

Chapter 11: Elimination of Cervical Cancer

On completion of this section, the learner will be able to:

1. Describe the elements of the plan to eliminate cervical cancer
2. List the HPV vaccines approved for use in Canada
3. Identify individuals eligible for MB Health coverage of the HPV vaccine
4. Access points for the HPV vaccine
5. Resources to support education on the HPV vaccine

Learning Objectives

Elimination of Cervical Cancer

The [Canadian Partnership Against Cancer has joined the World Health Organization's Action Plan for the Elimination of Cervical Cancer in Canada](#). Cervical cancer screening and the HPV vaccine play key roles in the elimination of cervical cancer.

Cervical Cancer Screening

HPV testing is molecular DNA testing for the detection of oncogenic HPV types that can cause cervical cancer and its precursors. In November 2021, Manitoba Health and CervixCheck implemented **HPV triage testing**.

HPV testing can be applied in the following settings: ^{2,1}

- i. **Primary** screening for high-risk HPV types alone or in combination with cytology
- ii. **Triage** of women with equivocal cytological results (HPV triage testing), or
- iii. **Follow-up** of women treated for precancerous neoplastic lesions to determine success or failure of treatment (test of cure).

The benefits of HPV testing have been well demonstrated and include:

- Compared with the Pap test, HPV testing is much more sensitive to detect high-grade precancerous lesions.
- HPV testing is better at detecting cervical adenocarcinoma
- HPV testing allows for a longer screening interval and earlier cessation of screening
- HPV testing is more attractive as vaccinated cohorts reach screening age to monitor vaccine efficacy and to determine if a HPV vaccine booster is required
- HPV testing provides the opportunity to facilitate self-sampling for unscreened populations

Commercially available tests are constantly evolving and approved by Health Canada.

HPV tests can be distinguished by:

1. their detecting either HPV DNA
2. what high-risk HPV genotypes are detected
3. threshold of HPV copies before a test becomes positive

HPV Vaccines Approved for Use in Canada^{2,3}

What is in the vaccine?

The HPV vaccines contain proteins that act like the HPV virus. The body starts making antibodies and white blood cells to fight against these virus-like particles. This builds up immunity to the HPV virus. There is no active virus in the vaccines. Nor are there any antibiotics or preservatives, such as mercury or thimerosal.

Pap Tests and the HPV Vaccine

All three vaccines have demonstrated to be very effective in preventing HPV infection. There are, however, other HPV types not covered in the vaccines that can cause cervical cancer. **Women who receive the HPV vaccine therefore, still need to have regular Pap tests** as recommended by their provincial cervical cancer screening program.

Three HPV vaccines have been approved for use in Canada:

| Vaccine type | HPV types covered | Protects against: |
|---------------------|-----------------------------------|-------------------------------------------------------|
| Cervarix | 16, 18 | Over 70% of cervical cancers |
| Gardasil-4* | 6, 11, 16, 18 | Over 70% of cervical cancers and 90% of genital warts |
| Gardasil-9** | 6, 11, 16, 18, 31, 33, 45, 52, 58 | 90% of cervical cancers and 90% of genital warts |

* Gardasil-4 is no longer available (2018).

** Gardasil-9 has been used in the Manitoba Immunization Program since 2018

Recommendations

Although the Cervical Cancer Screening Learning Module for Healthcare Providers focuses on secondary prevention of cervical cancer, it is important to emphasize the importance of primary prevention of cervical cancer with HPV vaccination. Although HPV vaccines were studied using cervical dysplasia as study end-points, there are other disease sites that benefit from these vaccines (Fig 1).

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The Manitoba Immunization Program determines its criteria from [National Advisory Committee on Immunization \(NACI\)](#), Provincial Experts, provincial statistics and risk, the medical literature and available funding.

The Manitoba Immunization Program

In the 2008-2009 school year, Manitoba Health introduced a vaccine program for grade 6 girls. In 2016, Manitoba Health added grade 6 boys to the Manitoba HPV Immunization Program. The program is voluntary opt-in program, and is administered by public health nurses. It is important to monitor this website.

Manitoba's Immunization Program: Vaccines Offered Free-of Charge ([Eligibility Criteria](#) for Publicly-Funded Vaccines, 2018)

Vaccines listed here are provided free-of-charge to individuals who are registered with [Manitoba Health](#) and for those who are part-way through an immunization series started in another province or territory as part of a publicly-funded program (pending product availability). MHSC covers all costs associated with administering a publicly-funded vaccine (e.g. physician fees).

Individuals who do not receive a publicly-funded vaccine when it is first recommended are eligible to receive the vaccine at a later time (unless otherwise stated). This is commonly referred to as, 'once eligible, always eligible.'

