewer, 2010). Despite these benefits and national recommendations for vaccination, HPV vaccine uptake among males in the United States is low. Recent estimates indicate that less than 10% of adolescent males have received any doses of HPV vaccine (CDC, 2012b; Laz, Rahman, & Berenson, 2013; Reiter, McRee, et al., 2013; Reiter, Gilkey, & Brewer, 2013; Reiter, McRee, Kadis, & Brewer, 2011).

Vaccinating males against HPV may be particularly important for populations with high rates of HPV-related disease, such as residents of the Appalachian region of the United States. Appalachia is a 13-state region (from New York south to Mississippi) that contains about 8% of the U.S. population (about 25 million residents; Pollard & Jacobsen, 2012). Poverty rates tend to be higher among Appalachian residents compared with the rest of the country, and there is less racial diversity among residents of this region (Pollard & Jacobsen, 2012). Appalachia has several existing HPV-related health disparities, including higher incidence rates of cervical and vulvar cancers among females (Reiter, Fisher, et al., 2013). Among males, incidence rates for HPV-related cancers (i.e., anal, penile, and oral cavity/pharyngeal cancers) are elevated in some Appalachian states, though other states are comparable to national rates (Reiter, Fisher, et al., 2013).

HPV vaccine is available in most health care facilities in Appalachia (Katz, Reiter, Kluhsman, et al., 2009), and a recent study reported that HPV vaccine coverage among adolescent females was mostly similar to the rest of the country (Reiter, Katz, & Paskett, 2012). However, little is known about HPV vaccine for males in Appalachia, with only one previous study addressing acceptability of the vaccine for males among residents of this region (Oldach & Katz, 2012). In this study, many providers from health departments thought that parents of females were more receptive toward HPV vaccination compared with

parents of males (Oldach & Katz, 2012). The current study collected data from four key stakeholder groups from Appalachian communities to examine their acceptability of HPV vaccine for males and potential barriers to vaccinating males against HPV in their communities. Since knowledge about HPV and HPV vaccine for males tends to be low (Gilbert, Brewer, Reiter, Ng, & Smith, 2011; Griebeler, Feferman, Gupta, & Patel, 2012; Reiter, McRee, Gottlieb, & Brewer, 2010), participants' preferences for future HPV vaccine education programs for males were examined. Results will be useful in planning future HPV vaccine interventions for males living in Appalachia.

Method

This qualitative study was conducted with the support of the Community Awareness, Resources and Education II Project, an NIH-funded Centers for Population Health and Health Disparities (P50; National Institutes of Health, 2008). Focus groups and in-depth interviews conducted between July and October 2011 addressed Appalachian Ohio residents' knowledge, attitudes, and beliefs about HPV and HPV vaccine for males. Appalachian Ohio is a 32-county region in the southern and eastern part of the state. Appalachian Ohio has higher incidence rates for several HPV-related cancers compared with the non-Appalachian part of the state (Reiter, Fisher, et al., 2013). The institutional review board at The Ohio State University approved the study.

Participants

Appalachian Ohio residents from four key stakeholder groups thought to be important to HPV vaccination efforts for males were targeted: (a) parents with adolescent sons ages 9 to 17 years, (b) young adult men ages 18 to 26 years (i.e., young men within the approved age range for HPV vaccination (CDC, 2011), (c) health care providers, and (d) community leaders. Participants were recruited with the help of local community cancer coalitions and other community members. These individuals posted flyers in public locations throughout Appalachian Ohio communities (e.g., library, health department, grocery store) to help facilitate recruitment. Interested community members called a toll-free number where a research staff member provided additional information about the study. Separate focus groups were conducted for each type of stakeholder and in-depth interviews were conducted when only one person arrived for a scheduled focus group.

Procedures

A trained moderator led each focus group or interview using a standardized guide (guides differed across stakeholder types) and an additional staff member recorded field notes and group dynamics. Each guide was based on the Social Determinants of Health framework (Marmot & Wilkinson, 1999) and included open-ended questions addressing participants' knowledge, attitudes, and beliefs about HPV and HPV vaccine for males, potential barriers to vaccinating males against HPV in their communities, and preferences regarding the content and delivery channel of future HPV vaccine education programs for males. The moderator probed participants for further clarification when needed and encouraged dialogue between focus group participants. Health care providers often reported their

perceptions of the potential barriers faced by their patients and patient preferences for future HPV vaccine education programs for males.

