COVID-19 VACCINE

Manitoba Health
COVID-19 Immunization Training Module

Please note: This training module is not intended for further distribution. The information therein is accurate as of the date posted and the link accessed but can change over time as new information becomes available.

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COVID-19 Disease

- Disease Agent
- Transmission
- Clinical Presentation
- Disease Prevention

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COVID-19 Disease

Disease Agent

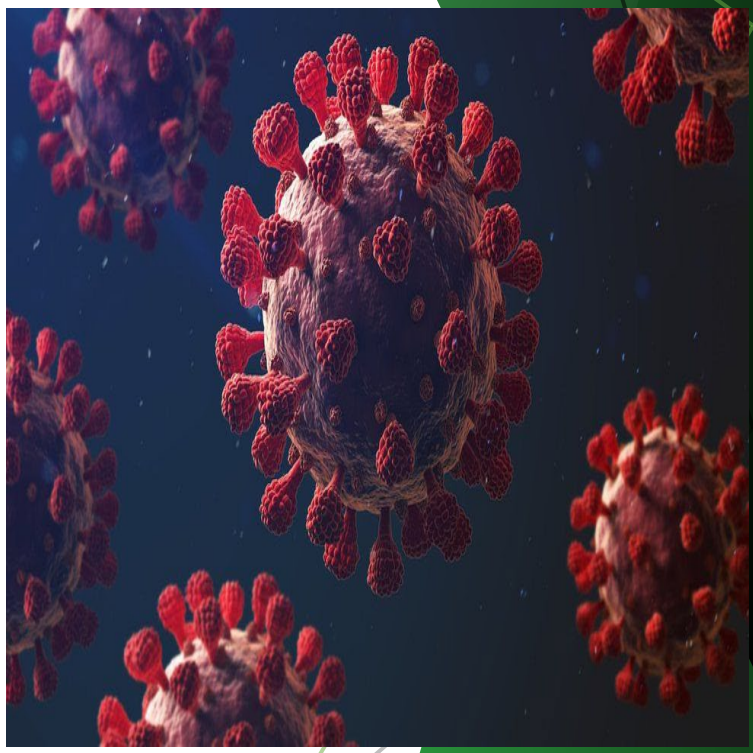
Severe Acute Respiratory Coronavirus (SARs-CoV-2) is a virus that causes the disease known as COVID-19. It was first identified in December 2019 in Wuhan, China.

Other coronaviruses have been identified as early as the 1960's and generally cause mild illness whereas the more recent COVID-19 and the Middle East Respiratory Syndrome coronavirus (MERS-CoV) can cause very severe illness.

Viruses like SARS-CoV-2 evolve through genetic mutation, and new variant forms of the virus continuously occur.

Variants of Concern (VOCs) are the type of variants that public health officials monitor for as they can affect disease prevalence in the population, in the following ways:

- increased transmissibility or detrimental change in epidemiology;
- increased virulence or change in clinical disease presentation;
- decreased effectiveness of available diagnostics, vaccines, therapeutics, or public health measures.



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COVID-19 Disease

Disease Agent

The first SARS-CoV-2 VOC, Alpha (B.1.1.7), originally identified in the United Kingdom, was detected in Canada in December 2020, and was more transmissible and caused more severe illness.

Subsequent VOCs identified in Canada included Beta, Gamma, and Delta. These variants are no longer considered VOCs as they are no longer spreading widely and do not represent a significant risk.

The Omicron variant was identified in November 2021, and continues to evolve with sub lineages. Omicron is more transmissible than previous variants, and appears to cause less severe illness and death in general. However, surges in cases, regardless of the type of variant, can impact healthcare resources.

Surveillance for new variants and their impact continues globally as part of the ongoing COVID-19 response.

