Manitoba Health
School-based Immunization Program
Training Module
2024

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1. Manitoba School Immunization Program

Manitoba's School Immunization Program is based on Manitoba's Recommended Routine Immunization Schedule: www.manitoba.ca/health/publichealth/cdc/div/schedules.html)

Recommended immunizations for school-aged children:

- Grade 6
  - Hepatitis B (HB) – 2 dose series at 0 and 6 months
  - Human Papillomavirus (HPV) – 2 dose series at 0 and 6 months
  - Meningococcal Conjugate Quadrivalent (Men-C-ACYW) – 1 dose

  Grade 6 School Immunization Program Fact Sheet

- Grade 8 or 9 (varies by region)
  - Tetanus, Diphtheria and acellular Pertussis (Tdap) **OR** Tetanus, Diphtheria, Pertussis and Polio (Tdap-IPV) – 1 dose

  Grade 8/9 School Immunization Program Fact Sheet

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2. Diseases

- Hepatitis B
- Human Papillomavirus
- Meningococcal Disease
- Tetanus, Diphtheria, Pertussis and Polio

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Diseases

Hepatitis B

- Hepatitis B is a virus that attacks the liver and is transmitted through blood and body fluids.
- Signs and symptoms of hepatitis B infection may include fever, stomach pain, tiredness, loss of appetite and jaundice (yellow skin and eyes) that may last for weeks or months.
    - Almost all children who are infected with hepatitis B do not experience any of these signs or symptoms until after the liver is already severely damaged.
- Most people who are infected with hepatitis B recover in eight weeks, but some can carry the virus for the rest of their lives. The younger a person is when infected with hepatitis B, the more likely it is that they will be infected for life.
- If the virus does not go away on its own, it can potentially lead to cancer and liver failure.

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Diseases

Human Papillomavirus (HPV)

- HPV is a virus that can infect many parts of the body and in some instances, can cause genital warts, cervical and genital cancers, as well as certain cancers of the head and neck.

- HPV can cause cells within the body to change and can lead to cancer if left untreated. Many cancers that are caused by HPV do not have symptoms until they are quite advanced.

- HPV infections are often transmitted sexually or through other skin-to-skin contact.

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Diseases

Meningococcal Disease

- Meningococcal disease is caused by several different strains of a bacteria, including A, B, C, Y, and W and can cause infections of the lining of the brain and spinal cord (meningitis) and infections of the bloodstream (septicemia or bacteremia).
- Meningococcal disease is a serious illness where 10 per cent of those infected could die and 10 to 20 per cent of those who survive can suffer permanent brain damage, hearing loss, or the loss of their arms or legs.
- Meningococcal bacteria is spread through the exchange of respiratory and throat secretions. Close and prolonged contact – such as kissing, sneezing or coughing on someone, or living in close quarters facilitates the spread of the disease.
- Symptoms of the disease can develop within two to 10 days of being infected. Signs and symptoms of meningococcal disease may include sudden onset of high fever, a rash, intense headache, nausea, vomiting, light sensitivity, confusion, and a stiff neck.

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Diseases

- **Tetanus** - commonly known as "lockjaw", is caused by bacteria that can cause painful tightening and stiffening of muscles all over the body. These spasms can involve the head and neck, which may prevent chewing and swallowing, leading to breathing problems. Tetanus infections can be very serious and often deadly if the breathing muscles are affected.
- **Diphtheria** - caused by bacteria that can make a thick covering (membrane) in the back of the nose and throat, which can lead to breathing problems, paralysis, heart failure, and in severe cases, death. Diphtheria sometimes causes skin sores and contact with these sores can spread infection.
- **Pertussis** - commonly known as "whooping cough", is caused by bacteria which results in long coughing spells that make it hard to eat, drink and even breathe. This cough can last several weeks, and often occurs more at night. It can result in pneumonia, brain damage, seizures and death.
- **Polio** - caused by a virus that can cause a sore throat, sudden fever, nausea, muscle weakness and pain. In severe cases, it can also affect the spinal cord or brain causing permanent paralysis and death. Polio is found in the stool of an infected person and is spread easily by a person coming into contact with the infected stool and then touching their mouth.

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3. School-based Vaccines

The following vaccines are available for order from the provincial vaccine warehouse for the current school year 2024-2025:

- Hepatitis B (HBV) Vaccine: Engerix®-B
- Human Papillomavirus (HPV) Vaccine: Gardasil®9
- Meningococcal Polysaccharide groups A, C, W-135 and Y Conjugate Vaccine: Nimenrix®
  - Meningococcal Conjugate Quadrivalent (Men-C-ACYW-135) Vaccine: Menactra®: this vaccine is no longer available to order, but some inventory may be available for use in your public health office. Ensure you always review the expiry date
- Tetanus, Diphtheria and acellular Pertussis (Tdap) Vaccine: Boostrix®
- Tetanus, Diphtheria and acellular Pertussis, and inactivated Polio (Tdap-IPV) Vaccine: Boostrix-Polio®

For more detailed information refer to the following resource:

Manitoba's School Immunization Program: Quick Reference Guide

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School-based Vaccines

Hepatitis B (HB) Vaccine: Engerix®-B

Provides protection against Hepatitis B. Does not provide protection against other types of hepatitis infections such as Hepatitis A or Hepatitis C.

Supplied:

- Single dose 1 mL pre-filled syringe or single dose 0.5 mL pre-filled syringe
- Slightly opaque, white liquid
- Latex and preservative free
- Contains an aluminum adjuvant

2-Dose Schedule

- 2-dose schedule is recommended for the routine grade 6 program for adolescents 11-15 years of age.
  - As per Manitoba Health directive, children who are 10 years of age for their first dose of HB in Grade 6 (birthdays between Sept and Dec of that year), should follow the same schedule as their classmates as this is safe and effective.
- Engerix®-B (2-dose schedule) is administered intramuscularly (IM) as two (2) 1.0 mL doses, 6 months (24 weeks) apart.

