

Human Papillomavirus Vaccine Awareness Among HIV-Positive Gay and Bisexual Men: A Qualitative Study

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Abstract

Purpose: This study explores HIV-positive gay and bisexual men's (GBM) understanding of human papillomavirus (HPV) and the HPV vaccine.

Methods: Researchers conducted 15 in-depth interviews with HIV-positive GBM between the ages of 18–30 years old.

Results: Two participants had received a single dose of the HPV vaccine. Otherwise, the majority of participants had either never heard of the HPV vaccine or they perceived it as a resource for women only. Other commonly cited barriers to getting the vaccine included lack of provider recommendation to complete the vaccine series and vaccine costs.

Conclusions: Future provider-driven interventions should focus on increasing HPV vaccine among age-eligible HIV-positive GBM.

Keywords: anal cancer, anal intraepithelial neoplasia, high-grade squamous intraepithelial lesions, HPV vaccine, human papillomavirus

Introduction

AMONG MEN, PERSISTENT infection with oncogenic strains of human papillomavirus (HPV), the most common sexually transmitted infection, can cause anal, oropharyngeal, and penile cancers.¹ HIV-positive men who have sex with men (MSM), including those currently adhering to antiretroviral therapy, are at markedly higher risk for such cancers, particularly anal cancer.² The HPV strains most commonly associated with cancer are HPV 16 and 18; however, strains 31, 33, 35, 39, 45, 51, 52, 56, 58, and 59 are also carcinogenic.³ Commercially available 9-valent HPV vaccines offer the potential of immunity against oncogenic strains (Types 16, 18, 31, 33, 45, 52, and 58), strains which are highly prevalent among HIV-positive MSM,⁴ and the two low-risk strains (Types 6 and 11) that cause over 90% of genital warts.⁵ In the United States, HPV 16 and 18 alone are responsible for nearly 80% of anal cancers, 60% of oropharyngeal cancers, and 48% of penile cancers.⁶ Bivalent and quadrivalent HPV vaccines have the potential to prevent a majority of these cancers (79.4% anal, 60.2% oropharyngeal, and 47.9% penile cancers).⁶ An additional 4.2%–18.3% of HPV-related cancers can be prevented (dependent on cancer site) with the 9-valent vaccine.⁶

In December 2016, the Advisory Committee on Immunization Practices (ACIP) updated HPV vaccine guidelines, recommending that individuals initiating HPV vaccination at ages 9 through 14 years, who are not immunosuppressed, receive two vaccine doses of the 9-valent HPV vaccine.⁷ Individuals initiating HPV vaccination at ages 15 through 26 years and immunocompromised individuals (including those living with HIV) initiating HPV vaccination at ages 9 through 26 years should receive three doses of the HPV vaccine series.⁷ The vaccine series increases HPV immunogenicity among HIV-positive individuals.⁸ In a study of HIV-positive and HIV-negative individuals between the ages of 13–27 years old, the HPV vaccine was reported as safe and well-tolerated.⁹ Among HIV-positive individuals who received the HPV vaccine, the reported adverse effects of the vaccine included pain and swelling at the site of injection (experienced by 33% of HIV-positive participants) and headaches immediately after injection (experienced by 13.5% of HIV-positive participants).⁹ It is critical to vaccinate this population because HIV-positive MSM often test negative for oncogenic strains of HPV but remain at risk for acquiring these infections if they remain sexually active.¹⁰

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Uptake of this vaccine among age-eligible HIV-positive MSM is a cost-effective and potentially life-saving strategy, and past research states that HIV-positive MSM should be considered a high priority population for this vaccine.¹¹ However, data from the National HIV Behavioral Surveillance survey showed that among HIV-positive MSM, 37.2% received at least one dose of the three-dose vaccine series.¹² As this vaccine becomes more readily available, it is important to understand barriers and facilitators to receiving the HPV vaccine among HIV-positive gay and bisexual men (GBM). The goal of this study was to explore this populations' understanding of HPV and the HPV vaccine as well as preferences for future health promotion.