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COVID-19 Disease

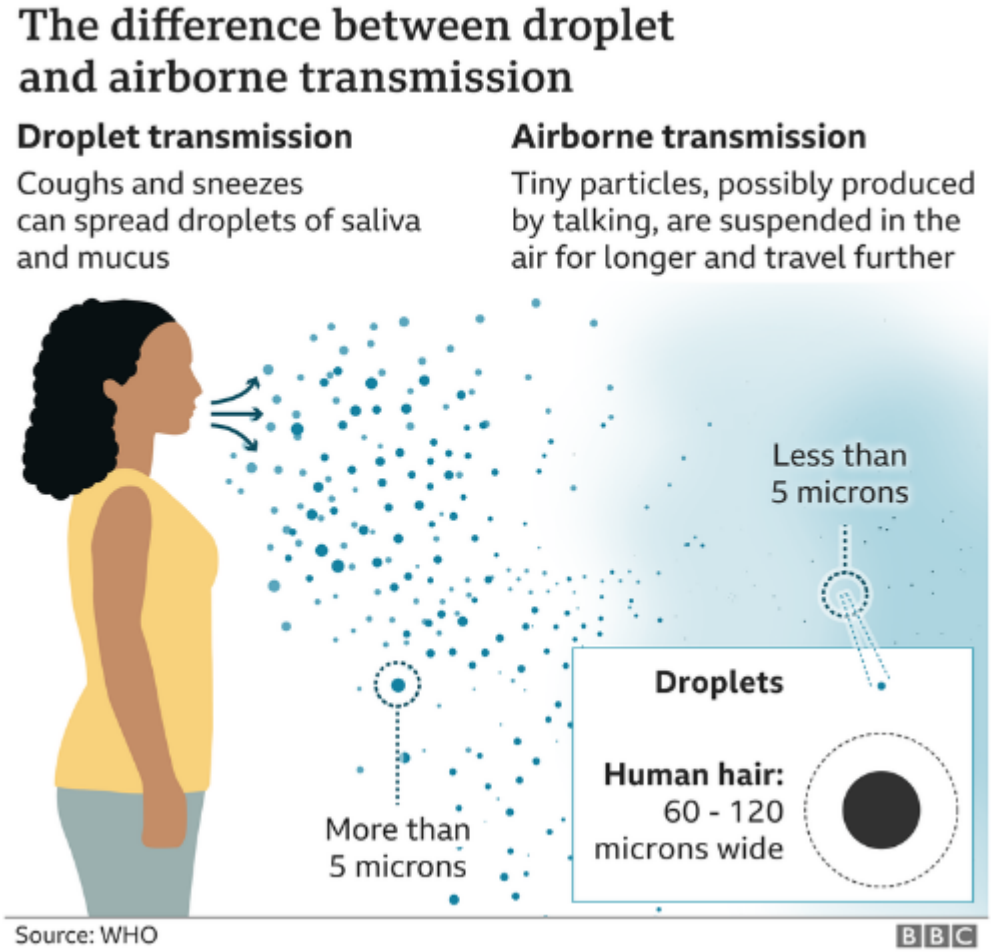
Transmission

COVID-19's main mode of transmission is from person to person through respiratory droplets and aerosols. These infected droplets or aerosols may come into direct contact with the mucous membranes of another person or they may be inhaled into their respiratory system.

The virus is most frequently transmitted when people are in close contact with others that are infected with the virus.

Once infected, a person may be infectious for 48 hours before showing symptoms and most people are considered no longer infectious 10 days from onset of symptoms (or first detection of infection if asymptomatic). Asymptomatic cases can also transmit the disease to others.

The length of time that a person is infectious to others can vary depending on severity of symptoms and type of variant.



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COVID-19 Disease

Clinical Presentation

The median incubation period (the time from exposure to symptom onset) for non-variant SARS-CoV-2 was estimated to be 4 to 7 days. For Omicron, the median incubation period is 2 to 4 days. The incubation period can range from 1 to 14 days.

The clinical presentation of SARS-Cov-2 ranges from asymptomatic to severe and symptoms may change over the course of illness. The clinical features can also vary by age, vaccination status and variants of concern. Severe disease occurs more often in older age and in those with underlying medical conditions, and the risk increases with the number of underlying medical conditions.

Symptomatic cases may experience one or more of the following common symptoms: fever or chills, cough, shortness of breath, sore throat, congestion or runny nose, fatigue, myalgia, headache, loss of taste or smell, nausea or vomiting, or diarrhea.