3-Dose Schedule

- 3-dose schedule is recommended for children less than 11 years of age and adolescents 16-18 years of age.
- Engerix®-B (3-dose schedule) is administered intramuscularly (IM) as three (3) 0.5 mL doses at 0, 1, and 6 months apart.
- Interruption of a vaccine series resulting in a greater than recommended interval between doses does not require restarting the series.
- *Individuals of any age who meet the high-risk criteria may be eligible for 3 or 4 doses of hepatitis B vaccine. Refer to Manitoba Health Eligibility Criteria and Canadian Immunization Guide for eligibility and dosage requirements.*

Engerix-B Product Monograph

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School-based Vaccines

Human Papillomavirus (HPV) Vaccine Gardasil®9

Provides protection against infection caused by 9 types of HPV along with the prevention of cervical, vulvar, vaginal, and anal cancer, and genital warts associated with 9 types of HPV infection.

Supplied:

- Single dose 0.5 mL vials
- White, cloudy liquid
- Latex and preservative free
- Contains an aluminum adjuvant

2-Dose Schedule

- 2-dose schedule is recommended for the routine grade 6 program for healthy individuals, 9 to 14 years of age (inclusive). If the first dose of vaccine was administered before 15 years of age, the individual can continue with the 2-dose schedule.
- Gardasil®9 is administered intramuscularly (IM) as two (2) 0.5 mL doses, 6 months (24 weeks) apart.

3-Dose Schedule

- 3-dose schedule is recommended for individuals 15 years of age and older, if born on or after 1997 (females) OR born on or after 2002 (males).
- Gardasil®9 (3-dose schedule) is administered intramuscularly (IM) as three (3) 0.5 mL doses at 0, 2, and 6 months apart (standard schedule).
- The second dose should be administered at least 1 month (4 weeks) after the first dose, and the third dose should be administered at least 3 months (12 weeks) after the second dose.
- If HPV2, HPV4 was received in a previous dose, the series can be completed with the Gardasil® 9, whether it be the 2 or 3 dose series.
- If the HPV vaccine schedule is interrupted, the vaccine series does not need to be restarted.

Individuals 9 years and older who meet the high-risk criteria may be eligible for 3 doses of HPV vaccine. Refer to Manitoba Health Eligibility Criteria and Canadian Immunization Guide for eligibility and dosage requirements. Gardasil 9 Product Monograph

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School-based Vaccines

Meningococcal Quadrivalent Vaccines

Menactra®

Provides protection against invasive meningococcal disease caused by N. meningitidis serogroups A, C, Y and W

Supplied:

- Single dose 0.5 mL vials
- Clear to slightly turbid liquid
- Latex and preservative free
- No adjuvant is added

1-Dose Schedule

- Recommended for routine grade 6 program or for individuals born on or after January 1, 2008.
- Menactra is administered intramuscularly (IM) as a single 0.5 mL dose.

Menactra Product Monograph

Nimenrix®

Provides protection against invasive meningococcal disease caused by N. meningitidis serogroups A, C, Y and W

Supplied:

- Single dose vial of sterile lyophilized white powder or cake
- Diluent presented in a pre-filled syringe (0.5 mL)
- Reconstituted vaccine is clear and colorless.
- Latex and preservative free

1-Dose Schedule

- Recommended for routine grade 6 program or for individuals born on or after January 1, 2008.
- Nimenrix is administered intramuscularly (IM) as a single 0.5mL dose.

Nimenrix Product Monograph

** Those with certain high-risk medical conditions may require additional doses (see Manitoba Health eligibility criteria for complete list and refer to Canadian Immunization Guide for dose requirements and intervals).*

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School-based Vaccines

Tetanus, Diphtheria and Acellular Pertussis +/- Polio Vaccines

Boostrix®

Provides protection against diphtheria, tetanus and pertussis. Also provides passive protection against pertussis in early infancy following maternal immunization during pregnancy.

Supplied:

- Single dose 0.5 mL pre-filled syringe
- Turbid white liquid
- Latex and preservative free
- Contains an aluminum adjuvant

1-Dose Schedule

- Recommended for routine grade 8/9 program (13-15 years of age) or for those born on or after January 1, 1989.
- Any dose after the age of 10 can be counted as an adolescent booster.
- According to NACI, there is no minimum interval between the Td and Tdap vaccine.
- Boostrix® is administered intramuscularly (IM) as a single 0.5 mL dose.
- Some students may be forecasted for additional catch-up doses.
- Repeat vaccination against diphtheria and tetanus should be performed at intervals as per official recommendations (generally 10 years).

Boostrix Product Monograph

Boostrix®-Polio

Provides protection against diphtheria, tetanus, pertussis and poliomyelitis. Also provides passive protection against pertussis in early infancy following maternal immunization during pregnancy.

Supplied:

- Single dose 0.5 mL pre-filled syringe
- Uniform, turbid white liquid
- Latex and preservative free
- Contains an aluminum adjuvant

1-Dose Schedule

- Recommended for routine grade 8/9 program (or for those born on or after January 1, 1989) who have not completed their childhood polio vaccination series. (This will be forecasted in PHIMS.)
- Individuals 7-17 years of age that also require the polio antigen (IPV) are also eligible.
- Tdap-IPV is administered intramuscularly (IM) as a single 0.5 mL dose.
- Some individuals may be forecasted for additional catch-up doses.
- Repeat vaccination against diphtheria and tetanus should be performed at intervals as per official recommendations (generally 10 years).

Boostrix-Polio Product Monograph

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4. Storage and Handling

- Cold Chain & Storage- Immunization Stations
- Pre-loading Vaccines
- Storage and handling of school-based vaccines

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Storage and Handling

Cold Chain and Storage- Immunization Stations

- The Cold Chain refers to the process used to maintain optimal conditions during the transport, storage, and handling of vaccines, starting at the manufacturer and ending with the administration of the vaccine to the client.
    - Insulated containers (coolers) with ice packs and cold gel packs can be used to temporarily store vaccine products at an off-site clinic.
- Immunizers are responsible to ensure appropriate temperature storage of vaccines is maintained at their immunization station according to the manufacturer's requirements.
    - Insulating material should be used as a barrier to prevent direct contact between the vaccine and the cold packs.
    - Cold gel packs should be replenished throughout the clinic at each immunizing station to ensure cold chain of vaccines is maintained.
- Vaccines should be kept in their original packaging until ready to prepare and administer to protect against breakage, exposure to light, and prevent direct contact with refrigerated gel packs.
- Cold Chain Protocol- Vaccines and Biologics: www.gov.mb.ca/health/publichealth/cdc/protocol/ccp.pdf

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Storage and Handling

Pre-loading Vaccines

Pre-loading (or pre-drawing) refers to the practice of drawing up multiple doses of vaccine(s) into syringes in advance of administration for multiple clients.