Methods

This study was reviewed and approved by the University of Miami Institutional Review Board (IRB). Upon receiving IRB approval to conduct the study, the Principal Investigator (PI) recruited a convenience sample of English- and Spanish-speaking HIV-positive GBM by circulating study fliers to various health-related organizations that offer outreach services to HIV-positive populations (e.g., health department, nonprofit organizations which focus on the health of racial/ethnic minority HIV-positive men, and LGBT community health center). Staff from these organizations circulated study information and posted study fliers at their establishments. The fliers provided information about the topic of interest (cancer prevention), inclusion criteria (HIV-positive, self-identify as gay or bisexual men [transgender populations were excluded from this study], age 18 years and older, English or Spanish fluency, reside in Miami-Dade County), and a Google number that rang directly to the PI's cell phone (for English speakers) or the bilingual Graduate Research Assistant's (GRA's) cell phone (for Spanish speakers) to screen potential participants. Participants were also recruited via snowball sampling. This study was part of a larger study, in which 91 HIV-positive GBM were interviewed about anal cancer prevention. Of that number, only 15 had ever been age-eligible to receive the HPV vaccine. Their data are included in this study.

The PI and bilingual GRA (based on participant's language preference) met with each participant at a time and location of his choice. Participants most often selected fast food restaurants (e.g., Denny's, McDonalds, IHOP) for the interview location. Upon meeting potential participants in person, the PI and GRA provided an in-depth description of the study, notifying the men that the study was about HPV and cancer prevention. Participants were also notified that they were allowed to skip any questions which they were uncomfortable answering, and they could leave the study at any time. After obtaining written informed consent, the researchers used an in-depth interview guide to explore participants' understanding of HPV, the HPV vaccine, and cancers prevented by the HPV vaccine. See Table 1 for the questions asked in the portion of the interview that was analyzed for this substudy. This interview guide was sent to a professional translation and transcription service, which first translated and back translated the interview guide to ensure linguistic accuracy. All interviews were audio recorded to be transcribed for qualitative content analysis. Interviews lasted between 7 and 32 minutes, with an average of 14 min-

TABLE 1. IN-DEPTH INTERVIEW QUESTIONS

<i>HPV</i>
What have you heard about the virus HPV? How and where did you find out this information? How do you think you could be affected by HPV?
<i>HPV vaccine</i>
Have you received the HPV vaccine? What made you want to get the vaccine? What have you heard about the HPV vaccine? Where did you hear about it? What would influence you to get the HPV vaccine? What would keep you from getting the vaccine? [If participants have never heard about the HPV vaccine] What do you think about vaccines in general? What would influence you to get a vaccine? What would keep you from getting a vaccine? What other information about the HPV vaccine or vaccines would you like to share?

HPV, human papillomavirus.

utes. At the end of the interview, the PI and GRA provided an informative health discussion about HPV, the HPV vaccine, and cancer prevention, and gave participants \$60 as remuneration for their time and shared experiences.

A local transcription company translated, back translated, and transcribed all audio files, removing any identifying information, and the PI read all transcribed files to ensure that such information had been removed. The PI created a coding guide for the interview data using the interview guide for a priori themes. Reading through all interview transcripts, the PI added emerging themes to expand the coding guide. The PI trained the GRA in qualitative content analysis. They reviewed one transcript together, coded an additional three transcripts separately, met to discuss coding choices, reaching agreement on data interpretations and analysis, and split the remaining interview transcripts for review. All transcripts were uploaded into ATLAS.ti (Scientific Software Development GmbH, Berlin, Germany), and the PI reviewed and entered all codes into the software.

Results

For the purpose of this study, data of participants ages 18–30 were considered, given their current and/or former eligibility to receive the vaccine. A total of 15 in-depth interviews were analyzed for this study. Participants ranged in age from 22 to 30 (mean = 25.5) years old. The sample included 10 white Hispanic (7 born in the United States and 3 foreign-born), 4 non-Hispanic black, and one non-Hispanic white man. The majority of men ($n = 13$, 86.7%) were employed for wages, although one was a college student, and another was currently looking for work. Qualitative results demonstrate participants' limited knowledge about the HPV vaccine. See Table 2 for quotations supporting all findings.