Focus groups and interviews were held in community locations (e.g., libraries, health clinics, etc.), with each group lasting about 1 hour. Sessions were audio recorded, with recordings later transcribed verbatim by the Behavioral Measurement Shared Resource at The Ohio State University Comprehensive Cancer Center and reviewed for accuracy by a research team member (BRO). Participants completed written consent forms and brief self-administered surveys prior to sessions. Surveys collected information on demographics and knowledge about HPV (measured using 12 items). Knowledge items addressed HPV transmission, prevalence and risk of HPV infection, and the diseases associated with HPV. Participants received a $25 gift card and a $5 gasoline gift card for their participation.

Data Analysis

Inductive content analysis (Elo & Kyngas, 2008) was used to analyze focus group and in-depth interview transcripts. This method allows for the unification of fragmented or largely unknown knowledge by creating categories and abstraction from transcripts. One research team member (BRO) initially read through the transcripts and developed a coding tree. Two research team members (BRO, KER) then independently coded a few transcripts, compared coding, and revised the coding tree. The research team members used the revised coding tree to code each of the transcripts independently. Coders compared results and resolved any differences through discussion and consensus. NVIVO 9 was used for these analyses.

Results

Participant Characteristics

A total of 102 Appalachian Ohio residents participated in the study, including 97 from 24 focus groups (group size ranged from two to nine participants) and five from in-depth interviews. Sessions occurred in 10 of the 32 Appalachian Ohio counties with participants being from 12 Appalachian Ohio counties. Participants included 30 health care providers (e.g., nurses, home health aides, and physicians) from six focus groups and three in-depth interviews, 26 community leaders (e.g., church leaders, business owners, and teachers) from six focus groups and one in-depth interview, 28 parents from six focus groups and one in-depth interview, and 18 young adult men ages 18 to 26 years from six focus groups. A majority of participants were female (75%), non-Hispanic White (87%), married (60%), and employed (83%; Table 1). Although most health care providers (97%) and community leaders (80%) reported having a college degree, fewer parents (68%) and young adult men (11%) indicated this level of educational attainment.

HPV and HPV Vaccine Knowledge

Health care providers answered, on average, 10.3 out of the 12 HPV knowledge items correctly. Other participants answered fewer of these HPV knowledge items correctly. The mean number of correct responses was 7.8 for parents, 6.2 for community leaders, and 4.8 for young adult males.

Participants reported knowing that cancer rates in general are elevated in the Appalachian Ohio region. However, participants tended to report a lack of knowledge about the prevalence of HPV and that HPV can cause adverse health outcomes among males. Few participants were aware that HPV vaccine was available for males prior to hearing about our study. Participants reported that there were general misconceptions in their communities that HPV vaccine is unnecessary if someone is not sexually active or in a monogamous relationship.

HPV Vaccine Acceptability

Participants tended to report high levels of acceptability of HPV vaccine for males, and this was consistent across focus groups and interviews. Participants thought it was important to vaccinate males, in addition to females, since both genders are affected by HPV and HPV-related disease. One health care provider summarized how HPV vaccine for males has been received thus far in their community,

> The parents that I have talked to specifically about their sons getting it . . . they were not opposed and they didn't, I mean they just thought it was great because their question was, "Well can boys get the same thing?" And I said yes, they are carriers and they don't have symptoms a lot of times and they're like oh, you know they were not aware of it. So, but they were not opposed to getting the vaccine once I explained it to them and how they could be a carrier and their future mate could be infected with it.

Potential Barriers to Receiving HPV Vaccine

Participants reported three categories of potential barriers to vaccinating males against HPV in their communities: vaccine safety and side effects, access to care and vaccination logistics, and gender and cultural issues (Table 2). Participants were concerned about the safety of HPV vaccine and potential short-term side effects that may follow vaccination (e.g., pain at the injection site). Several participants emphasized the concern that HPV vaccination may lead to more severe and long-term effects, such as mental deficiencies or death. One health care provider noted the presence of this concern among parents, "I've had parents . . . a couple years ago there was a lot of stuff on the Internet. . . . I believe it was a case in Texas where a girl supposedly died from the vaccine." A few participants were also concerned that HPV vaccine may lead to sexual promiscuity among vaccinated individuals.

Issues related to access and vaccination logistics included a general lack of access to quality health care in their communities, lack of time for individuals to receive HPV vaccine, and transportation difficulties for individuals to get to a health clinic. Participants frequently reported that access to health care was one of the primary health challenges for young men and boys in their communities. Participants also expressed concerns about a lack of resources for vaccination, specifically the cost of getting HPV vaccine and a potential lack of insurance coverage of the vaccine. A young adult male voiced this concern, "If it [HPV vaccine] was covered by insurance, I would . . . but if it cost money I probably wouldn't get it."