As outlined in the Canadian Immunization Guide: *"Pre-loading syringes with vaccine is strongly discouraged because of the uncertainty of vaccine stability in syringes, risk of contamination, increased potential for vaccine administration errors and vaccine wastage".*

- Vaccines are only to be prepared and drawn up by the immunizer who will be administering the vaccine to the client.
- Vaccines should generally only be prepared for one client at a time, especially in clinics where multiple types of vaccines are being provided.

For best practice recommendations regarding pre-loading vaccines during immunization clinics review the following provincial guideline: Immunization Clinics: Pre-loading Vaccines

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Storage and Handling

Hepatitis B Vaccine: Engerix®-B

Storage prior to use:

- Engerix®-B pre-filled syringes are to be stored refrigerated between 2°C to 8°C. Store in original package to protect from light.
- DO NOT freeze. Vaccine that has been frozen is no longer potent and should be discarded immediately.
- Pre-filled syringes can be stored refrigerated until the expiry date shown on the label. Do not use vaccine beyond the expiry date.
- Stability data indicate that Engerix®-B is stable at temperatures up to 37°C for 3 days or up to 25°C for 7 days. (This data is intended to guide healthcare professionals in case of temporary temperature excursion only.)

Handling instructions:

- Engerix®-B vaccine must not be mixed with other medicinal products or be diluted.
- Before use, the vaccine should be well shaken to resuspend the sediment of fine white particles of adjuvant (aluminum hydroxide) which settles during storage and to obtain a slightly opaque, white suspension. Discard if the content appears otherwise.
- Any unused vaccine or waste material should be disposed of in accordance with local requirements.

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Storage and Handling

Human Papillomavirus (HPV) Vaccine: Gardasil®9

Storage prior to use:

- Gardasil®9 single-use vials are to be stored refrigerated between 2°C to 8°C. Store in original package to protect from light.
- Vaccine should be administered as soon as possible after being removed from refrigeration.
- Vials can be stored refrigerated until the expiry date shown on the label. Do not use vaccine beyond the expiry date.
- DO NOT freeze. Vaccine that has been frozen is no longer potent and should be discarded immediately.
- Gardasil®9 can be administered provided total (cumulative multiple excursion) time out of refrigeration (at temperatures between 8°C and 25°C) does not exceed 72 hours. This is not, however, the recommendation for storage.

Handling instructions:

- Reconstitution NOT required: Gardasil®9 vaccine must not be mixed with other medicinal products or be diluted.
- Shake well before use. Thorough agitation immediately before administration is necessary to maintain suspension of the vaccine.
- The vaccine should be discarded if it is frozen, particulates are present, or if it appears discolored.
- Any unused vaccine or waste material should be disposed of in accordance with local requirements.

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Storage and Handling

Meningococcal Conjugate Quadrivalent Vaccine: Nimenrix®

Storage prior to use:

- Nimenrix® single use vials are to be stored refrigerated between 2°C to 8°C. Store in original package to protect from light.
- DO NOT freeze. Vaccine that has been frozen is no longer potent and should be discarded immediately.
- Vials can be stored refrigerated until the expiry date shown on the label. Do not use vaccine beyond the expiry date.
- Once punctured, the entire contents must be withdrawn and should be used immediately upon withdrawal.

Handling instructions:

- Reconstitution required: Add the entire contents of the pre-filled syringe of diluent to the vial containing the powder.
- The reconstituted vaccine is a clear, colorless solution.
- After reconstitution, the vaccine should be used promptly.
- Any unused vaccine or waste material should be disposed of in accordance with local requirements.

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Storage and Handling

Meningococcal Conjugate Quadrivalent Vaccine: Menactra®

Storage prior to use:

- Menactra® single use vials are to be stored refrigerated between 2°C to 8°C. Store in original package to protect from light.
- DO NOT freeze. Vaccine that has been frozen is no longer potent and should be discarded immediately.
- Vials can be stored refrigerated until the expiry date shown on the label. Do not use vaccine beyond the expiry date.
- Once punctured, the entire contents must be withdrawn and should be used immediately upon withdrawal.

Handling instructions:

- Reconstitution NOT required: vaccine must not be mixed with other medicinal products or be diluted.
- The vaccine should be discarded if particulates are present, or if it appears discolored.
- Any unused vaccine or waste material should be disposed of in accordance with local requirements.

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Storage and Handling

Tetanus, Diphtheria and Acellular Pertussis Vaccine: Boostrix®

Storage prior to use:

- Boostrix® single-dose pre-filled syringes are to be stored refrigerated between 2°C to 8°C. Store in original package to protect from light.
- Vials can be stored refrigerated until the expiry date shown on the label. Do not use vaccine beyond the expiry date.
- DO NOT freeze. Vaccine that has been frozen is no longer potent and should be discarded immediately.
- Stability data indicates that the vaccine is stable at temperatures up to 37°C for 7 days. This data is intended to guide healthcare professionals in case of temporary temperature excursion only.

Handling instructions:

- Reconstitution NOT required: Boostrix® vaccine must not be mixed with other medicinal products or be diluted.
- The vaccine should be discarded if it is frozen, particulates are present, or if it appears discolored.
- Shake vaccine well to obtain a homogeneous turbid white liquid.
- Any unused vaccine or waste material should be disposed of in accordance with local requirements.

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Storage and Handling

Tetanus, Diphtheria, Acellular Pertussis and Polio Vaccine: Boostrix®-Polio

Storage prior to use:

- Boostrix®-Polio pre-filled syringes are to be stored refrigerated between 2°C to 8°C. Store in original package to protect from light.
- DO NOT freeze. Vaccine that has been frozen is no longer potent and should be discarded immediately.
- Vials can be stored refrigerated until the expiry date shown on the label. Do not use vaccine beyond the expiry date.

