



HPV vaccination in male physicians: A survey of gynecologists and otolaryngology surgeons' attitudes towards vaccination in themselves and their patients



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ABSTRACT

Objective: Attitudes and barriers towards HPV vaccination were explored in a population of male surgeons in Gynecology and Otolaryngology in Ontario, Canada.

Materials/methods: An internet-based survey was distributed to male residents and physicians affiliated with the departments of Obstetrics and Gynecology, and Otolaryngology at six Ontario universities. The survey consisted of 16 questions (3 demographic, 3 workplace exposure, 6 regarding personal vaccination, and 3 regarding patient vaccination). Subgroup analyses examined differences between residents versus staff physicians and gynecologists versus otolaryngologists.

Results: Most respondents (51/63, 81.0%) had not been vaccinated against HPV, yet would consider vaccination in the future (41/51, 80.4%). Significantly more residents would consider vaccination compared to staff physicians ($p = .03$). Personal protection from benign HPV disease was the most common motivating factor (25/59, 42.4%) among participants. A notable barrier to vaccination was “age over recommendations” (9/44, 20.4%). Most participants would recommend the HPV vaccine to both male patients (49/62, 79.0%) and male partners of female patients (47/62, 75.8%).

Conclusions: This study demonstrates male gynecologists and otolaryngologists had largely favorable attitudes towards HPV vaccination though few had received vaccination. These findings may be used to increase HPV vaccine uptake among male health care professionals and their patients.

1. Introduction

Human papillomavirus (HPV) is the most commonly transmitted sexually transmitted infection (STI) in the world. It is estimated that approximately 75% of sexually active men and women in Canada will be infected with at least one strain of HPV in their lifetime and HPV infections account for 5.2% of the worldwide cancer burden [1–3]. There are cervical, anal, vaginal, vulvar, penile, oral cavity and oropharyngeal HPV related cancers [3]. According to the Canadian Cancer Society, approximately two-thirds of HPV associated cancers are non-cervical [3]. American cancer registries state that between 2006 and 2010, approximately 9300 annual cancers in men were directly attributable to HPV infections including 90% of anal cancers, and 63% of penile cancers [4]. During the same period, 7200 cases of oropharyngeal cancer were also found to be attributable to HPV infection in

men [4].

It is well established that the HPV vaccine can protect against cervical cancer in HPV naïve females [5]. There is also strong evidence to support the vaccine's efficacy in males [2,6,7]. Specifically, studies have demonstrated the effectiveness of the quadrivalent vaccine in the prevention of ano-genital warts [6] and anal intraepithelial lesions [7] in men. Cost effectiveness data is more controversial. Most cost effectiveness studies are focused on whether vaccinating men is cost effective in decreasing cervix cancer in women. These studies show that vaccinating men is not cost effective, especially when female coverage is moderate-high [8]. Cost effectiveness data is more favorable for vaccination of men when considering all HPV related diseases and when female vaccination rates are below 40% [9]. A recent Australian study by Zhang et al. used a compartmental model to demonstrate that having a male HPV vaccination program with 84% coverage will result

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in a 90% reduction in HPV in men who have sex with men [10].

Countries such as Australia, Canada and the United States have adopted HPV vaccination programs for males. Specifically, in Canada, the National Advisory Committee on Immunization (NACI) issued an update in January 2012 on HPV vaccines, which included recommendations for males ages 9–26 and females aged 9–45 [11,12]. Currently, only the quadrivalent vaccine (Gardasil®, protecting against HPV 6/11/16/18) and the nonavalent vaccine (Gardasil®9, protecting against HPV 6/11/16/18/31/33/45/52/58) are recommended for men [12]. Publically funded school based HPV vaccination programs are available for both girls and boys in selected provinces and territories across Canada, including Ontario [13]. The desire to include men increased based on HPV vaccination rates failing to reach the levels necessary to establish herd immunity, gender equity issues, and a lack of protection for men having sex with men [14–16]. However, outside of school programs, HPV vaccination remains unsubsidized and it is excluded from many other worldwide national immunizations programs [8,9].

