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HPV and Cancer Prevention: Best Practices for Healthcare Providers

Human papillomavirus (HPV) is a pervasive and preventable cause of multiple cancers, affecting both men and women across all age groups. Besides cervical cancer, HPV is also associated with vaginal, vulvar, penile, anal, and oropharyngeal cancers.[1,2]

HPV Overview[2]

- HPV is the most common sexually transmitted infection in Canada, affecting 75% of sexually active Canadians.
- Generally asymptomatic and self-limiting.
- Unvaccinated individuals are at high risk of HPV infection.
- >200 genotypes have been identified including >40 anogenital and oropharyngeal genotypes.
- High-risk strains such as HPV-16 and HPV-18 are the major cause of cervical cancers and are responsible for most HPV-related cancers.
- Low-risk strains such as HPV-6 and HPV-11 are usually non-oncogenic and can cause anogenital warts and recurrent respiratory papillomatosis.

HPV and Cancer[2]

- **Cervical cancer:** Despite advancements in screening, cervical cancer incidence has recently increased in Canada.
- **Oropharyngeal cancer:** The sixth most common cancer in Canada, with HPV accounting for 60% to 73% of cases. Men are more likely than women to develop this cancer.
- **Other cancers:** HPV causes about 90% of anal cancers, 40-50% of penile cancers, and 40% of vaginal and vulvar cancers.

Clinical Strategies for HPV Prevention and Control

HPV Vaccination

Vaccination is the most effective way to prevent HPV infections and their consequences; it protects against 7 high-risk HPV types causing 90% of cervical cancers and 2 low-risk types, which cause 90% of anogenital warts and rare recurrent respiratory papillomatosis.[2] The HPV vaccine is effective across all age groups and provides significant benefits even for those previously exposed to HPV, as it protects against multiple HPV strains, even if an individual is already infected with one strain.[3]

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Key Guidelines and Considerations for HPV Vaccination[2]

	Details
Vaccination guidelines	• Recommended for both males and females, ideally before sexual activity • Catch-up vaccination is beneficial for individuals who missed earlier opportunities • No upper age limit for vaccination • For both 2-dose and 3-dose HPV vaccine schedules, maintain a minimum interval of 6 months between the first and last doses
Vaccination Schedule*	• **Individuals aged 9 to 20:** should receive one dose of the HPV vaccine • **Individuals aged 21 to 26:** should receive two doses of the HPV vaccine • **Individuals aged 27 and older:** may receive two doses of the HPV vaccine
Vaccination of specific populations	• HPV vaccine can be safely administered in pregnancy • HPV vaccine can be safely administered to breastfeeding individuals – No evidence of increased pregnancy or fetal risks from HPV vaccination • A three-dose schedule of the HPV vaccine is recommended for immunocompromised individuals, including those with HIV – HPV vaccination may be considered before immunosuppressive treatments, such as prior to organ transplant surgery in young children

*unless immunocompromised, HIV; human immunodeficiency viruses

Cervical Cancer Screening:[2]

- All women should undergo routine cervical cancer screening, regardless of whether they have received the HPV vaccine.
- Pap tests detect HPV-related cellular abnormalities, while HPV testing identifies high-risk HPV infections before cellular changes occur.
- HPV DNA testing is offered in Canada, but access varies and is not included in standard preventive care or Pap tests.

Key Takeaways

- Advocate for HPV vaccination as a primary cancer prevention strategy.
- Educate patients about the safety and efficacy of vaccines, addressing any misconceptions.
- HPV is linked to multiple types of cancers, including head and neck cancer, not just cervical cancer. It affects both males and females, across all age groups.
- Utilize every clinical interaction to discuss HPV prevention, screening, and vaccination.
- There is no upper age limit for vaccination, and it provides significant benefits even for those previously exposed to HPV.
- Collaborate with other healthcare professionals, including dentists and pharmacists, to enhance patient education and vaccine uptake.

Reference

1. Szymonowicz KA, et al. Cancer Biol Med. 2020;17:864-878.
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3. National Advisory Committee on Immunization. Updated Recommendations on Human papillomavirus (HPV) Vaccines. Accessed May 02 2025 from: https://www.canada.ca/en/public-health/services/publications/vaccines-immunization/national-advisory-committee-immunization-updated-recommendations-hpv-vaccines.html.

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