Manitoba Health School-based Immunization Program

Administration Training Module 2023

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Overview

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1. Manitoba School Immunization Program

- Manitoba's School Immunization Program is based on Manitoba's Recommended Routine Immunization Schedules for Infants, Children and Adults (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-135) – 1 dose
  - Grade 8 or 9 (varies by region)
    - Tetanus, Diphtheria and acellular Pertussis (Tdap) **OR** Tetanus, Diphtheria, Pertussis and Polio (Tdap-IPV) – 1 dose
- Grade 6 School Immunization Program Fact Sheet
- 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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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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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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Meningococcal Disease

- Meningococcal disease is caused by several different strains of a bacteria, including A, B, C, Y, and W-135 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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Tetanus, Diphtheria, Pertussis, and Polio 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: Current Stock for 2023

- Hepatitis B (HBV) Vaccine: Engerix®-B
- Human Papillomavirus (HPV) Vaccine: Gardasil®9
- Meningococcal Conjugate Quadrivalent (Men-C-ACYW-135) Vaccine: Menactra®
- Meningococcal Polysaccharide groups A, C, W-135 and Y Conjugate Vaccine: Nimenrix®
- Tetanus, Diphtheria and acellular Pertussis (Tdap) Vaccine: Boostrix®
- Tetanus, Diphtheria and acellular Pertussis, and inactivated Polio (Tdap-IPV) Vaccine: Boostrix-Polio®

Manitoba's School Immunization Program: Quick Reference Guide

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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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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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Meningococcal Quadrivalent Vaccines:

Menactra®

- Provides protection against invasive meningococcal disease caused by N. meningitidis serogroups A, C, Y and W-135
- 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 during 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-135
- 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 during 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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Tetanus, Diphtheria and Acellular Pertussis +/- Inactivated 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. 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 the 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:
  - For the HB Vaccine: born on or after 2006; catch up for those born between 1989-2005
  - For the HPV Vaccine: born on or after 1997 for females and 2002 for males
  - For the MenQuad Vaccines: born on or after 2008

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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5. Contraindications

- Immunizers should question all individuals about their current health status and check with the clinical lead if there are any chronic conditions identified that may be contraindicated to the vaccine before each dose of vaccine is administered.
- Public health nurses should review any chronic conditions identified on the consent form that may be contraindicated to the vaccine prior to the immunization clinic.
- 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.
  - Individuals who previously had an adverse event after previous administration of the same vaccine.

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6. Storage and Handling

- Cold Chain & Storage- Immunization Stations
- Review of storage and handling requirements of all the school based vaccines

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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.
- Cold Chain Protocol- Vaccines and Biologics: https://www.gov.mb.ca/health/publichealth/cdc/protocol/ccp.pdf
- Immunizers are responsible to ensure appropriate temperature storage of vaccines is maintained at their immunization station according to the manufacturer's requirements.
- Insulated containers (coolers) with refrigerated gel packs can be used to temporarily store small quantities of product at each individual immunization station.
- Insulating material should be used as a barrier to prevent direct contact between the vaccine and the refrigerated packs.
- Refrigerated gel packs should be replenished as needed throughout the clinic 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.

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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.
- 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.
- Vaccine should be administered as soon as possible after being removed from refrigeration.
- 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: 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 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
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.
- Upon removal from the refrigerator, the vaccine is stable for 8 hours at 21°C.
- 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: 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 inactivated 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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7. Pre-Vaccination

- Informed Consent
- Pre-vaccination Counselling
- Immunization History

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Informed Consent

- Prior to the school immunization program, each regional health authority creates information packages that are sent home 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 Immunization Consent Form (Grade 6 or Grade 8/9)
- It is preferred that parents provide the consent for their children.
- However, children 16 years of age and older can consent to be immunized outside of parental consent (Mature Minor) as per 4(2) of the Health Care Directives Act.

Mature Minors:

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.
  (Review these situations with the clinic lead.)

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

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Pre-Vaccination Counselling

Prior to vaccination, the immunizer should:

- Assess the vaccine recipient's current state of health.
- Provide information regarding the benefits and risks of receiving or not receiving the vaccine.
- Assess contraindication and precaution to receiving the vaccine including any history of potential immediate or anaphylactic hypersensitivity to a previous dose of the vaccine or to any of the vaccine components.
- Evaluate reactions to previous vaccinations.
- Review frequently occurring minor adverse events and potential rare severe adverse events.
- Ensure informed consent obtained from vaccine recipient or legal decision maker.
- Review immunization history.