Handling instructions:

- Reconstitution NOT required: Vaccine must not be mixed with other medicinal products or be diluted.
- Shake vaccine well to obtain a homogenous turbid white liquid.
- The vaccine should be discarded if it is frozen, particulates are present, or if it appears discolored.
- Any unused vaccine or waste material should be disposed of in accordance with local requirements.

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5. Eligibility Requirements

- All Manitoba children in grades 6 and 8/9 are eligible for the vaccines that are offered as part of Manitoba's School Immunization Program.
- If eligibility criteria are met, the vaccine is available free-of-charge as part of the publicly-funded immunization program.
- If an adolescent misses one or more doses of school-based vaccines, they can still be provided free-of-charge at a later time for the following birth cohorts:
    - **HB Vaccine:** born on or after 2006; catch up for those born between 1989-2005
    - **HPV Vaccine:** born on or after 1997 for females and 2002 for males
    - **Meningococcal Quadrivalent Vaccine:** born on or after 2008 regardless of previously receiving Men-C-C or Men-ACYW; born between 1995 and 2007 only if they have never previously received a Men-C-C vaccine

For more information on vaccine eligibility criteria, please visit the Manitoba Health website at:

https://www.gov.mb.ca/health/publichealth/cdc/vaccineeligibility.html

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6. Pre-Vaccination

- Informed Consent
  - Mature Minor Consent
- Pre-vaccination Counselling
  - Immunization History
  - Contraindications and Precautions

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Pre-Vaccination

Informed Consent

Prior to the school immunization program, each regional health authority creates consent packages that are sent to the families of the children.

- These packages typically include a letter to the parents, a consent form for the parent to review, sign, and return to the school, and factsheets on the immunizations that are being offered.

  School based consent package resources are located here: www.gov.mb.ca/health/publichealth/cdc/div/sip.html

Informed consent requires that the client, parent/guardian or legal decision maker must be provided with the information necessary to make a decision to have or to refuse treatment such as:

- expected benefits and risks of the vaccine or biologic;
- risks of the disease in the absence of vaccination;
- any other information (e.g., common side effects, contraindications, route of administration) that a reasonable person in the same circumstances would require in order to make a decision about the immunization.

Consent can be obtained verbally (and documented by the health care provider) or written onto the paper consent form by the client, parent/guardian or legal decision-maker

Provincial Informed Consent Guidelines for Immunization are located at:
www.manitoba.ca/health/publichealth/cdc/protocol/consentguidelines.pdf

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Pre-Vaccination

Informed Consent

Mature Minors

It is preferred that parents provide the consent for their children. However, consent for those less than 18 years of age can be considered outside of parental consent (Mature Minor) as per 4(2) of the Health Care Directives Act.

Clients 16 years to less than 18 years of age:

- If client presents without a parent, guardian or legal/appointed decision maker (or without a consent form signed by their parent, guardian or legal/appointed decision maker) – provide immunization if you believe the minor is able to understand the nature and effects of the information and/or is able to appreciate the consequences of a decision.

Clients under 16 years of age:

- If client presents without a parent or legal decision maker (or without a consent form signed by their parent or legal decision maker) – immunizer should first attempt to obtain consent from parent/legal decision maker.
- If informed consent can not be obtained from a parent or legal decision maker – the immunizer will assess the minor's ability to provide informed consent as a "mature minor" (has the capacity to understand the risks/benefits/outcomes of the vaccine and has been assessed to have the ability to consent on their own). This would be indicated on the consent form/charting system.

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Pre-Vaccination

Prior to vaccination, the immunizer should:

- ✓ Review immunization history
- ✓ Ensure proper identification of client. Two client identifiers are required prior to any intervention (e.g., name, birthdate, PHIN)
- ✓ Assess the vaccine recipient's current state of health
- ✓ Assess contraindications and precautions to receiving the vaccine(s) including any history of potential immediate or anaphylactic hypersensitivity to a previous dose of the vaccine or to any of the vaccine components
- ✓ Provide information regarding the benefits and risks of receiving or not receiving the vaccine
- ✓ Ensure informed consent obtained by the parent/guardian or legal decision maker (or mature minor if applicable)

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Pre-Vaccination

Immunization History

- Each client's immunization history must be reviewed in PHIMS and assessed prior to vaccine administration. For school-based clinics the PHIMS forecast should be reviewed as close to the clinic date as possible or if available, reviewed during the clinic.

- Immunization history will determine which vaccines the child/adolescent is eligible and due for and ensures that they are receiving vaccines based on the Manitoba provincial recommended immunization schedule.

- For children who are new to Manitoba, their record of immunizations received from another country or province should be reviewed and added into PHIMS

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Pre-Vaccination

Contraindications and Precautions

- Prior to administering vaccines, an assessment of the client's health history (e.g., allergies, underlying medical conditions) and current state of health is required to determine if it is safe for the client to receive a vaccine.
- In the school-based program, the parent/guardian or legal decision maker adds this information to the consent form. If information is uncertain, ensure you review with the parent/guardian or legal decision maker (or client if applicable) to ensure it is safe for the child to receive.
- Immunizers should NOT administer any immunizations to:
    - Individuals who currently have an acute, febrile illness. In this situation, the vaccination should be postponed until the individual has recovered.
    - Individuals who are allergic to any active substance in the vaccine or any of the ingredients in the formulation. Please refer to vaccine specific product monograph for a complete list of vaccine ingredients.
    - Individuals with a history of anaphylaxis after previous administration of the same vaccine.