Less common clinical manifestations include, but not limited to, dermatological changes (i.e., rash) and ocular symptoms (i.e., conjunctivitis).

Multisystem inflammatory syndrome is a rare but severe post-infection complication of SARS-CoV-2 that can occur in children and adults. It is a hyperinflammatory condition that can lead to multiorgan failure. Refer to the following link for more information on Multisystem inflammatory syndrome in children in Canada.

Post COVID-19 condition (i.e., long COVID) refers to a variety of physical and/or psychological symptoms that persist more than 12 weeks after the initial infection. Symptoms can vary in intensity and resolve or become exacerbated.

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COVID-19 Disease

Disease Prevention

COVID-19 vaccinations significantly lower the risk of severe outcomes, such as hospitalizations and death and are the best defense against contracting the virus or developing severe symptoms from it.

Other strategies include:

- Wearing a mask in indoor public spaces especially for those at higher risk of severe illness.
- Washing your hands or using alcohol-based hand sanitizer frequently.
- Cleaning and disinfecting surfaces and objects that are frequently touched by many people.
- Considering your setting, improving ventilation and spending time visiting outdoors.
- Knowing if you are eligible for treatment.

For those who have developed the disease, the following measures can prevent further transmission to others:

- Staying home and limiting contact with others until recovered from the acute infection.
- Respiratory, environmental and hand hygiene (e.g., frequent handwashing or use of alcohol-based hand sanitizers, covering coughs / sneezes, disinfecting surfaces).

For further information refer to: [Province of Manitoba | COVID-19 Information and Prevention (gov.mb.ca)]

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COVID-19 Vaccines

- mRNA
- Subunit
- Resources

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COVID-19 Vaccines

COVID-19 Vaccines

- When COVID-19 vaccines were first introduced, they were created based on the original SARS-CoV-2 strain called the Wuhan or ancestral strain. These vaccines include both mRNA and non mRNA vaccines, and they assisted in providing protection against COVID-19 using only the one specified antigen. Because they only contained a single COVID-19 antigen, they were called monovalent vaccines.
- As the SARS-CoV-2 virus evolved and more variants developed, mRNA bivalent vaccines were created. The mRNA bivalent vaccines assisted in providing protection against COVID-19 using two antigens. They included the ancestral strain and antigens based on newer circulating strains.

XBB.1.5 Monovalent

- In the Fall of 2023, updated formulations of the COVID-19 mRNA vaccines have been developed to protect against the XBB.1.5 strain of the COVID-19 virus. Currently Moderna/Spikevax™ XBB.1.5 and COMIRNATY® (Pfizer) Omicron XBB.1.5 have been approved by Health Canada. The updated non mRNA subunit Novavax/Nuvaxovid™ vaccine is pending approval.

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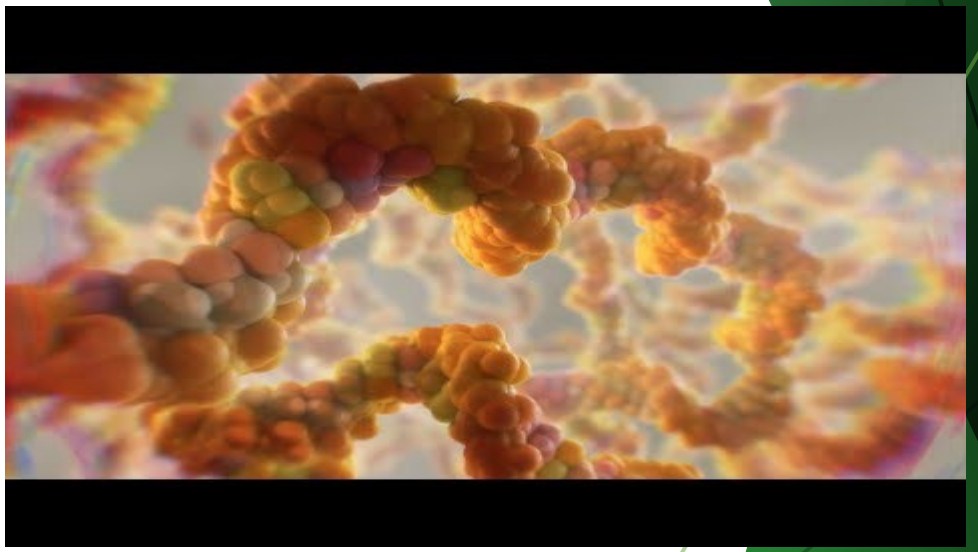
COVID-19 Vaccines

