

HPV: WHAT DO WE KNOW ABOUT ITS TYPES AND DISTRIBUTION

HPV: INFECTION RATES BY AGE AND GENDER

Human Papillomavirus (HPV) is the most common sexually transmitted infection (STI) in Canada and around the world. One often cited estimate is that about 70% of people will become infected with HPV at some point in their lives (Public Health Agency of Canada, 2008). In more than 80% of cases the infection clears up on its own within a few years and does not cause harm to the person. However, there is good reason for all sexually active people, particularly young people, to be concerned about HPV. There are over 100 different types of HPV, many of which can infect the genital area. Several types of the virus can cause genital warts leading to personal distress and embarrassment for the person who has them. Although they will eventually clear up, genital warts are difficult to treat. Of greater concern is that some HPV types can lead to precancerous or cancerous lesions on a woman's cervix. The types of HPV associated with cervical cancer are known as high risk (HR) HPV types. If they are detected by a doctor, the precancerous lesions can usually be successfully treated. Nevertheless, as a result of HPV infection, about 1,300 women are diagnosed with cervical cancer each year in Canada (Canadian Cancer Society, 2009). In addition, some cases of oral cavity and head/neck cancers are associated with HPV. Although they are relatively rare compared to other forms of cancer, penile, anal, vulva, and vaginal cancer are also associated with HPV.

HUMAN PAPILOMAVIRUS (HPV)

- HPV types 6 and 11 are the most common cause of *Condylomata acuminata* (Genital warts)
- HPV types 16 and 18 are the most common cause of precancerous or cancerous lesions of the cervix.

Source: Public Health Agency of Canada. (2008). Genital human papillomavirus (HPV) infections. *Canadian Guidelines on Sexually Transmitted Infections*. Ottawa, ON: Public Health Agency of Canada

This edition of Check the Research will provide a more detailed picture of the distribution of HPV within the community. We'll begin by looking at the age-specific prevalence of HPV types 6, 11, 16, and 18 among women. Then we will consider the more limited data on the prevalence of HPV in men. Information on the prevalence of HPV in the community can help us to understand the likelihood that HPV will affect us and to make informed choices about our health.

AGE-SPECIFIC PREVALENCE OF HPV IN WOMEN

This section summarizes research from the United States and Canada that has studied the prevalence of HPV among women in different age groups. In one of the most comprehensive and precise measurements of HPV prevalence among women in the United States, Dunne and colleagues (2011) examined data from the National Health and Nutrition Examination Survey (2003-2006) in which a nationally representative sample of women aged 14 to 59 were tested for HPV types 6, 11, 16, 18. Among all women, the prevalence of HPV types 6, 11, 16, and 18 was 8.8%. The highest prevalence for the four HPV types combined was in women aged 20 to 24 (18.5%) followed by those aged 25 to 29 (11.8%), 14 to 19 (11.5%), 30 to 39 (9.2%), 40 to 49 (5.2%), and 50 to 59 (4.7%). For HPV types 6 and 11 which cause genital warts, the highest prevalence was among those aged 14 to 19 (6.1%) followed by those aged 20 to 24 (4.1%), 25 to 29 (4.0%), 30 to 39 (3.3%), 40 – 49 (1.8%) and 50 to 59 (1.9%). For HR HPV types 16 and 18 which can lead to precancerous cervical lesions, the highest prevalence was among women aged 20 to 24 (16.1%) followed by those aged 25 to 29 (8.7%), 14 to 19 (8.7%), 30 to 39 (7.2%), 40 to 49 (5.6%), and 50 to 59 (3.0%) (Dunne et al.).



There have been no large-scale nationally representative studies of HPV prevalence among Canadian women. However, a number of smaller studies have been done. Tricco et al (2011) conducted a systematic review and meta-analysis of studies that examined HPV prevalence among Canadian women receiving HPV as part of routine screening (meta-analysis is the pooling of results from a number of similar studies). Note that women who receive routine screening are a different study group than the population-based sample used in the U.S. study described above. Another difference from the U.S. study was that Tricco and colleagues did not consider HPV types 6 and 11 but did look at HR HPV types 16 and 18 as well as a number of other less common HR HPV types. When the results of all the Canadian studies were pooled, Tricco found an overall prevalence of HPV of 27.1%. With respect to age, the highest prevalence for these HPV types was among women under age 20 with prevalence gradually declining as age increased. HPV prevalence differed depending on the study population. For example, among the studies included in the Tricco review, it was found that for women aged 20 to 25, HPV prevalence was 13% in university students and 24% among women in the general population of Ontario and for women aged 21 to 30 in Nunavut, the prevalence was 31%.

AGE SPECIFIC HPV PREVALENCE IN MEN

Because HPV infection is the primary cause of cervical cancer in women, most HPV prevalence studies have focused on the female population. Far fewer studies have examined HPV infection in men. Smith and colleagues (2011) reviewed studies from around the world that examined HPV prevalence in men (The authors included studies that examined any HPV types). With respect to studies conducted in North America, a number of studies of male university students found an HPV prevalence of over 25%. One study of men in Saskatchewan with a median age of 27 found an HPV prevalence of 8% (Olatunbosun, Deneer, & Pierson, 2001). Because Smith et al. were drawing from studies conducted around the world and involving groups of men with very different characteristics, including levels of sexual risk behaviour, they were able to arrive at only very basic general conclusions about the prevalence of HPV infection in men. From their global review, Smith et al. concluded that HPV prevalence is highest at slightly older ages among men compared to women and remains at peak levels or declines only slightly for older men. The authors suggest that the lack of an age-related decline in HPV prevalence among men could be because HPV infection might last longer in men and/or because men are more likely than women to become re-infected.

WHAT'S THE TAKE HOME MESSAGE?

Human papillomavirus (HPV) is believed to be the most common sexually transmitted infection in the world, and as we have seen in this review, HPV is very common among Canadian young people.

HPV RISK REDUCTION

- **Consistent condom use reduces but does not eliminate the risk of HPV infection. HPV can infect skin in the genital area that is not covered by a condom. Contact with infected skin tissue not covered by a condom can lead to HPV transmission.**
- **Bivalent Vaccine: This vaccine prevents infection with HPV types 16 and 18.**
- **Quadrivalent Vaccine: This vaccine prevents infection with HPV types 6, 11, 16, and 18.**

Some strains of HPV cause genital warts and infection with other strains of the virus can lead to precancerous lesions. Being aware of the prevalence of HPV within the community can help us to make informed decisions that can protect our health. Because HPV is so common it can be a challenge to completely eliminate the risk of infection. However, as outlined in the box above, there are a number of things a person can do reduce the risk of HPV infection.



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