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Immunization History

- Each client's immunization history must be reviewed in PHIMS and assessed prior to vaccine administration.
- Immunization history will dictate which vaccines the child/adolescent is eligible for and ensures that they are receiving vaccines based on the Manitoba provincial recommended immunization schedule.

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8. Administration

- Infection Prevention and Control (IP&C)
- 7 Rights of Administration
- Assessing the Injection Site
- Positioning Older Children and Adolescents for Deltoid Injection
- Landmarking for Deltoid Muscle
- Reducing Immunization Injection Pain & Anxiety
- Administration of the Vaccines
- Intramuscular Injection Technique

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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: https://sharedhealthmb.ca/files/routine-practices-protocol.pdf
- PPE must continue to be available for all staff (medical grade masks, eye protection, N95 respirators).
- Please visit https://www.gov.mb.ca/health/publichealth/cdc/ipc.html to review the *Immunization Program/Clinic: Infection Prevention and Control (IP&C) Procedures/Processes* and for additional current guidelines and forms.

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7 Rights of Administration

As part of preparation and administration of the vaccine, the health care provider is responsible for checking the expiry date and the following 7 rights:

1. Right client
2. Right time/schedule
3. Right vaccine (and diluent)
4. Right dose
5. Right route/needle/technique
6. Right injection site
7. Right documentation

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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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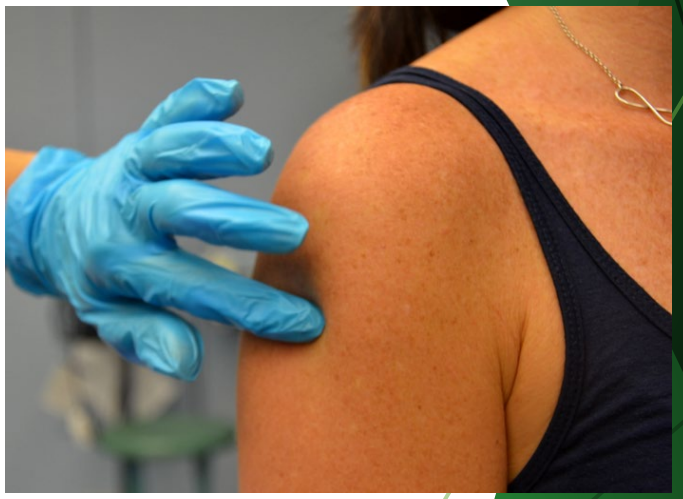
Positioning Older Children and Adults for Deltoid Injection

The deltoid muscle is a good candidate for intramuscular vaccination for clients older than one year of age for several reasons:

- It is easily accessible to the healthcare professional.
- It is a superficial and fairly thick muscle in most children and adults.
- 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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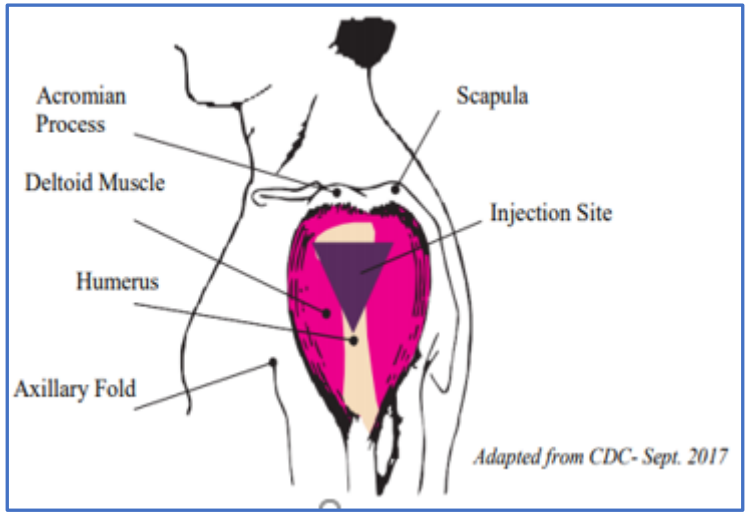
Landmarking for Deltoid Muscle

- 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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Reducing Immunization Injection Pain & Anxiety

- 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.
- 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.