mRNA Vaccines

- mRNA vaccines are composed of pieces of messenger RNA (small pieces of genetic coding).
- The messenger RNA provides instructions to the recipient's cells on how to make a protein (spike protein) found on the SARS-CoV-2 virus. Once these proteins are created, it prompts the immune system to make antibodies which will provide protection against exposures to the SARS-CoV-2 virus which causes COVID-19.
- mRNA does not enter the cell nucleus or interfere with human DNA and it degrades rapidly after it has provided its instructions to the cells.
- mRNA COVID-19 vaccines include:
  - Comirnaty® (Pfizer)
  - Spikevax ® (Moderna)

Video: How COVID-19 mRNA Vaccines Work
Click this link to watch How COVID-19 mRNA Vaccines Work - YouTube



Source: The Vaccine Makers Project

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COVID-19 Vaccines

Subunit Vaccines

- Subunit vaccines are made by using a small piece of the virus's genetic code, which is inserted into a specialized cell. The genetic code instructs the cell to build a large amount of COVID-19 spike protein. The protein is extracted, purified and used as the active ingredient in the vaccine.
- When the immune system encounters the vaccine, it recognizes the proteins as foreign and triggers an immune response which results in antibodies that will recognize and fight the virus in the future.
- Example of subunit COVID-19 vaccines include: Novavax/ Nuvaxovid™

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COVID-19 Vaccines

Resources:

The following resources can be located online at https://www.gov.mb.ca/covid19/health-care-providers.html:

- **COVID-19 Vaccine Quick Reference Guides**
- **COVID-19/Flu/Pneumo Comparison Chart**
- **Storage and Handling Quick Reference Chart**
- **Product Monographs**
- **Tariff Code Listings**

Fact sheets can be located online at https://www.gov.mb.ca/covid19/public-resources.html

Additional Resources:

- Canadian Immunization Guide provides all the essential immunization information for all vaccines including all COVID-19 vaccines: COVID-19 vaccine: Canadian Immunization Guide - Canada.ca

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COVID-19 Vaccines Storage and Handling

- Cold Chain and Storage-Immunization Stations
- mRNA Vaccines
- Subunit Vaccine
- Resources

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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

mRNA vaccines:

- Vigorous handling, including shaking or flicking bubbles out of a syringe, can damage components of the mRNA strands and as a result could impact vaccine efficacy. Careful handling is required when preparing an mRNA vaccine.
- mRNA COVID-19 vaccines are provided in multi-dose vial formats.
- Moderna SPIKEVAX™ XBB.1.5 vaccine dose not require reconstitution prior to administration (see available resources for further details).
- Some of the Comirnaty® (Pfizer) XBB.1.5 products may require reconstitution to dilute the vaccine concentration prior to administration. Ensure you review the product monograph prior to administration.

Subunit COVID-19 vaccine:

- Novavax/ Nuvaxovid™ is stored similarly to most other vaccines and should be refrigerated at the optimum temperature range of +2ºC to +8ºC. If/when the product is approved by Health Canada, ensure you review the product monograph.