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Pre-Vaccination

Contraindications and Precautions

Key resources to reference for contraindications and precautions and all other vaccine information include:

- School Based Clinic (Grade 6 and Grade 8/9)- Quick Reference Guide
- Fact sheets and vaccine product monographs
- Canadian Immunization Guide

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7. Vaccine Administration

- Infection Prevention and Control (IP&C)
- 8 Rights of Administration
- Immunization Counselling and Comfort Measures
  - Simultaneous vs Sequential Vaccine Administration
- Assessing the Injection Site
- Positioning Older Children and Adolescents for Deltoid Injection
- Landmarking for Deltoid Muscle
- Intramuscular Injection Technique
- Multiple Vaccine Administration

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Vaccine Administration

Infection Prevention and Control (IP&C)

- Staff providing immunizations in any setting should follow routine practices at all times and perform a Point of Care Risk Assessment (PCRA) to determine what Personal Protective Equipment (PPE) is required: sharedhealthmb.ca/files/routine-practices-protocol.pdf
- PPE must be available for all staff (medical grade masks, eye protection, N95 respirators) if required.
- Please visit www.gov.mb.ca/health/publichealth/cdc/ipc.html to review the *Immunization Program Clinics -Infection Prevention and Control (IP&C) Procedures/Processes* and for additional guidelines and resources.

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Vaccine Administration

Rights of Vaccine Administration

As part of preparation and administration of the vaccine, the health care provider is responsible for checking the following rights:

- ✓ Right client - obtain 2 client identifiers to ensure the vaccine is being given to the correct client (e.g., Personal Health Information Number (PHIN), date of birth (DOB), and/or contact information such as address and/or phone number)
- ✓ Right product - (e.g., vaccine, diluent, not expired)
- ✓ Right dose - review client's age and vaccine information for correct dosage (i.e., 0.5 mL or 0.25 mL)
- ✓ Right time/schedule - meets the minimum or recommended interval for the client to receive the vaccine in order for it to be an effective and valid dose
- ✓ Right route - optimum route this vaccine should be given (e.g., subcutaneous or intramuscular)
- ✓ Right injection site - optimum location chosen for administration based on age or vaccine type (i.e., deltoid vs vastus lateralis)
- ✓ Right reason - (e.g., meets vaccine eligibility criteria)
- ✓ Right documentation- ensure all the key documentation requirements have been completed

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Vaccine Administration

Immunization Counselling

During each interaction, immunizers should encourage questions, address concerns/misinformation and provide valid/evidence-based information. Building trust is especially important with clients or parents who are hesitant to receive vaccines themselves or for their child.

The following link provides resources for immunization counselling and vaccine hesitancy:

Counselling the Public | immunizecanada

Pain Management and Comfort Measures

- **Encourage Comfort and Relaxation**
  - Encourage slow deep breathing.
  - Some clients may benefit from being vaccinated in a private room and with a support person attending the appointment with them.
  - If client reports a history of fainting with needles or feeling dizzy, ensure they are lying down when receiving the injection and remain lying down for a few minutes post immunization.

- **Distraction**
  - Redirect the client's attention away from the needle. Talk with them or ask them questions about a subject other than immunization, encourage them to read, play a video game, watch a video on their phone, play music, practice slow deep breathing or rub their arm.

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Vaccine Administration

Pain Management and Comfort Measures

- **Topical Anesthetics**

Clients may attend an immunization clinic with a numbing cream, patch, spray or other agent that has been applied prior to arriving at the clinic. These agents numb the surface of the skin so the individual will feel little to no pain with the injection. Whenever a topical anesthetic is applied, it must be removed before proceeding with the immunization.

- **Muscle Tension Technique**

For children or adults who tend to get dizzy or faint during immunizations, the muscle tension technique can also be effective:

Step 1: Tense or squeeze the muscles in legs or stomach (not the arms where the vaccine will be given)

Step 2: Squeeze for 10-15 seconds until face feels flushed or warm

Step 3: Release tension for 20-30 seconds

Step 4: Repeat steps until immunization is completed or until the feeling of dizziness/faintness passes.

For more information and resources on immunization pain management and comfort measures:

- Immunize.ca- *Pain management*
- C.A.R.D (Comfort, Ask, Relax, Distract) – *Strategies and resources to help cope before and during vaccinations*

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Vaccine Administration

Pain Management and Comfort Measures

Simultaneous vs Sequential Vaccine Administration

- Simultaneous vaccine administration is the practice of two immunizers administering a separate vaccine at the same time to one client.
- Sequential vaccine administration is the general practice in which one immunizer provides each vaccine, one after the other to one client.

Review of the literature states there is insufficient evidence for or against the practice of simultaneous vaccine administration as a method for pain management vs the general practice of sequential vaccine administration.

For children 1-10 years of age, research has found no benefit, but there is weak evidence that simultaneous vaccine administration may be beneficial for infants under 12 months of age.

Overall, cost effectiveness of two immunizers, safety risks, and the possibility of vaccine administration errors, outweigh any potential benefits of utilizing this practice as a pain management strategy for children who require multiple vaccinations during a clinic.

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Vaccine Administration

Assessing the Injection Site

- For the majority children and adolescents at school-based clinics, the deltoid will be the most appropriate site for immunization.
- The vastus lateralis may be considered as an alternate site if the deltoid muscle is assessed as not an appropriate site.
- Do not administer active immunizing agents into the gluteal muscles (buttocks) due to the risk of reduced efficacy from poor absorption if the injection does not reach the muscle.
- When choosing the appropriate injection site, inspect the skin's surface for bruises, scars, or inflammation and palpate the site for masses, edema, or tenderness.
- Do not inject vaccine if any of these are found as there may be interference with absorption of the vaccine.
- If unavoidable, vaccines may be administered through a tattoo or superficial birthmark.

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Vaccine Administration

Positioning Older Children and Adults for Deltoid Injection

- The deltoid muscle is recommended for intramuscular vaccination for clients older than one year of age for the following reasons:
  - It is easily accessible to the healthcare professional
  - It has an extensive blood supply, which promotes absorption of the vaccine after injection.

- The following technique should be used to correctly position older children and adults for injection into the deltoid:
  - Advise older children and adults to sit in a straight-back chair and position their arm in a manner that exposes the deltoid muscle and relaxes the arm.
  - Encourage the client to place their forearms and hands in a relaxed position on their upper thigh.