- Healthy females born on or after January 1, 1997 and healthy males born on or after January 1, 2002 are eligible to receive the HPV vaccine, routinely provided as part of the grade 6 school-based immunization program.
- For healthy females and males 11 to less than 15 years of age, 2 doses are recommended. For those who are 15 years of age and older, a 3-dose schedule is recommended, unless the first dose of vaccine was administered before the age of 15.
- Individuals with at least one of the following high-risk criteria are eligible to receive up to 3 doses:
 - Immunocompetent HIV-infected males 9-26 years of age and females 9-45 years of age.
 - Males 9-26 years of age and females 9-45 years of age who have congenital immune deficiencies (B cell deficient, T cell mixed defects, phagocytic and neutrophil disorders, complement deficiency) or acquired immune deficiencies (pre-solid organ transplant or post-solid organ transplants, hematopoietic stem cell transplant recipients, as per CancerCare Manitoba Blood and Marrow Transplant (BMT) Immunization Schedule).
 - Males ≤ 18 years of age who are, or who have ever been, incarcerated.
 - Individuals who are currently, or who have previously been, diagnosed with recurrent respiratory papillomatosis.
 - Males 9-26 years of age who identify as gay or bisexual
 - Transgender males and transgender females 9-26 years of age.

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- Females 9-45 years of age who have a newly diagnosed high-grade cervical histopathology result.
 - Males 9-26 years of age and females 9-45 years of age who are victims of sexual assault.
 - Patients currently under the care of a haematologist or oncologist from CancerCare Manitoba (CCMB) who have the following conditions and have been provided a CCMB directed Immunization Schedule:
 1. Malignant neoplasms (solid tissue and haematological) including leukemia and lymphoma, or clonal blood disorder, and who will receive or have completed immunosuppressive therapy including chemotherapy or radiation therapy, **or**
 2. Hypo- or asplenic (Sickle Cell Disease, etc.)

For minimum intervals between doses of HPV vaccine, please see the [Canadian Immunization Guide](#)

HPV Vaccine Access

The vaccine is covered by the Manitoba Health Immunization Program for those listed under the eligibility criteria on the Manitoba Health website. Contact your local pharmacy to inquire about the cost of the HPV vaccine. All individuals who are suitable to receive the HPV vaccine but are not covered by the Manitoba Immunization Program will require a prescription from a healthcare provider and be required to pay for the required doses. Some health plans provide some vaccination coverage.

The HPV vaccine can be accessed in several ways:

- 1- Primary care provider – Make an appointment to discuss with your primary care provider (nurse, doctor, nurse practitioner, physician assistant). If you require a primary care provider, access Manitoba Doctor Finder:
 - <https://www.gov.mb.ca/health/familydoctorfinder/>
 - Phone from Winnipeg: 204-786-7111
 - Toll-free: 1-866-690-8260
 - TTY/TDD: 204-774-8618
 - Manitoba Relay Services toll-free: 1-800-855-0511

- 2- Public health nurse – Public health nurses provide the HPV vaccine to individuals eligible through the School Immunization Program (grade 6):
 - Females born on or after January 1, 1997
 - Males born on or after January 1, 2002

- 3- Pharmacist – Call ahead to the pharmacy to inquire about the HPV vaccine before attending in person.

Dosage and Schedule

The vaccine is given in 2 or 3 separate doses of 0.5 mL as follows:

- Gardasil: 0, 2 and 6 month intervals.

They are administered intramuscularly in the deltoid or anterolateral upper thigh.

Vaccine Efficacy

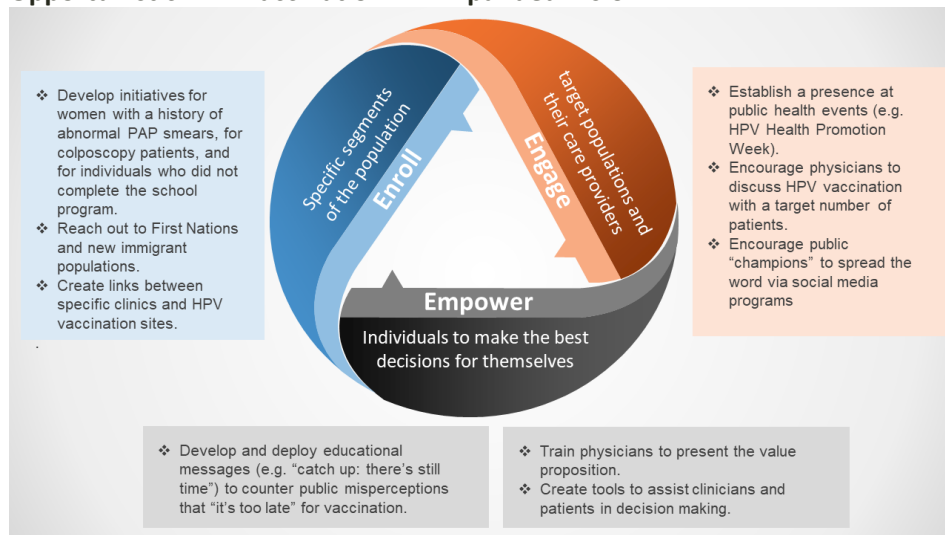
The HPV vaccines are most effective when given to females before they start having sexual contact. If received before exposure to the HPV types covered in the vaccines, it will be almost 100% effective in preventing infection from the HPV types that the vaccine provides protection against. Studies show that females who have already been sexually active may also benefit from receiving the vaccine as it is unlikely they would have been exposed to all HPV types covered in the vaccines. Studies are ongoing to determine if a booster is required to enhance the duration of protection.