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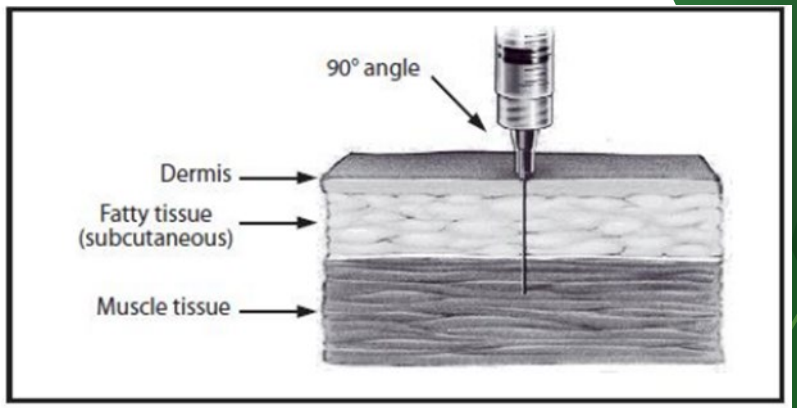
Intramuscular Injection Technique

- 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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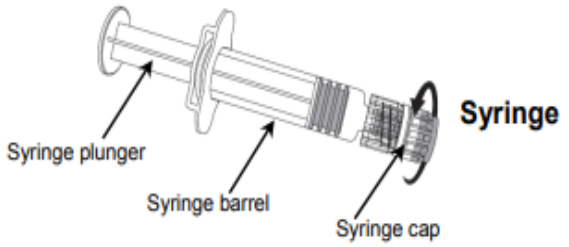
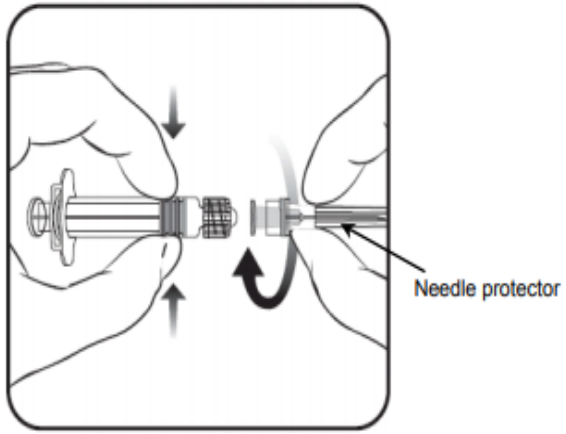
Administration
Hepatitis B Vaccine: Engerix®-B

- Attach a 1 inch 25-gauge safety needle to the syringe supplied by the clinic. (Do not use needle provided by the manufacturer.)
  - Holding the syringe barrel in one hand (avoid holding the syringe plunger), unscrew the syringe cap by twisting it anticlockwise.
  - To attach the needle to the syringe, twist the needle clockwise into the syringe until you feel it lock (see drawing).
- Administer immediately intramuscularly. The preferred site is the deltoid muscle of the upper arm.





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Administration
Human Papillomavirus (HPV) Vaccine:
Gardasil®9

- Cleanse the vial stopper with a single use antiseptic swab and allow to dry.
- Using a sterile 1 inch 25-gauge needle, withdraw 0.5 mL of vaccine from the vial.
- Administer immediately intramuscularly. The preferred site is the deltoid muscle of the upper arm.

Manitoba

Administration
Meningococcal Conjugate Quadrivalent Vaccine:
Menactra®

- Cleanse the vial stopper with a single use antiseptic swab and allow to dry.
- Using a sterile 1 inch 25-gauge needle, withdraw 0.5 mL of vaccine from the vial.
- Administer immediately intramuscularly. The preferred site is the deltoid muscle of the upper arm.

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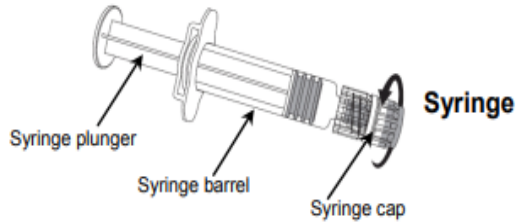
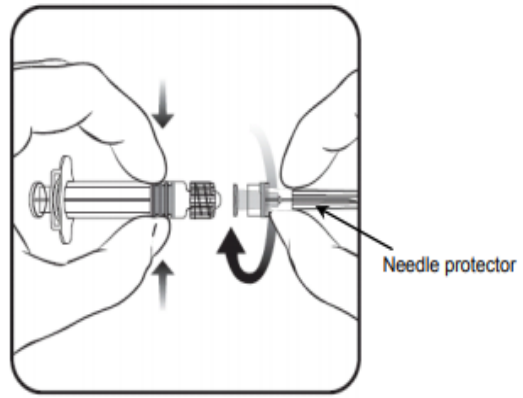
Administration
Meningococcal Conjugate Quadrivalent Vaccine:
Nimenrix®