There were also gender and cultural issues cultures issues that emerged as potential barriers to vaccinating males against HPV. Many participants indicated that there was a gendered perception of HPV vaccine and that people in their communities believed the vaccine was only for females. Some of these participants believed this may be due to the marketing and advertising of HPV vaccine being directed mainly toward females. When discussing an advertisement for the vaccine, one young adult male stated, “It said something about cervical cancer so of course I’m gonna rule this off as not really having to do with men.” Because of this gendered perception of HPV vaccine, concerns were expressed that receiving HPV vaccine may be viewed as emasculating to males. A community leader felt that young men might be embarrassed to get what may be perceived as a “chick vaccine.” Many of the young adult males viewed this issue as a potentially important barrier because peer stigma would reduce the likelihood of vaccination. Last, some participants reported that sex and sexually transmitted infections are topics not readily discussed in their communities, and this may serve as a potential barrier to increasing HPV vaccination among males.

HPV Vaccine Education Program Preferences

When asked about settings and delivery channels for future HPV vaccine education programs for males, the most strongly endorsed options included schools, health care providers, and peer education programs. Some participants mentioned that they would prefer to receive information about HPV vaccine for males through technology-based mediums, such as websites, text messages, or phone applications.

Participants indicated that future HPV vaccine education programs for males should include information about HPV and HPV-related diseases (e.g., transmission of HPV), vaccination logistics (e.g., number of doses needed, timing of doses), and issues related to cost (e.g., insurance coverage of the vaccine, the Vaccines for Children [VFC] program; Table 3). One health care provider stressed the importance of “explaining that it is a three series shot, the cost . . . because they’ll want to know the cost.” Participants indicated that such programs should present HPV vaccine more as a vaccine that may have the potential to prevent cancer, as opposed to a vaccine that can prevent genital warts or a vaccine that may help protect the female partners of vaccinated males. As one parent suggested, “The cancer factor, the life and death issue, really might serve to get people’s attention over. . . . I might get some warts.”

Many participants felt that parents would likely be the best target for future HPV vaccine education campaigns for males because adolescents and young adults do not take responsibility for their health, believe they are impervious to health problems, and fail to value preventive health measures. One young adult male stated, “I feel like from teenage years to 25, you feel invincible . . . you don’t really think about your health until . . . you see a gray hair in the mirror or something.” Participants felt these issues may be especially problematic for young adult males compared with young adult females. Last, participants mentioned several culture factors that may be important in planning a future HPV vaccine education program. These included people in their region identifying strongly with their communities, having strong personal relationships, and being suspicious of outsiders. It was

also mentioned in several groups and interviews that the word “Appalachian” has a negative connotation in their communities.

Discussion

Overall, Appalachian residents from four key stakeholder groups were very accepting of HPV vaccine for males. These results are encouraging since a past study reported that many health care providers from Appalachia thought that parents of females were more receptive toward HPV vaccination compared with parents of males (Oldach & Katz, 2012). Most Appalachian adults support vaccinating adolescent females against HPV (Christian, Christian, & Hopenhayn, 2009; Hopenhayn, Christian, Christian, & Schoenberg, 2007; Katz, Reiter, Heaner, et al., 2009), which has resulted in similar HPV vaccine coverage among Appalachian females compared with the rest of the country (though vaccine coverage varies greatly within the Appalachia; Reiter et al., 2012). To our knowledge, no data yet exist on HPV vaccine coverage among adolescent males from Appalachia, but vaccine coverage among adolescent males in the United States is low (CDC, 2012b; Laz et al., 2013; Reiter et al., 2011; Reiter, McRee, et al., 2013; Reiter, Gilkey, et al., 2013). With the updated recommendation for routine HPV vaccination for males now in place, future research is needed to determine how the high acceptability of HPV vaccine for males in Appalachia reported in the current study translates into actual vaccine uptake.

Despite the high levels of vaccine acceptability, participants tended to lack knowledge about HPV and HPV vaccine. This was particularly true for parents, young adult males, and community leaders. Many participants did not even know that HPV can cause disease in males or that HPV vaccine was available for males prior to our study. These findings agree with those from a previous study of health care providers from Appalachia (Oldach & Katz, 2012) and a national survey of parents (Reiter et al., 2011). Some participants in our study even suggested that HPV vaccination may be viewed as only for females in their communities, emasculating and embarrassing for males, and that a peer stigma may be attached to males receiving the vaccine. These issues are highly concerning, considering perceived peer acceptance of HPV vaccine has been correlated with adolescent males’ willingness to get vaccinated (Reiter et al., 2011).