Safety

The vaccines are safe. Health Canada has approved the vaccines based on a scientific review of their quality, safety and effectiveness. As with all vaccines, side effects may occur including rare adverse events, e.g. allergic reactions, nausea, dizziness. The most common side effects are soreness, pain and swelling at the injection site.

Vaccine safety is consistently being monitored in Canada and other jurisdictions.

Opportunistic HPV Vaccination: An Expanded Vision



THE SOCIETY OF GYNECOLOGIC ONCOLOGY OF CANADA (2018)

There are several incorrect and unfounded Myths about HPV vaccinations:

1. **MYTH:** Women who have the HPV vaccine do not need to get a Pap test.

FACT: The HPV vaccine does not protect against all the types of HPV that cause cervical cancer. Women still need Pap tests regularly even if they have been vaccinated against HPV.

2. **MYTH:** The vaccine can give you the virus and cause cancer.

FACT: The vaccine does not contain a live or killed virus. The vaccine contains a protein shell of different types of the human papilloma virus. When you take the vaccine, your body makes antibodies which fight the real virus if you're ever exposed to it.

3. **MYTH:** The HPV vaccine is only recommended for women up to 26.

FACT: The HPV vaccines were studied using study parameters between the ages of 9 to 45. Other studies have demonstrated that there is no upper age that individuals stop receiving benefits of this vaccine. Older women may choose to be vaccinated against HPV based on their overall lifetime risk.

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4. **MYTH:** There is no benefit to administering the HPV vaccine to individuals treated for cervical dysplasia.

FACT: Studies show that females who have already been treated for cervical dysplasia may also benefit from receiving the vaccine. It is unlikely they would have been exposed to all HPV types covered in the vaccines. It would also potentially benefit them from HPV disease in other disease sites.

HPV Vaccine Education Resources

CancerCare Manitoba
CervixCheck

PracticePrevention.ca

Resources targeted to parents, educators, and healthcare providers include:

- Eligibility criteria
- Links to Manitoba Health's HPV Vaccine pages
- Education video
- Posters
- Cards
- Brochure
- Toolkit
- Safety

Resources for order available at:

<https://www.cancercare.mb.ca/screening/resources>

Manitoba Health

Human papillomavirus (HPV) symptoms, causes, treatment, prevention

HPV Public Health Fact Sheet

HPV Fact Sheet for Parents & Guardians

Eligibility Criteria

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|--|---------------------|
| | Recommended Reading |
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[CancerCare Manitoba Screening Programs' Resources](#)

[The Human Papillomavirus \(HPV\) Vaccine \(CancerCare Manitoba\)](#)

[National Advisory Committee on Immunization](#)

[Manitoba Health: Human Papillomavirus \(HPV\)](#)

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| <ol style="list-style-type: none">1. What are the nine HPV types that Gardasil-9 protects against when administered prior to sexual activity?2. Who are the HPV vaccines recommended for? Who is it not recommended for?3. Describe the three ways that HPV testing can be used. | Chapter 11 Self-Test |
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References

¹ Canadian Partnership Against Cancer, Screening Portfolio (2012). HPV Testing for Cervical Cancer Screening, Expert Panel: Summary of Evidence. Retrieved June 6th, 2012 from: [Summary – Canadian Partnership Against Cancer](#)

² National Advisory Committee on Immunization. (2007). Statement on Human Papillomavirus vaccine. Retrieved March 4th, 2009 from Public Health Agency of Canada Website: <http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/07vol33/acs-02/index-eng.php>

³ National Advisory Committee on Immunization (2012). Update on Human Papillomavirus Vaccines. Retrieved February 6, 2012 from Public Health Agency of Canada Website: <http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/12vol38/acs-dcc-1/index-eng.php>