When asked if they had ever heard of HPV, the majority of participants ($n = 13$, 86.7%) were able to describe it as a health condition (not specifying a virus) that can be spread from person to person via sex. Eight participants (53.3%) reported having heard about the HPV vaccine, two (13.3%)

TABLE 2. HUMAN PAPILLOMAVIRUS VACCINE-RELATED AWARENESS AND BEHAVIORS AMONG HIV-POSITIVE GAY AND BISEXUAL MEN

<i>Theme</i>	<i>Subtheme</i>	<i>Supporting quotation</i>
HPV-related knowledge	Knowledge about HPV	I haven't heard about that disease. Personally, I have never—my doctors have never told me about it. <i>Participant 72, Spanish, Hispanic white, age 26</i> I heard that it's really contagious. I heard that some people catch it through [having] sex. <i>Participant 26, English, Hispanic white, age 23</i>
	Does not affect gay men	I mean I've heard it mentioned on the news here and there, but my understanding, which is minimal, is that it's not just affecting gay men. <i>Participant 56, English, Hispanic white, age 28</i>
	Anal warts	The first time I heard about the human papillomavirus, I think, it called my attention because I had noticed it in one of my partners who had HIV. I saw he had some warts surrounding the anus, and then I went to the doctor. <i>Participant 40, English, non-Hispanic black, age 25</i>
Facilitators to HPV vaccine	Desire to prevent diseases	I'm looking at HPV vaccine I'm thinking that it will prevent me from getting this [virus]. I don't think I've ever had a doctor speak of it either. But I would be willing to take it if it's going to prevent me from getting sick. <i>Participant 14, English, Hispanic white, age 23</i>
	Provider recommendation	If my doctor brings it to my attention that I need to get a vaccine for something, I will take it. I know it's in my best interest. <i>Participant 68, Spanish, Hispanic white, age 29</i>
Positive attitudes about vaccines (in general)	Importance of disease prevention	Prevention of this kind of disease. Because one thing is to deal with a treatment because you already have the disease and another is to prevent that virus from getting into your body. <i>Participant 71, Spanish, Hispanic white, age 24</i> I think they're very important. I think that they're important because—I been in addiction for a while and I get a lot of things that I wouldn't normally do without having addiction. I came in contact with HIV with having multiple partners. My grandmother, when I was a child, she got a vaccine for me for hepatitis. It prevented me from getting hepatitis. Had I not gotten that when I was a child, Lord knows I probably would have had Hep-C and a lot of other things, so I think that vaccinations are very important. Even though you can come into contact with certain things, they prevent it from actually taking its toll on you. <i>Participant 5, English, non-Hispanic white, age 25</i>
Barriers to HPV vaccine uptake	Lack of awareness	There's a lack of information. And ignorance about it. <i>Participant 68, Spanish, Hispanic white, age 29</i>
	Potential side effects	I mean I don't know, I mean I'm not too fond of the guinea pig thing, so I don't know, it depends on the side effects, I actually [inaudible] that. So I would have to see—weigh my options and see what my side effects are. <i>Participant 10, English, non-Hispanic black, age 29</i>
	Belief that HPV affects women and children only	Well, I heard it when it first came out, and it was only for females, right? For girls at a certain age? I didn't pay that much attention because it didn't pertain to me. <i>Participant 44, English, Hispanic white, age 27</i>
	Stigma	The embarrassment, being embarrassed about getting a vaccine shot or whatever type of vaccine they may need. I know when I first had to get a vaccine shot for a STD, I was kind of nervous about that and embarrassed about that. <i>Participant 26, English, Hispanic white, age 23</i>
	Vaccine costs	If it's too expensive and I can't afford it, I'm not going to get it. <i>Participant 83, Spanish, Hispanic white, age 22</i>
	Insurance coverage	Some of the people I know have Ryan White, and Ryan White doesn't pay for the service because they don't have it. So, I think if they would include that in there, there would have at least a dosage to be prevented from [HPV] strains. <i>Participant 37, English, non-Hispanic black, age 30</i>

of whom had received the first dose of the vaccine. Four men reported hearing about the vaccine through the media (e.g., commercials) or through friends; however, they perceived it as a vaccine for women only. The remaining seven participants (46.7%) had never heard of the vaccine and did not know they were eligible to receive the vaccine.

No participant knew that the HPV vaccine is used to prevent genital warts and cancer. Four (26.7%) of the participants reported developing genital or anal warts, but only one knew that HPV infection caused warts. This participant reported being treated surgically for anal warts at the same time that he was diagnosed with HIV. Six months later, the warts returned and he underwent surgery a second time to remove them. Regardless of their understanding about the HPV vaccine, participants reported willingness to receive the vaccine if their provider recommended it as a resource for disease prevention.

The men described various barriers and facilitators to HPV vaccination. The most commonly cited barrier was lack of provider recommendation. One participant described how his provider did not recommend that he received the vaccine because he does not sleep with women. At the same time, all men expressed positive attitudes toward vaccines in general and willingness to receive vaccines (in general) to prevent infection. They believed vaccination is critical for general health promotion, particularly given their compromised health status. Provider recommendation to receive any vaccine would prompt them to receive that specific vaccine.