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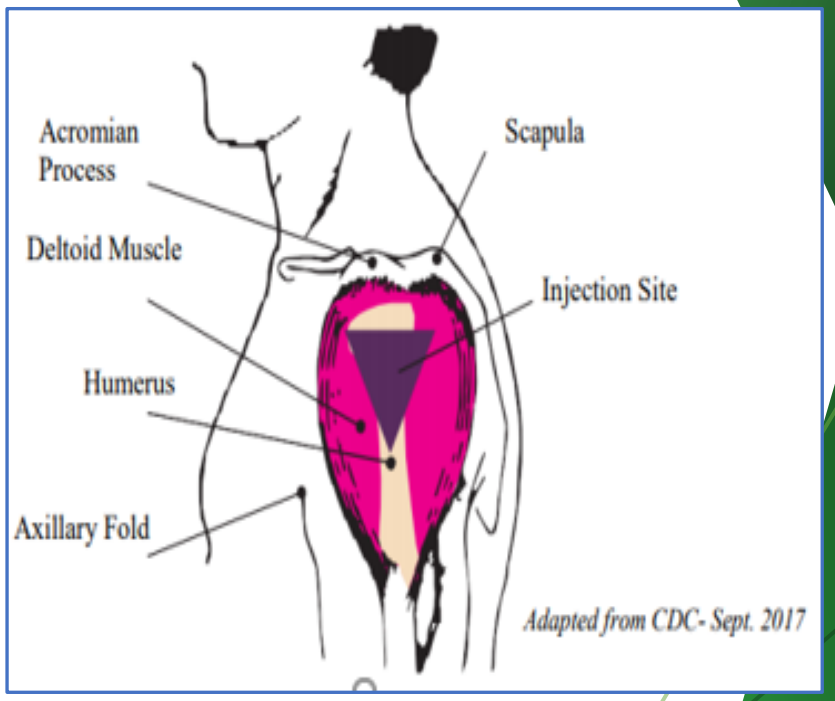
Vaccine Administration

Landmarking for the Deltoid Muscle

- Expose the shoulder completely.
- Identify the injection site by drawing an imaginary triangle with its base at the lower edge of the acromion process and its peak above the level of the axillary fold. The injection site is in the center of the triangle – the central and thickest portion of the deltoid muscle.
- For older children, the target zone for injection is 2.5 to 5 cm (1 to 2 inches) below the acromion process. To avoid causing injury, do not inject too high (near the acromion process) or too low.



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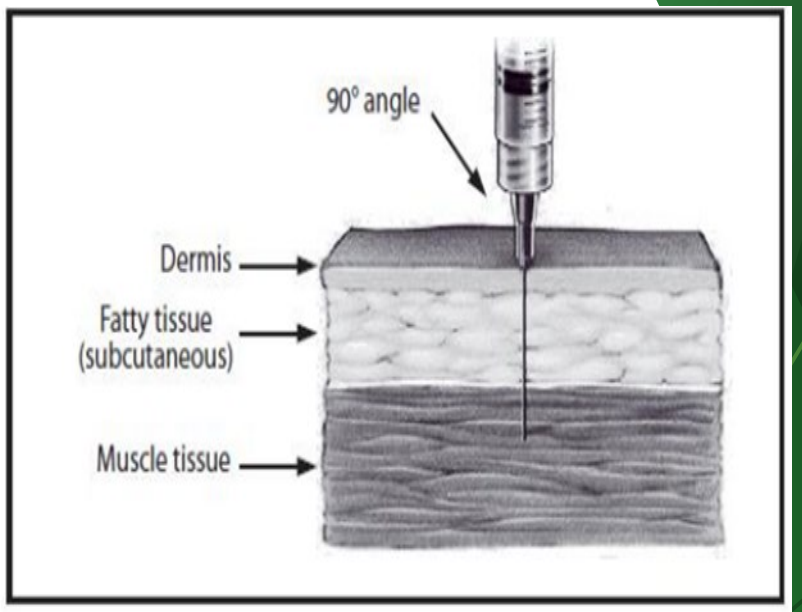
Vaccine Administration

Intramuscular Injection Technique

- Perform hand hygiene by washing hands with soap and water or alcohol-based hand sanitizer.
- Cleanse the injection site with a new alcohol swab by circling from the center of the site outward for 1-2 inches. Allow to dry to avoid a burning sensation on insertion of the needle.
- If client's muscle mass is small, bunch or squeeze the muscle between the non-dominant thumb and fingers before and during the injection to increase muscle mass and minimize the chance of striking underlying bone.
- Alternatively, place your thumb and forefinger on either side of the site of injection and press the area flat. This method is recommended when clinical judgement has deemed a 5/8" needle appropriate for use based on client assessment.
- Insert the needle quickly at a 90° angle into the muscle.
- Do not aspirate (do not pull back on the plunger).
- Inject the vaccine while maintaining stability of the limb and needle.
- Remove the needle in a swift motion.
- Activate the safety mechanism and discard into the sharp's container.
- A cotton ball can be used to apply pressure to the injection site to minimize bruising. Do not massage the injection site as this may damage underlying tissue. Use of adhesive bandages is not routinely recommended.



Adapted from CDC

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Vaccine Administration

Multiple Vaccine Administration

There are many advantages of administering multiple vaccinations at one visit:

- There is no delay in protection as it ensures individuals are protected against serious diseases earlier rather than later.
- There are fewer vaccine visits which saves time for clients, parents/legal decision makers and health care professionals, is more cost efficient, and enhances vaccine compliance.
- There are fewer periods of discomfort for the individual due to the lower number of vaccine visits.

Some anxiety should always be expected from individuals who are about to receive multiple vaccines. Immunizers should be prepared to utilize strategies to reduce immunization injection pain and anxiety.

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Vaccine Administration

Multiple Vaccine Administration

Immunizers should consider the following practices when administering multiple vaccines:

- Vaccines that are intended for separate administration should never be combined in the same syringe.
- It is best practice to draw up/prepare the multiple vaccines required for the individual client all at the same time; this ensures the client does not have to wait for each vaccine to be prepared between injections.
- Syringes should be labelled to identify which vaccine each syringe contains.
- The site of administration of each vaccine should be recorded, so that if an injection site reaction occurs, the associated vaccine can be identified (e.g., upper left deltoid, lower left deltoid).

