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How very young men who have sex with men view vaccination against human papillomavirus

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ABSTRACT

Background: HPV vaccination of men who have sex with men (MSM) prior to the commencement of sexual activity would have the maximum impact on preventing HPV and anal cancer in this population. However, knowledge and attitudes towards HPV vaccination among very young MSM have not been previously studied.
Methods: Two hundred MSM aged 16 to 20 were recruited via community and other sources. Participants were asked about their knowledge and attitudes towards HPV and HPV vaccination.
Results: Most (80%, 95% confidence interval (CI) 72.2–87.2%) men were not willing to purchase the vaccine because of its cost (AUD$450). However, if the vaccine was offered to MSM free of charge, 86% (95% CI: 80–90%) reported they would be willing to disclose their sexuality to a health care provider in order to obtain the vaccine. Over half (54%, 95%: 47–61%) of men would only be willing to disclose their sexuality to receive the HPV vaccine after their first experience of anal intercourse. The age at first insertive anal intercourse and the age at first receptive anal intercourse were 0.21 (IQR: −2.5 to 3.2) and 0.17 (IQR: −2.9 to 2.7) years earlier than the age that men would be willing to disclose their sexuality to receive the HPV vaccine, respectively. Willingness to receive the vaccine at a younger age was associated with younger age at first insertive anal intercourse.
Conclusion: Overall, very young MSM expressed high acceptance of HPV vaccination. Early, opportunistic vaccination of very young MSM may be feasible in settings where very young MSM have not been vaccinated through universal programs targeting school aged males. However, given HPV infections occur early on, the effectiveness of this approach will be less than vaccination targeting school aged boys.

1. Introduction

Studies have demonstrated that most adult men who have sex with men (MSM) have been infected with the human papillomavirus (HPV) [1,2]. HPV results in a substantial burden of disease in MSM including anal and genital warts which are associated with significant psychosocial burden and compromised quality of life [3,4]. In addition, HPV is associated with anal cancer which is more common among MSM, particularly those who are HIV positive [5,6]. Anogenital HPV detection is associated with anal sex with men and vaginal sex with women [7].

The quadrivalent HPV vaccine has been shown to be effective in preventing infection with HPV types 6, 11, 16 and 18 in males together with genital warts and anal intraepithelial neoplasia, the precursor to anal cancer [8,9]. Data suggest that initial HPV

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infection among MSM occurs early, soon after their first sexual experiences. In a study of very young MSM who were on average 2 years since their first experience of anal intercourse, 31% had anal HPV infection. Of the infected men, 64% had at least one quadrivalent vaccine preventable anal HPV infection [7].

HPV vaccination of school aged boys prior to the onset of any sexual activity would have the maximum impact on preventing HPV among men. However, to date, few countries have implemented universal school based male HPV vaccination programs despite an increasing number that have introduced universal female HPV vaccination. The Australian government implemented free HPV vaccination of school aged boys aged 12 and 13 in 2013. In the absence of a universal male vaccination program, an alternative strategy would be to opportunistically vaccinate young men who report sex with men. This may also be used as a "catch-up" strategy in countries which do introduce school-aged vaccination, in a manner analogous to young women. In order for such a vaccination approach to be successfully implemented, it is important to understand such men's views about HPV and HPV vaccination. While some surveys have been undertaken among MSM, none have been obtained from very young MSM, who represent the main group that would need to be targeted [10].

Our study aimed to investigate the knowledge and attitude towards HPV and HPV vaccination among very young MSM recruited from a range of sources. We also aimed to define the age that very young MSM would choose to obtain the HPV vaccine if they had to disclose their sexuality to a health care provider in order to obtain the vaccine.