Two participants cited that vaccine cost and lack of insurance coverage, particularly by the Ryan White Program, kept them from receiving the vaccine or additional vaccine booster shots. A few men described how they needed more information about the vaccine before making an informed decision to receive it. Participants reported needing information about potential adverse side effects, ingredients used or the chemical composition of the vaccine, and ways in which the vaccine protects health. Therefore, a facilitator for vaccine uptake, other than provider recommendation, is more information about the vaccine.

Discussion

This study explored HIV-positive GBM's understanding of HPV and the HPV vaccine. The results revealed that many of the men did not know about the HPV vaccine, and only two had received the first dose (only) of the three-shot series vaccine. Similar to past research,¹³ HIV-positive GBM demonstrated willingness to receive the HPV vaccine. ACIP recommends HPV vaccination through age 26 years for all HIV-positive individuals,⁵ but more work is needed to ensure vaccination coverage among this population.

Similar to past research among GBM between the ages of 18–26 years old,¹⁴ lack of provider recommendation was the most frequently reported barrier to receiving the vaccine. Future research should assess the current behaviors of and barriers to HPV vaccine promotion among HIV primary care providers. Intervention research focusing on HIV primary care provider recommendation could impact rates of HPV vaccine initiation and completion.

Vaccine cost and lack of insurance coverage were also cited as barriers to HPV vaccination. These results are similar to findings which described programmatic barriers to vac-

cine distribution at an HIV primary care clinic.¹⁵ The study by Eaton et al. described how, without proper reimbursement, HIV primary care clinics would experience financial repercussions of almost \$100,000 each year.¹⁵ The Centers for Disease Control and Prevention's Vaccines for Children (VFC) helps providers to offer vaccines at no cost for the underinsured. Practitioners are provided with the vaccines and are also reimbursed for vaccine administration costs. However, not all healthcare practitioners participate in the VFC program. To enroll as a provider, healthcare practitioners (regardless of specialty) must contact their VFC State Program Coordinator, complete an enrollment application, and host a site visit for a VFC staff member to ensure that the healthcare facility has the proper resources needed to handle and store vaccines.¹⁶ Furthermore, only patients age 18 and younger qualify to receive the free vaccines. Increasing the age (from 18 to 26 years old) of eligibility to receive the HPV vaccine free of charge could enhance HPV vaccine series initiation and completion.

HPV vaccines should be promoted at all HIV clinics and should be offered to all patients, regardless of cost. Patients may then make a more informed decision as to whether to pay the vaccine costs (which, without insurance typically cost between \$130 and \$150 per vaccine dose) to complete the vaccine series, thereby reducing the likelihood of developing noncancerous genital warts and, potentially, of high-grade anal intraepithelial neoplasia (HGAIN), which, left untreated, is believed to be the cause of anal cancer.¹⁷ One cohort study of HIV-negative MSM demonstrated that completing the HPV vaccine series significantly reduced HGAIN recurrence.¹⁸ Similarly, larger intervention trials should test if the HPV vaccine reduces high-grade squamous intraepithelial lesion (HSIL) recurrence in HIV-positive GBM. If this research demonstrates reduction in HSIL development, then further cost-benefit analyses should be conducted to test whether or not it is financially feasible to provide insurance coverage for the HPV vaccine among all HIV-positive populations, including GBM.

This study has potential limitations. Study participants were recruited via fliers posted at health-related organizations that offer outreach services to HIV-positive individuals. All participants were currently engaged in HIV primary care. Therefore, the study findings may not be generalizable to HIV-positive GBM who are currently not sustained in HIV care. Another potential limitation may include interviewer variability. A bilingual GRA collected Spanish-language interview data. However, the PI tried to eliminate potential variability in how questions and probes were asked by training and conducting mock interviews with the GRA.

Conclusion

The HPV vaccine must be promoted, particularly by HIV primary care clinics, to all age-eligible HIV-positive GBM to reduce their risk of developing (noncancerous) genital warts and the various HPV-related cancers. Increasing the age limits for eligibility to receive the HPV vaccine in programs, such as VFC, which provide underinsured populations with free HPV vaccines, can reduce the financial barrier to HPV vaccine catch-up. Ensuring that this population receives the vaccine is critical to preventing HPV-related cancers, particularly anal cancer, a cancer disparity among HIV-positive GBM.

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Author Disclosure Statement

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