Results from the current study provide important information for future HPV vaccine education programs for parents and sons in Appalachia. Education programs are needed at this early stage of adoption to help increase awareness and knowledge about HPV vaccine for males and possibly help destigmatize vaccination among males. Such information can help parents and sons make informed decisions regarding HPV vaccination. However, it will be crucial for interventions to also target health care providers since provider recommendation is one of the most important determinants of HPV vaccination (Dorell, Yankey, Santibanez, & Markowitz, 2011). Multilevel interventions that include an education program and a component targeting health care providers may therefore be a promising strategy for increasing HPV vaccine uptake among males in Appalachia.

Future education programs should provide accurate information about the potential side effects of HPV vaccination and vaccination logistics, two of the more common potential

barriers to vaccination reported by participants. Post–licensure data support the safety of HPV vaccine and indicate no significant increases in adverse events following vaccination (Gee et al., 2011). Results from a past study suggest that pain from HPV vaccine is often similar to that from other recommended adolescent vaccines (Reiter, Brewer, Gottlieb, McRee, & Smith, 2009). Although some parents (typically less than 30%) express concerns that HPV vaccine will promote sexual activity (Brewer & Fazekas, 2007; Ferris, Cromwell, Waller, & Horn, 2010; Schuler, Reiter, Smith, & Brewer, 2011), a previous study reported that HPV vaccination is not associated with indicators of sexual behavior among adolescents (Bednarczyk, Davis, Ault, Orenstein, & Omer, 2012). Future programs will need to address vaccination logistics, including cost of the vaccine and insurance coverage. HPV vaccine is one of the most expensive vaccines (about $130 per dose; CDC, 2012a), but it is covered by the VFC program. The VFC program is a federal program that provides vaccines free of charge to children who might not otherwise be vaccinated because of inability to pay (CDC, 2013). A child is eligible for the VFC program if he or she is less than 19 years old and is American Indian or Alaska native, Medicaid-eligible, uninsured, or underinsured (CDC, 2013). Some private health insurance plans also covered HPV vaccine for males under the permissive recommendation (Haupt & Sylvester, 2010), and it is likely that insurance coverage by private health insurance plans has increased with the updated recommendation for routine HPV vaccination for males.

Participants suggested that future HPV vaccine education programs in Appalachia target mainly parents and present HPV vaccine as a vaccine that may have the potential to prevent cancer. Targeting parents is an important strategy since they are typically the primary decision makers in determining whether adolescents receive HPV vaccine (McRee, Reiter, & Brewer, 2010). However, it may also be necessary for education programs to have a component targeting adolescents since many adolescents (particularly older adolescents) are also involved in vaccination decisions (McRee et al., 2010). Framing HPV vaccine as a vaccine that may have the potential to prevent cancer will likely increase vaccine acceptability (and possibly uptake). Past research suggests that including a cancer prevention component when describing HPV vaccine increases males' willingness to get vaccinated compared with describing HPV vaccine as preventing only genital warts (McRee, Reiter, Chantala, & Brewer, 2010). Participants preferred for future HPV vaccine programs to involve health care providers and schools. These results are not surprising given that both parents and adolescent males are most comfortable with HPV vaccination occurring at a doctor's office, with many also comfortable with school-located vaccination programs (Middleman & Tung, 2010; Reiter, McRee, Pepper, Chantala, & Brewer, 2012).

Study strengths included a large number of focus groups and interviews conducted in a geographic area with high HPV-related cancer rates, targeting four key stakeholder groups that are likely important to the HPV vaccination behaviors of males, use of an experienced moderator with an additional staff member recording field notes during sessions, and having multiple research team members code data. These strengths should help increase the credibility and dependability of our study. Limitations include unknown transferability of our findings since focus groups and interviews were conducted in only one Appalachian state, though Appalachian Ohio is demographically similar to several other Appalachian states (Pollard & Jacobsen, 2012). A majority of participants in our study were non-Hispanic

White, which is consistent with the population of Appalachian Ohio (more than 90% of residents are non-Hispanic White; Pollard & Jacobsen, 2012). Focus groups and interviews occurred just prior to the ACIP issuing the recommendation for routine administration of HPV vaccine to males. Data on the HPV vaccination status of the young adult males or parents' adolescent sons were not collected, but it is likely that few had received any doses of the vaccine given that not many participants (excluding providers) were aware that the vaccine was available for males and the low current vaccine coverage among U.S. males (CDC, 2012b; Laz et al., 2013; Reiter et al., 2011; Reiter, McRee, et al., 2013; Reiter, Gilkey, et al., 2013).