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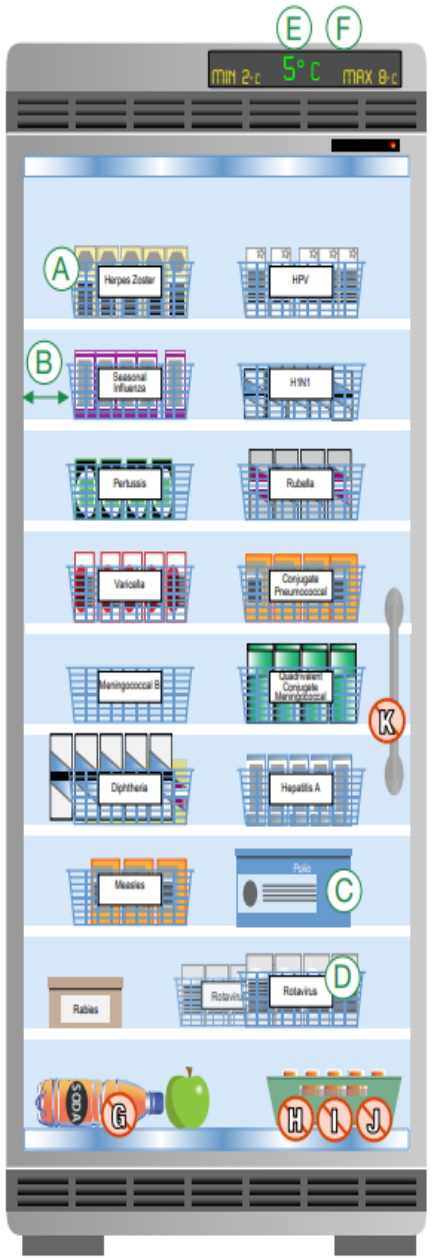
Storage and Handling

mRNA COVID-19 Vaccines - Storage

mRNA COVID-19 vaccines are unique in that once they are manufactured they require storage (depending on the product) in ultra-low freezers (ULF's) at temperature ranges of -90ºC to -60ºC or freezer storage of -25ºC to -15ºC (Moderna Spikevax).

- Prior to use, the vaccine needs to be thawed. Thawing of the product generally occurs when the vaccine is transferred to a purpose-built refrigerator (vaccine fridge) to be stored at the standard storage temperature of +2ºC to +8ºC. Once the vaccine has been thawed, it can then be stored in the vaccine fridge for a specified period of time.
- If the product requires immediate use, it can be thawed at room temperature for a quicker thaw time. Thawed or partially thawed vaccines cannot be refrozen.
- mRNA vaccines can also be kept a room temperature prior to administration for a set period of time. This time frame can vary between 12-24hrs.

FIGURE 1: ORGANIZING THE PURPOSE-BUILT REFRIGERATOR



DO:

- (A) Place vaccine in breathable plastic mesh baskets and clearly label baskets by type of vaccine
- (B) Keep baskets 5 – 8 cm from walls and other baskets
- (C) Keep vaccine in their original boxes until you are ready to use them
- (D) Keep vaccines with shorter expiration dates to the front of the shelf/basket
- (E) Keep temperature between 2 – 8°C (aim for 5°C)
- (F) Check and log temperature twice a day

DO NOT:

- (G) Store food or drink in refrigerator – only vaccine in vaccine storage unit
- (H) Place vaccine in solid plastic trays or containers
- (I) Store vials out of their original individual packaging
- (J) Place vaccine in drawers or on floor of refrigerator
- (K) Open door more than necessary

Source: National Vaccine and Storage Guidelines: vaccine-storage-entreposage-vaccins-eng.pdf (canada.ca)

Storage and Handling

Expiration of COVID-19 Vaccines can vary based on the following:

- **Expiry date or date of manufacture -** this date can be noted specifically as an expiry date or it can be noted as date of manufacture. The manufacturer will outline what is the required time from date of manufacture as to when the product would be considered expired. (Note: at times these expiry dates can be extended. If there is an extension on a product, the manufacturer will send out a national notification which will be shared with the provinces/regions). The Canadian Vaccine Catalogue is a reference to check if there has been an extension on a specific vaccine lot/product. See link: Explore (canimmunize.ca), Moderna :Moderna (modernacovid19global.com), Pfizer Home | CVDVACCINE

- **Expiry time from thaw time -** once mRNA COVID-19 vaccines are stored in a vaccine fridge at +2ºC to +8ºC, they have a limited time that they can be used or they will be considered expired. It is important that vaccines once added to a vaccine fridge are noted with the date and time of thaw.