- Must be reconstituted by adding the entire content of the pre-filled syringe of diluent to the vial containing the powder.
- Holding the syringe barrel in one hand (avoid holding the syringe plunger), unscrew the syringe cap by twisting it anticlockwise.
- To attach the needle to the syringe, twist the needle clockwise into the syringe until you feel it lock.
- Remove the needle protector.
- Add the diluent to the powder. After the addition of the diluent to the powder, the mixture should be well shaken until the powder is completely dissolved in the diluent.
- After reconstitution, the vaccine should be used promptly. Although delay is not recommended, stability has been demonstrated for 8 hours at 30°C after reconstitution. If not used within 8 hours, do not administer the vaccine.
- A new needle should be used to administer the vaccine.
- Administer immediately intramuscularly. The preferred site is the deltoid muscle of the upper arm.





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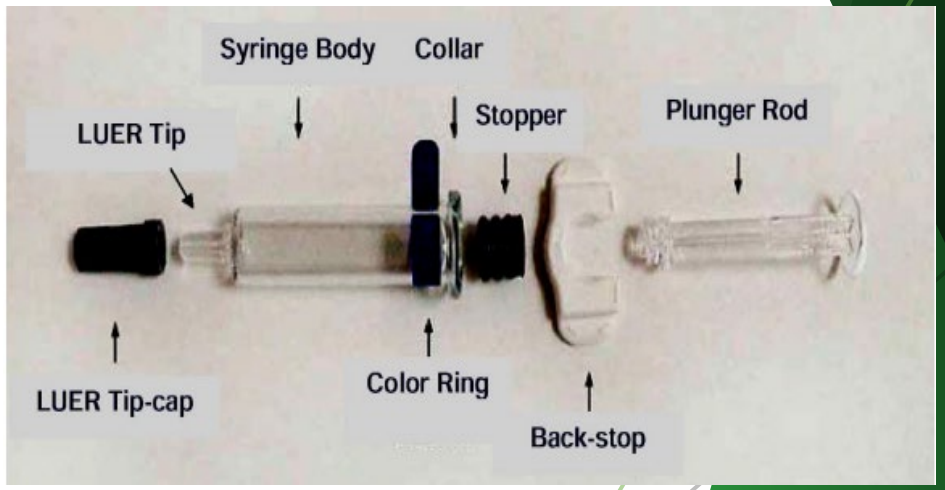
Administration
Tetanus, Diphtheria and acellular Pertussis (Tdap) & Tetanus, Diphtheria and acellular Pertussis and inactivated Polio (Tdap-IPV) Vaccines
Boostrix® & Boostrix-Polio®

- Prior to administration, ensure that the plunger rod is firmly attached to the rubber stopper by turning the plunger clockwise until slight resistance is felt. Do not over tighten.
- Remove syringe LUER Tip-cap and needle cap.
- Attach a 1 inch 25-gauge safety engineered needle by pressing and twisting in a clockwise rotation until secured to the syringe.
- Administer immediately intramuscularly. The preferred site is the deltoid muscle of the upper arm.



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9. Handling Multiple Products

- Administering Multiple Vaccines

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Administration of Vaccine Products

School-based Vaccines

- Most routine vaccines can be safely and effectively administered in the same visit.
- For clients who require multiple school-based immunizations, but circumstances do not allow all vaccines to be administered in a single clinic visit (if maximum dosage for that injection site has been met; client unable to tolerate all required immunizations in the same visit), immunizers should prioritize administrating vaccines that are offered as part of the grade 6 school immunization program (i.e., HPV, HB, Men-C-ACYW-135).
- Administering first doses of vaccine products should be prioritized over administering 2nd doses.

(Review these situations with the clinic lead.)

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Administering Multiple Vaccines

Individuals receiving multiple vaccinations at the same clinic visit is widely supported by the medical community.