A large degree of HPV vaccine research has been done specifically targeting efficacy and benefits for women. Fewer studies have been conducted targeting awareness, attitudes and beliefs of males. The importance of such research has become increasingly apparent for several reasons. These include: the association of HPV with high rates of anal cancer in homosexual men, a high morbidity and cost associated with genital warts, and the risk of HPV related penile, anal, and head and neck cancers [17–19]. Furthermore, the burden of HPV-associated cancers is increasing in men [8]. A recent report by Habbous et al. found that from 2000 to 2012, there was a rise in the proportion of HPV attributable oropharyngeal cancers among patients being treated in Canadian surgical centers [20]. However, in 2010 Liddon et al. suggested that there was a preference to vaccinate females by both parents and health care providers [21]. A notable barrier to vaccination among adult males, parents, and providers is the belief that the HPV vaccine does not directly benefit them and that cervical cancer prevention for females is not sufficiently motivating [21]. Another study by Newman et al. identified lack of health care provider recommendation as a barrier to vaccination [22]. As HPV vaccination programs in males are still relatively new, much of the research done on the attitudes toward male vaccination was done prior to the establishment of routine vaccination programs and thus may not represent current opinions [21]. More recently, it has been shown that the majority of Canadian parents are not aware of the recommendations for male HPV vaccination [14]. As such, more research is needed to better understand attitudes toward male vaccination.

Studies suggest that men and parents of boys would benefit from the knowledge their health care providers communicate to them [17,23]. Our study aimed to address attitudes towards HPV vaccination in a population of male surgeons in Gynecology and Otolaryngology in Ontario, Canada as these are specialists who see and treat HPV related disease. Specifically, do these male surgeons feel they are at higher risk of HPV exposure due to occupation related exposure, have they been vaccinated, what are barriers to vaccination, and would they advocate for vaccination of male patients?

2. Materials and methods

An internet-based survey of 17 questions was created to address the attitudes towards male HPV vaccination in male Gynecologists and Otolaryngologists at academic institutions in Ontario, Canada. This study was approved by the Research Ethics Board at Women's College Hospital #2014-0094-E. The survey was created and hosted on an American web-based platform (Survey Monkey, www.surveymonkey.com) and was uniquely developed for this study. The survey was first piloted among a group of 5 resident physicians to ensure clarity, comprehension and time to complete the survey. To determine face validity, content validity, and comprehension, the survey was sent to a

group of 5 experts who treat HPV as a major component of their practice.

The survey consisted of 3 demographic questions, 4 workplace exposure questions, 6 questions regarding personal vaccination, and 4 questions regarding patient vaccination. The questions were multiple choice with a mix of single answer and multiple answer options. A copy of the survey can be found in [Appendix A](#).

The departments of Obstetrics and Gynecology and Otolaryngology at 6 Ontario medical schools were asked to distribute the survey among their male residents and staff physicians. The Obstetrics and Gynecology departments at the University of Toronto, McMaster University, University of Western Ontario, Queen's University and the University of Ottawa agreed to disseminate this survey. The survey was also distributed to the Otolaryngology departments at University of Western Ontario and Queen's University. The remaining 3 Otolaryngology departments did not participate. The survey was conducted in English, the most commonly spoken language in Ontario. The email invitation for the survey was sent out in January 2016 and remained open until May 2016. Reminders emails were sent out at 1 and 2 weeks after the initial email invitation.

Informed consent was obtained from all participants. Respondents who chose not to respond to a question were excluded from the analysis of the respective question. Subgroup analyses were preplanned to compare differences in treatment between gynecologists versus otolaryngologists and residents versus staff physicians. Chi-squared tests were run using SPSS Version 23 (Armonk, NY) to compare data between these subgroups. Fisher's exact test was used when expected counts were less than 5. A significance threshold of 0.05 was used for this study.

3. Results

A total of 91 surveys were sent via Survey Monkey. There were 63 male respondents recorded (63/91), with a 69% response rate.

As analysis was confined to male physicians and residents in obstetrics and gynecology and otolaryngology, all participants met the inclusion criteria. Obstetrics and gynecology was the most common specialty practiced among respondents (26/63, 41.2%), followed by general otolaryngology (19/63, 35.8%). Demographic information can be found in [Table 1](#).

When asked to rate knowledge of HPV related diseases 34 (54.0%) of 63 participants rated their knowledge as above average. While 26 (41.3%) of 63 rated their knowledge as average, only one (1.6%) reported minimal knowledge and two (3.2%) expert knowledge. The majority (30/63, 47.6%) of respondents reported seeing between 0 and 25 cases of genital or head and neck condyloma, cervical precancerous or cancers, or HPV related head and neck cancers on an annual basis. A

Table 1
Baseline characteristics of respondents (n = 63).

Characteristics	Respondents n (%)
Sex	
Male	63 (100)
Specialty of medicine	
Obstetrics and Gynecology	26 (41.2)
Gynecology Oncology	3 (4.8)
General Otolaryngology	19 (35.8)
Head and Neck Oncology	7 (11.1)
Other Otolaryngologic Specialty	6 (9.5)
Other	2 (3.2)
Length of practice	
Current resident	38 (60.3)
1–5 years	5 (7.9)
6–10 years	4 (6.4)
11–20 years	10 (15.9)
More than 20 years	6 (9.5)

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