

Our Ongoing and Neglected HPV Cancer Challenge:

Vaccination, screening and early detection will eliminate HPV-associated cancers

A statement from concerned medical societies in Canada:

Key Points:

- HPV infection can cause the following six cancers: head and neck, cervical, anal, vulvar, vaginal and penile cancer.
- The most common types of HPV-associated cancer in Canada are oropharyngeal cancer and cervical cancer, followed by anal cancer¹
- Almost 40% of HPV-associated deaths in 2012 were attributed to cervical cancer and more than 30% to HPV-associated oropharyngeal cancers
- HPV-associated cancers affect both males and females
- All HPV related cancers are increasing except cervical cancer
- Oropharyngeal cancers have increased significantly, especially in males since mid-1990's
- Routine screening programs exist only for cervical cancers.
- The rates of cervical cancer remain relatively stable after 2005¹
- Other HPV-associated cancers are often detected late when local or invasive signs and symptoms are recognized
- HPV vaccines are effective preventive interventions against HPV-associated cancers
- Canada has the opportunity, now, to eliminate cervical cancer, and to reduce all HPV-associated cancers and benign diseases, such as genital warts and laryngeal papillomatosis
- The HPV vaccination rate remains low due to vaccination hesitancy, lack of recommendation from doctors, and/or lack of awareness of HPV prevalence and HPV vaccine effectiveness²
- Cost of the HPV vaccine is a significant barrier to vaccine uptake
- The COVID-19 pandemic may further reduce HPV vaccination rates due to delays in the administration of school-based vaccination programs, which could potentially delay our goal of eliminating/ reducing HPV-associated cancers
- We encourage:
 - HPV vaccination of all males and females aged 9 to 45, or any age with on-going risk of exposure to HPV
 - Increase awareness and accessibility of HPV vaccine and its role in preventing HPV associated cancers and benign diseases
 - The optimization of cervical cancer screening; and
 - An increased awareness of clinicians and patients for early detection of signs and symptoms of HPV cancers.

The Problem

Human papillomavirus (HPV) has been associated with six cancers including cancers of the cervix, vagina, vulva, anus, penis as well as head and neck cancers (such as tonsils and base of tongue).

Of these six HPV-associated cancers, five cannot be screened before local or invasive cancer is recognized. Rates of HPV-associated head and neck cancers are rapidly rising and are now similar to cervical cancer rates. HPV-associated vulvar, penile and anal cancers are also increasing.

Unfortunately, HPV-associated cancers are often diagnosed at a relatively advanced stage due to lack of screening opportunities or because patients do not attend a cervical cancer screening test. This situation is worsening due to the COVID-19 pandemic effects on regular care. With reduced physical examinations, cancer screenings, and HPV immunizations due to the COVID-19 pandemic, it is anticipated that Canadian medical professionals could see a significant increase in these cancers in the coming decade.

HPV-associated cancers are preventable. HPV vaccination is a cost-effective measure³. Canada has announced a target of cervical cancer elimination by 2040, which is achievable through improved HPV vaccination rates, implementation of HPV primary screening and improved follow-up of abnormal screening results.⁴ Preventing the substantial number of non-cervical HPV cancers in men will require “herd” immunity through high vaccination rates of both females and males. However, current HPV vaccine uptake remains relatively low (under 70%) even with publicly funded programs in most of Canada⁵.

The various HPV vaccination programs for school-aged adolescents over the past 10 years have had a noticeable impact on the rate of HPV-associated diseases nation-wide, albeit to varying degrees of success depending on vaccine uptake rates⁶. Successful examples include⁷:

- risk of genital warts incidence decreased by up to 45% in vaccinated cohorts
- incidence of cervical intraepithelial neoplasia 2+ was significantly reduced by up to 86%

Increasing the awareness of HPV prevention among the public and among medical professionals is warranted.

The Solution

The current approach to preventing HPV-associated cancers is not sufficient to slow or reduce the current cancer rates. Additional steps must be taken to better control these preventable cancers. These steps include:

- primary prevention through increasing HPV vaccination rates via public awareness and access to HPV vaccine;
- Secondary prevention through enhanced screening options;
- Tertiary prevention through early signs and symptoms recognition; and
- Increased HPV awareness through education of health care providers and the public

The Current State

Canada has a good school-based HPV vaccination program; however, the average uptake of HPV vaccine is still under 70% ⁸. This rate may be further reduced due to the COVID-19 pandemic. In addition, there is a great need to improve HPV vaccine uptake amongst adults and in particular vulnerable populations such as immigrants, refugees, immunocompromised people, Indigenous peoples, homeless people, as well as persons with HPV infections and lesions (and their partners). Adults can clearly benefit from HPV vaccination but the costs remain a significant burden for them.

The problem with low immunization rates is further compounded by the COVID-19 pandemic that has created a barrier to access of HPV vaccines due to delays in school-based vaccination programs and a reduction of medical visitations.