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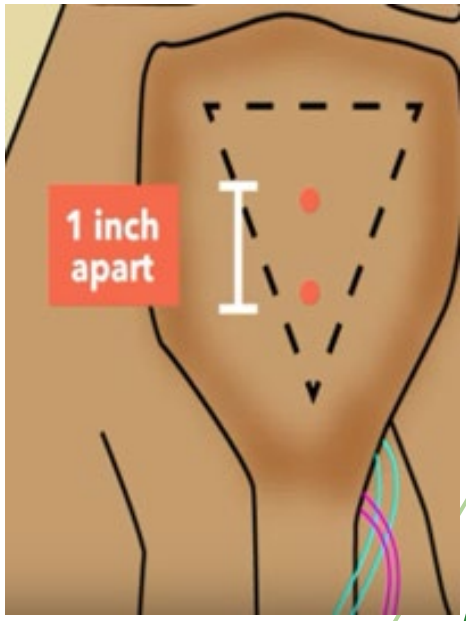
Vaccine Administration

Multiple Vaccine Administration

- When more than one vaccine is to be administered in the same visit, it is preferable to use separate anatomic injection sites (different limbs) for each vaccine, but it is not necessary.
- When administering 2 or more vaccines in the same limb, separate the injection sites by as much distance as possible. A separation of at least 2.5 cm (1 inch) is preferred so local reactions are unlikely to overlap. In individuals where there is insufficient deltoid muscle mass, the anterolateral thigh muscle may be used.
- As a general practice, if a client requires 3 vaccine products at one visit, administer HB vaccine (1.0 mL/dose) in one deltoid and administer Men-C-ACYW (0.5 mL/dose) and HPV (0.5 mL/dose) an inch apart in the other deltoid.
- Vaccines that are known to cause the most injection site pain (e.g., HPV vaccine) should be administered last.



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Vaccine Administration

Multiple Vaccine Administration

- Generally, the maximum volume that can be administered by intramuscular injection in the deltoid is 1 mL, however the average volume may range from 0.5ml up to 2ml (infants and toddlers would fall at the lower end of the range, whereas adolescents and adults would generally fall on the higher end of the range).
- The decision regarding number of injections and maximum volume to be administered in a single injection site should be based on the age and assessed muscle mass of the individual.

Recommended Needle Sizes, Sites and Maximum Volumes for Intramuscular Injection (1,9,28-31)

Age	Site	Needle Length	Max Volume
< 28 days	Vastus lateralis	5/8"	1 mL
1 to < 12 months	Vastus lateralis	1"	1 mL
≥ 12 months to ≤ 2 years	Deltoid	5/8" - 1"	1 mL
	Vastus lateralis	1"	2 mL
> 2 years to < 5 years	Deltoid	5/8" - 1"	1 mL
	Vastus lateralis	1"	2 mL
5 years to 18 years	Deltoid	5/8" - 1"	1 mL[A]
	Vastus lateralis	1"	3 mL[A]
≥ 19 years	Deltoid	1 – 1 ½"	2 mL
	Vastus lateralis	1 – 1 ½"	5 mL

Source: http://www.bccdc.ca/resource-gallery/Documents/Guidelines%20and%20Forms/Guidelines%20and%20Manuals/Epid/CD%20Manual/Chapter%202%20-%20Imms/Appendix_B_Administration.pdf

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8. Post-Vaccination

- Adverse Events
  - Vasovagal/Syncope
  - Anaphylaxis
- Adverse Event Following Immunization (AEFI) Reporting

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Post-Vaccination

Adverse Events

- All vaccines administered as part of the school immunization program are considered safe and are approved by Health Canada.
- However, as with all vaccines, adverse events may occur even though the client has been assessed as having no contraindications to the vaccine.
- Common adverse events from vaccination are generally mild to moderate and resolve within hours or a few days and include:
  - redness, swelling and soreness at injection site
  - fever
  - fatigue
  - dizziness
  - nausea

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Post-Vaccination

Adverse Events

- All clients should be monitored for 15 minutes post immunization to assess for any adverse events that may require immediate attention (i.e., syncope or anaphylaxis).
- Clients may be directed to stay for a 30-minute observation period if the immunizer has identified potential health concerns (allergy of concern or history of adverse reactions to immunizations).
- Risk of anaphylaxis is approximately 1 out of 1 million. Though very rare, anaphylaxis can occur following immunization and must be managed quickly and appropriately. If anaphylaxis occurs, the majority of cases arise within 15 minutes. However, some cases occur beyond 30 minutes. Usually, two body systems will be affected such as cardiovascular and integumentary systems.

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Post-Vaccination

Adverse Events

Vasovagal syncope or fainting, is an event that can occur within the context of giving immunizations with rapid onset and recovery. It is common in those who have anxiety when receiving immunizations.

Some of the common signs and symptoms may include some or all the following:

- complaint of feeling faint or light-headed
- pallor
- loss of consciousness which may be accompanied by brief clonic seizure activity
- salivation
- low pulse
- nausea and vomiting
- diaphoresis (sweating), cool clammy skin
- respiratory rate is normal and not labored, but may be shallow
- cardiovascular signs include bradycardia and faint peripheral pulses but usually the carotid pulse is strong

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Post-Vaccination

Adverse Events

Vasovagal Syncope Management

- Place the client in a supine position (lying on their back) and elevate the lower extremities.
- If vomiting has occurred or is imminent, position the client lying on one side.
- Pregnant clients should be positioned on their left side.
- Apply a cool pack to back of neck to assist with diaphoresis.

Recovery of consciousness and resolution of limb jerking usually occurs within a minute or two.

- The client may remain pale, diaphoretic and mildly hypotensive for several minutes.
- Continue monitoring and providing support to the client who has fainted until signs and symptoms have stabilized.
- If client has fallen and sustained an injury (e.g., concussion) they may need to be further assessed by a health care practitioner

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Post-Vaccination

Adverse Events

Anaphylaxis

Every vaccine provider should be familiar with the signs and symptoms of anaphylaxis and be prepared and equipped with an anaphylaxis kit to act quickly. Well established anaphylaxis response plans should be prepared by the immunization team prior to any immunization clinic, including determining roles in anaphylaxis response (e.g., initiating emergency response (911), CPR, epinephrine administration, etc.).