Acceptability of HPV vaccine for males was high among residents of Appalachian Ohio. Future education programs are needed for Appalachian residents to increase their awareness and knowledge about HPV vaccine for males and help destigmatize vaccination for males. HPV education programs should address other potential barriers to vaccination, including concerns about vaccine safety and side effects and vaccination logistics. With the updated recommendation for routine HPV vaccination for males now in place, it is important to develop culturally appropriate educational programs to increase HPV vaccine coverage among Appalachian males. Such programs may help reduce the current HPV-related disparities in this geographic region.

Acknowledgments

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article:

This work was supported by the National Cancer Institute at the National Institutes of Health: P50CA105632 and P30CA016058 (Behavioral Measurement Shared Resource at The Ohio State University Comprehensive Cancer Center).

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Table 1

Characteristics of Participants From Appalachian Ohio (N = 102).

	Health care providers (n = 30)	Community leaders (n = 26)	Parents (n = 28)	Men[a] (n = 18)
Age (years)				
Mean (*SD*)	46 (11)	45 (14)	43 (10)	21 (3)
Range	26–66	24–65	21–65	18–26
Gender				
Female	30 (100)	20 (77)	26 (93)	0 (0)
Male	0 (0)	6 (23)	2 (7)	18 (100)
Race/ethnicity				
White, non-Hispanic	28 (93)	25 (96)	22 (79)	14 (78)
Other	2 (7)	1 (4)	6 (21)	4 (22)
Marital status				
Not married	8 (27)	6 (24)	10 (36)	16 (89)
Married	22 (73)	19 (76)	18 (64)	2 (11)
Education				
Less than a college degree	1 (3)	5 (20)	9 (32)	16 (89)
College degree or more	29 (97)	20 (80)	19 (68)	2 (11)
Employment				
Full-time/part-time	30 (100)	22 (88)	17 (65)	13 (72)
Retired/disabled	0 (0)	2 (8)	4 (15)	0 (0)
Unemployed	0 (0)	1 (4)	5 (19)	5 (28)

Note. Table reports *n* (%) unless otherwise indicated. Totals may be less than stated sample size due to missing data. Percentages may not sum to 100% due to rounding. *SD* = standard deviation.

[a]Included young adult men ages 18 to 26 years.

Table 2

Potential Barriers to Males From Appalachia Receiving HPV Vaccine.

	Health care providers (*n* = 30)	Community leaders (*n* = 26)	Parents (*n* = 28)	Men[a] (*n* = 18)
HPV vaccine safety and side effects				
May cause short-term side effects	+	+	+	+
May cause long-term side effects	+	+	+	−
May lead to sexual promiscuity	+/−	+/−	+/−	
Access to care and vaccination logistics				
Access to quality health care	+	+	+	
Time and transportation difficulties	+		+	
Lack of resources, cost, and insurance coverage	+	+	+	+
Gender and cultural issues				
HPV vaccine viewed as a female vaccine	+	+	+	+
HPV vaccination may be viewed as emasculating or embarrassing by males	+	+	+	+
Sex and STIs are not topics for discussion	+	+	+	+/−

Note. (+) = Mentioned as a potential barrier; (−) = Mentioned as not being a potential barrier; (+/−) = Mixed feedback regarding potential barrier; Blank = not mentioned. HPV = human papillomavirus; STI = sexually transmitted infection.

[a]Included young adult men ages 18 to 26 years.

Table 3

Preferred Content for HPV Vaccine Education Programs for Males.

	Health care providers (*n* = 30)	Community leaders (*n* = 26)	Parents (*n* = 28)	Men[a] (*n* = 18)
Information about HPV and HPV-related diseases			+	+
Vaccination logistics	+	+	+	+
Cost (insurance coverage/VFC program)	+	+	+/−	+
HPV vaccine should be presented as preventing cancer	+	+	+	+
HPV vaccine should be presented as preventing genital warts	+/−	+/−	+/−	+/−
HPV vaccine should be presented as protecting female partners of males	+/−	+/−	+	+/−

Note. (+) = Mentioned as important programmatic content; (−) = Mentioned as not being important programmatic content; (+/−) = Mixed feedback regarding inclusion as programmatic content; Blank = not mentioned. HPV = human papillomavirus; VFC program = Vaccines for Children program.

[a]Included young adult men ages 18 to 26 years.