There is no routine screening program for HPV-associated head and neck cancers which are increasing in men and women. HPV-positive head and neck cancers are increasingly prevalent in men. The total number of HPV-positive head and neck cancer has now surpassed cervical cancer in the United States⁹ and Canada¹. Head and neck HPV-associated cancers in men peaks between the ages of 45 to 61. For head and neck HPV-associated cancer, there is no clear malignancy showing for years, and consequently it is difficult for patients to know they have early HPV-associated cancers and for physicians to detect it.

What is New

Conclusive evidence demonstrates that HPV-associated cancers are preventable with appropriate screening and with HPV vaccinations. Screening programs exist for cervical cancer, but unfortunately not currently for other HPV-associated cancers. HPV vaccination is safe and effective in preventing these cancers. HPV vaccination dramatically reduces the risk of an HPV-associated infections and cancer for at least 14 years. Recently in the USA, the Food and Drug Agency has approved an indication for HPV vaccination for the prevention of head and neck cancers. There should be an indication for this use in Canada, and HPV vaccination should be made much more accessible for people up to age 45 at minimum, preferably within a universal vaccination program in order to address inequities.

The Call

We encourage a collaborative, multi-specialty approach in addressing the increasing rates of HPV-associated cancers, involving the various health professions including but not limited to OBGYN's, head and neck surgeons, colposcopists, oncologists, family physicians, researchers, nurses, dentists, pharmacists, governments and non-governmental organizations. A renewed national campaign with strong political leadership to eliminate cervical cancer and reduce all HPV-associated cancers would place Canada among the world leaders in cancer control. A public-awareness program targeted at health care providers and the general public would be

very useful in raising the awareness of HPV-associated cancers, and the ways in which rates could be reduced by preventative actions. These actions include:

- Easier access to HPV vaccination for all individuals aged 9 to 45 years, or any age with on-going risk of exposure to HPV;
- Easier access to enhanced screening options;
- More inclusive Health Canada indications for use of HPV vaccines (to include head and neck cancers); and
- Increased public awareness about burden of HPV associated cancers in both males and females, the effectiveness and safety of HPV vaccines and its indications, cervical cancer screening, and early recognition of signs and symptoms of HPV-associated cancers.

Our Endorsement

In order to reduce the impact of HPV cancers, we endorse the following:

- Additional public awareness campaigns around signs and symptoms of HPV-associated cancers; these campaigns should include education of the public and health professionals about the various effective methods of preventing HPV-associated cancers
- Easier access to screening options such as HPV self-sampling at home for cervical cancer
- Easier access to diagnosis when signs and symptoms of HPV-associated cancers are detected
- Increase in HPV vaccination coverage - for both school populations and for opportunistic-based adult populations, for vulnerable populations, and adopting a “once eligible always eligible” rule
- Extension of Health Canada indication of HPV vaccination for head and neck cancers, and for use in adults at least to the age of 45 years

References

1. Canadian Cancer Statistics, *Special topic: HPV-associated cancers, 2016*
2. Human Papillomavirus Vaccination Uptake in Canada: A Systematic Review and Meta-analysis
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5625360/#:~:text=HPV%20vaccination%20uptake%20i n%20Canada,%25%20CI%2044.87%E2%80%9366.65>).
A National Survey of Canadian Adults on HPV: Knowledge, Attitudes, and Barriers to the HPV Vaccine
[https://www.jogc.com/article/S1701-2163\(19\)30532-8/fulltext](https://www.jogc.com/article/S1701-2163(19)30532-8/fulltext)
3. Evaluating Clinical and Cost Impacts of Achieving 90% HPV Vaccination Rate Against Cervical Cancer in Canada Using the OncoSim Cancer Simulation Model
<https://ascopubs.org/doi/abs/10.1200/jgo.18.27600>
4. Canadian Partnership Against Cancer, *Action Plan for the Elimination of Cervical Cancer in Canada, 2020-2030*
5. Human Papillomavirus Vaccination Uptake in Canada: A Systematic Review and Meta-analysis
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5625360/#:~:text=HPV%20vaccination%20uptake%20i n%20Canada,%25%20CI%2044.87%E2%80%9366.65>).
Reducing HPV-associated Cancer Globally
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3285475/>
6. The impact of 10 years of human papillomavirus (HPV) vaccination in Australia
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6194907/>
A global drive to eliminate cervical cancer
<https://www.nature.com/articles/d41586-020-01036-x>
7. Steben M et al; A Review of the Impact and Effectiveness of the Quadrivalent Human Papillomavirus Vaccine: 10 Years of Clinical Experience in Canada. *J Obstet Gynaecol Can 2018*
<https://pubmed.ncbi.nlm.nih.gov/30341021/>
8. Bird et al; Human Papillomavirus Vaccination Uptake in Canada: A Systematic Review and Meta-analysis
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5625360/#:~:text=HPV%20vaccination%20uptake%20i n%20Canada,%25%20CI%2044.87%E2%80%9366.65>).
Canadian Partnership Against Cancer. Cervical cancer screening in Canada: environmental scan, 2019.
9. <https://www.healio.com/news/hematology-oncology/20180823/cdc-oropharyngeal-squamous-cell-carcinoma-now-most-common-hpv-associated-cancer>
Charturvedi JCO 2012, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3394159/>