Anaphylaxis Kit

The immunization clinic requires an anaphylaxis management kit(s) that contain(s):

- Regional or site anaphylaxis protocol and a drug administration record
- Epinephrine dosage by weight and age requirements
- 3 vials of Epinephrine
- Injection supplies: syringes, needles, alcohol swabs, etc.

In addition, the anaphylaxis kit may also include:

- One way valve face mask
- Stethoscope
- Sphygmomanometer
- Emergency telephone numbers
- Address/location of the clinic

It is important that all immunizers refer to your region or site-specific anaphylaxis training requirements, protocols and clinical practice guidelines.

For further information refer to: Canadian Immunization Guide- Anaphylaxis and other acute reactions following immunization .

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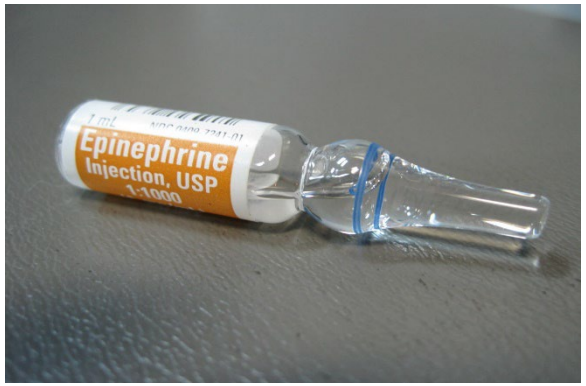
Post-Vaccination

Adverse Events

Epinephrine



- Epinephrine is the lifesaving drug for anaphylaxis.
  - Epinephrine assists to counteract the affects of an anaphylactic response by constricting blood vessels, raising blood pressure and pulse, and relaxing the smooth muscle in the lungs to improve breathing.
  - It must be administered by intramuscular injection (IM). The preferred administration site is in the vastus lateralis muscle.
  - Epinephrine is a short acting drug. Doses may need to be repeated every 5 minutes if symptoms persist (most clients improve with 1- 2 doses). Adverse effects of epinephrine may include anxiety, nausea and vomiting, headache, and heart palpitations.

If anaphylaxis is suspected, it should be administered immediately.

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Post-Vaccination

Adverse Events

Table 1: Key distinguishing features of anaphylaxis and vasovagal syncope.

Clinical features	Anaphylaxis	Vasovagal syncope
Onset from time of immunization	Within minutes up to 4 hours after injection; most within 2 hours	During or within minutes of injection
Skin	Urticaria, angioedema, pruritus, erythema	Generalized pallor, cold clammy skin
Respiratory	Cough, wheeze, stridor, respiratory distress, rhinorrhea, sneezing	Normal respiration – may be shallow but not laboured
Cardiac	Tachycardia	Bradycardia
Neurologic	Sense of severe anxiety and distress; loss of consciousness – no improvement once supine or in head down position	Sense of light-headedness; loss of consciousness – improves once supine or in head down position; may be transient jerking of the limbs and eye-rolling

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Post-Vaccination

Adverse Event Following Immunization (AEFI) Reporting

An adverse event following immunization (AEFI) is any untoward medical occurrence (e.g., anaphylaxis, Guillian Barre Syndrome (GBS)) in a vaccine recipient which follows immunization, and which does not necessarily have a causal relationship with the administration of the vaccine. AEFIs need to be reported to the regional Medical Officer of Health (MOH) within seven days of the clinician becoming aware of the AEFI.

Of particular interest are those AEFIs which meet one or more of the following criteria:

a. Is of a serious nature

b. Requires urgent medical attention

c. Is an unusual or unexpected event

Reporting AEFI's is part of Canada's vaccine safety and surveillance.

- For all serious AEFIs (e.g. anaphylaxis), health care providers must report to the Regional MOH within one business day, which can be done by telephone, followed by the complete report within 72 hours.

Review the following resources:

- Report of Adverse Events Following Immunization (AEFI report form)
- User Guide for the Completion and Submission of the AEFI Reports for definitions of a serious AEFI and how to complete the form.

For further information, refer to: Vaccine Safety | Province of Manitoba

Manitoba

9. Documentation

- Immunization Records
- Public Health Information System (PHIMS)

Manitoba

Documentation

Immunization Records

Immunization documentation for the vaccine(s) administered requires the following information for the client's official immunization record:

- Client name, birthdate, and Personal Health Identification Number (PHIN) (if PHIN has been assigned)
- Date of administration
- Vaccine name (product and manufacturer)
- Lot #
- Dose
- Site and route of administration
- Name and professional designation of the immunization provider

Date yyyy/mm/dd	Vaccine	Lot #	Manufacturer	Dose	Route	Site	Immunizer's Signature	Data Entry

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Documentation

Public Health Information Management System (PHIMS)

- The Public Health Information Management System (PHIMS) is a secure, integrated electronic public health record. It contains the Manitoba Immunization Registry.
- Registered users of PHIMS have the ability to view client immunization records and directly enter the required immunization information including the informed consent. (*Refer to your region or site's PHIMS access and training requirements.)*
- For those that don't have direct access, the immunization information obtained on the consent form or in the client's medical record is submitted as per your region/site's requirements to be entered into PHIMS so that all immunizations provided in Manitoba are within this immunization registry.
- Once this information has been entered into PHIMS, it is considered the official immunization document/record.

The following link provides further guidance on immunization documentation in PHIMS:
Public Health Information Management System (PHIMS) (phimsmb.ca)

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10. Resources

Manitoba Health School Immunization Program

Fact sheets, consent forms, vaccine product monographs, school clinic quick reference guides

www.gov.mb.ca/health/publichealth/cdc/div/sip.html

Manitoba Health Immunization Program Manual for Immunization Providers

https://www.manitoba.ca/health/publichealth/cdc/div/manual/index.html

Manitoba Health Eligibility Criteria for Publicly Funded Vaccines
https://www.manitoba.ca/health/publichealth/cdc/vaccineeligibility.html

Manitoba Immunization Schedule
https://www.manitoba.ca/health/publichealth/cdc/div/schedules.html

Canadian Immunization Guide
www.canada.ca/en/public-health/services/publications/healthy-living/canadian-immunization-guide-part-4-active-vaccines.html

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Thank you for completing the

Manitoba Health

School-based Immunization Program

Training Module

2024

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