2. Methods

2.1. Subjects and recruitment

Participants in this study were those participating in the human papillomavirus in Young People Epidemiological Research (HYPER) Study which sought to determine the prevalence of HPV infection among MSM aged 16 to 20. We promoted the study at a range of sources in Melbourne. These include gay community organisations, such as (1) "Minus 18", a young gay, lesbian, bisexual and transgender (LGBT) group of about 500 members, (2) LGBT student clubs in universities, and (3) "YAK", a young LGBT social club; gay community media, such as (1) "Joy FM", Australia's national LGBT radio station, and (2) "MCV", an LGBT magazine; gay community events, such as (1) "Mid-Summa", LGBT Pride carnival, and (2) "Equal Love", a campaign for same-sex marriage; gay social network on Facebook and Twitter; and sexual health clinics, such as the Melbourne Sexual Health Centre, Prahran Market Clinic and Family Planning Victoria Action Centre. Participants had to physically go to the Melbourne Sexual Health Centre. Questionnaire and biological sample collection for all eligible participants were conducted at the Melbourne Sexual Health Centre. To be eligible, participants had to be aged 16–20 years, having had or potentially will have oral or anal sex with other men and willing to attend 4 study visits across 12 months. Participants self-completed a questionnaire that captured information including social and demographic characteristics, sexual behaviours with both men and women, knowledge of HPV, and attitudes towards HPV vaccination. We used a few strategies to ensure a high retention rate, such as reimbursing a participant by $15, $15, $20 and $50 for their first visit on day 1, second visit at month 3, third visit at month 6 and last visit at month 12; and offering free HPV vaccine at the end of the last visit. Details on recruitment methods and the STI testing protocol are described elsewhere [7].

Participants were asked how likely it was that they would inform a doctor or nurse that they had sex with men in order to obtain the HPV vaccine if it were available free of charge to MSM. Furthermore, they were asked at what age they would have felt comfortable doing this. Before enrolling in the study, participants were informed that HPV vaccination course was available as 3 doses over 6 months, at a cost of around AUD$450, the approximate cost of vaccination that adult Australian men are required to pay if they wanted the vaccine. As part of the study protocol, participants were offered vaccination against HPV at the completion of the HYPER study free of charge.

2.2. Measurement

We designed a series of questions on the knowledge of and attitude towards HPV among participants. We asked 6 questions about participants' knowledge of HPV: (1) Have you ever discussed HPV with your friends? (2) Is HPV the virus that causes genital warts? (3) Can HPV cause cancer of the cervix in women? (4) Does using condoms when having sex give 100% protection against HPV? (5) Can you tell if you have HPV? and (6) The HPV vaccination won't work if a person is already sexually active? All these questions had three choices: "Yes", "No" and "Unsure". We asked 7 questions about participants' attitudes towards HPV vaccination: (1) Do you think vaccinating young people against HPV would encourage them to become more sexually active? (2) Do you think HPV vaccination should be offered to boys and young men for free? (3) How likely would you have the HPV vaccine if you had to pay AUD$450 for it? (4) Why you are unlikely to have the HPV vaccine? (5) Would you tell a health professional that you had sex with men in order to obtain the vaccine if it was free for MSM? (6) Does your doctor know that you have sex with men? (7) What is your proposed age that you would feel comfortable disclosing sex with men to a doctor in order to obtain HPV vaccination for free? The first two questions had three choices: "Yes", "No" and "Unsure". Questions 3 and 5 had three choices: "Likely", "Neither likely nor unlikely" and "Unlikely". Question 4 had four choices: "The vaccine is too expensive that I cannot afford", "I am at low risk for HPV thus it's unnecessary to have the vaccine"; "It's hard to discuss it with my parents" and "Unsure". Question 6 had three choices: "Yes", "No" and "I do not have a doctor".

2.3. Statistical analysis

The sample size ($n = 200$) used in this study was designed to provide upper and lower 95% confidence intervals (CI) of between 2 and 7% around expected proportion of men with HPV at each time point. Sample characteristics were compiled using descriptive statistics. Median and interquartile ranges (IQRs) were used for age at first sex and age proposed by participants for receiving the HPV vaccine. Proportions were used for knowledge of HPV and attitudes towards the vaccine. Scatter plots were used to demonstrate age of first insertive anal intercourse (IAI) and receptive anal intercourse (RAI) and age of HPV vaccine uptake. Univariate and multivariate logistic regression models with odds ratios (ORs) and 95% confidence intervals (CIs) were used to explore factors associated with potential earlier uptake of HPV vaccine. Age, age at first IAI, age at first RAI, number of lifetime IAI partners, and number of lifetime RAI partners were included in the multivariate logistic regression. Statistical analyses were conducted using STATA 12.0 (StataCorp, Texas, USA).

3. Results

3.1. Participant characteristics

In brief, 200 participants were recruited from September 2010 to August 2012. The median age of participants was 19. The majority