- "Generally, vaccinees have similar immune responses whether vaccines are given at the same time or at different visits. Simultaneous administration of most routine vaccines at the same visit does not result in increased rates of adverse reaction." (Health Canada, 2021)
- "Giving multiple vaccines at one visit helps to ensure that people are up to date with the vaccines required for their age and risk factors." (Health Canada, 2021)
- "A number of studies and reviews have been conducted to examine the effects of giving various combinations of vaccines simultaneously. These studies have shown that the recommended vaccines are as effective in combination as they are individually, and that such combinations carry no greater risk for adverse side effects." (WHO, 2020)

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Administering Multiple Vaccines

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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Administering Multiple Vaccines

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 an 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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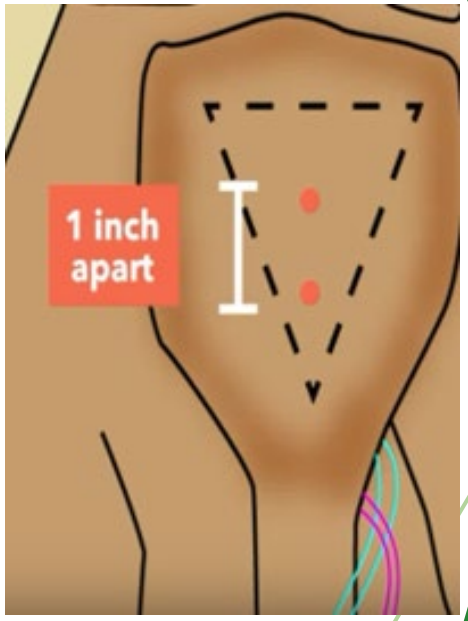
Administering Multiple Vaccines

- 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-135 (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 stinging or injection site pain (e.g. HPV vaccine) should be administered last.



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Administering Multiple Vaccines

- 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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9. Post-Vaccination

- Potential Adverse Events
- Anaphylaxis
- Medications for the Treatment of Anaphylaxis
- Adverse Event Following Immunization (AEFI)

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Post-Vaccination
Potential Adverse Events

- All vaccines administered as part of the school immunization program are considered safe and all are approved by Health Canada.
- However, as with all vaccines, adverse events may occur. It is much safer for an individual to receive a vaccine, than to get a vaccine-preventable disease.
- 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 Potential Adverse Events

- All clients should be monitored for 15 minutes post immunization to monitor 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 Anaphylaxis

Well established anaphylaxis response plans should be determined 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 will have an anaphylaxis management kit(s) that contain(s) the anaphylaxis protocol and a drug administration record. In addition, the anaphylaxis kit may also include:
  - emergency telephone numbers
  - medical directive to managing anaphylaxis, which can be accompanied by an anaphylaxis medication quick reference dosage card
  - a clear plan for client transport to a health care facility
  - communication protocols
- It is important that all immunizers have reviewed the site protocol to manage post immunization emergencies (i.e. anaphylaxis). If no site protocol exists, the Provincial Anaphylaxis Protocol: Community Health Immunization can be implemented.

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Post-Vaccination
Medications for the Treatment of Anaphylaxis

Epinephrine

- Epinephrine is the lifesaving drug for anaphylaxis. It is the first drug that should be administered if anaphylaxis is suspected. It will constrict blood vessels, raise blood pressure and pulse, and relax the smooth muscle in the lungs to improve breathing.
- Vastus lateralis is the preferred administration site for IM administration of epinephrine. It is a short acting drug. Doses may need to be repeated every 10-15 minutes as per protocol if assessment warrants. Within a short time period the client will begin to feel relief. Adverse effects of epinephrine may include anxiety, nausea and vomiting, headache, and heart palpitations.
- Each immunization clinic must be prepared to manage post-immunization emergencies (i.e. anaphylaxis) according to site protocol.

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Post-Vaccination Adverse Event Following Immunization (AEFI)

- An adverse event following immunization (AEFI) is an unwanted or unexpected health effect that happens after someone receives a vaccine, which may or may not be caused by 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.
- 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.
- Report adverse events following immunization (AEFI) as per www.gov.mb.ca/health/publichealth/cdc/div/aefi.html#rrp

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10. Documentation and Reporting

- Documentation and Immunization Records
- Reporting

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Documentation and Immunization Records

Every vaccine administered must be documented and accounted for.

All immunization records must include at minimum:

- Client name, birthdate, and Personal Health Identification Number (PHIN)
- Date of administration
- Vaccine product and manufacturer
- Lot #
- Dose
- Site and route of administration
- Provider
- Reason for immunization
- Any other regulatory requirements

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Reporting

Public Health Information Management System (PHIMS)

- The Public Health Information Management System (PHIMS) is a secure, integrated electronic public health record.
- Registered users of the Public Health Information Management System (PHIMS) have the ability to view client immunization records and directly enter the required immunization information including the informed consent into PHIMS. (*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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References

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

- Manitoba Health School Immunization Program: https://www.gov.mb.ca/health/publichealth/cdc/div/sip.html

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Thank you for completing this

Manitoba Health
School-based
Immunization Program
Administration Training Module
2023

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