- **Expiry from dilution or puncture date -** once a multi-dose vial has been opened it also has a post-puncture expiry date of how long it can be stored in the vaccine fridge. Immunizers are required to add the date, time and their initials to the vial and to monitor when the vial has reached the time frame to be considered expired.

- **Expiry at room temperature -** there is also a very limited time that COVID-19 vaccines can be kept at room temperature.

Source: Minnesota Department of Health

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COVID-19 Eligibility Requirements

- Current Recommendations
- Primary Series
- Additional Doses
- Resources

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COVID-19 Vaccine Eligibility Requirements

Evidence suggests that the protection provided by previous doses of the COVID-19 vaccine decreases over time.

An additional dose with the updated XBB.1.5 formulation is offered to restore protection that may have decreased over time.

Updated formulations of the COVID-19 mRNA vaccines have been developed to protect against the XBB.1.5 strain of the COVID-19 virus. They have been approved for use in:

- Individuals 6 months and older who have never received a COVID-19 vaccine.
- Individuals 6 months and older who have already received a COVID-19 vaccine and need one or more additional doses to complete their primary series.
- Individuals 6 months and older who have completed a primary series with COVID-19 vaccines and are recommended to receive an additional dose for fall 2023.

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COVID-19 Vaccine Eligibility Requirements

Beginning in the fall of 2023 for those previously vaccinated against COVID-19, individuals aged 6 months and older are recommended to receive a dose of the new XBB.1.5 formulation of COVID-19 vaccine if it has been at least 6 months from the previous COVID-19 vaccine dose or known SARS-CoV-2 infection (whichever is later).

Immunization is particularly important for those at increased risk of COVID-19 infection or severe disease, for example:

- Adults 65 years of age or older
- Residents of long-term care homes and other congregate living settings
- Individuals with underlying medical conditions that place them at higher risk of severe COVID-19
- Individuals who are pregnant
- Individuals in or from First Nations, Métis and Inuit communities
- Members of racialized and other equity-deserving communities
- People who provide essential community services

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COVID-19 Eligibility Requirements

Primary series

Products: For the primary series, the recommended products are the updated XBB.1.5 monovalent mRNA vaccines. Individuals who started their primary series with the original monovalent or bivalent vaccines can complete their primary series with the updated XBB.1.5 formulation. Regardless of which product was used to start a primary series, the previous dose(s) should be counted and the series need not be restarted.

Age: mRNA vaccines for the primary series have been approved for all individuals 6 months of age and older.

Doses: Depending on the product, the primary series is given as 1-3 doses in immunocompetent individuals and 3-4 doses for those with immune compromising conditions.

Intervals: Minimum intervals between doses can vary depending on the product, please refer to the quick reference guides and product monographs to ensure the minimum interval between doses are met to provide the best immune response.

Note: Interruption of a vaccine series resulting in a greater than recommended interval between doses does not require restarting the series.

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COVID-19 Eligibility Requirements

Additional Dose

An additional dose assists to "boost" the immune system as immunity from previous doses wanes over time. Beginning in the fall of 2023 for those previously vaccinated against COVID-19, NACI recommends a dose of the new formulation of COVID-19 vaccine for individuals in the authorized age group if it has been at least 6 months from the previous COVID-19 vaccine dose or known SARS-CoV-2 infection (whichever is later)

Product: Moderna/Spikevax™ and Pfizer/Comirnaty™ XBB.1.5 have been approved to protect against the XBB.1.5 strain of the COVID -19 virus. The non mRNA subunit vaccine Novavax/Nuvaxovid™ is pending approval from Health Canada. mRNA vaccines are the preferential vaccine for an additional dose.

Age: All individuals 6 months of age and older are recommended to receive an additional dose 6 months after they have completed their primary series.

Dose Interval: at least 6 months from the previous COVID-19 vaccine dose or known SARS-CoV-2 infection (whichever is later).

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COVID-19 Eligibility Requirements

Eligibility Resources

The following link is a key reference for immunizers which provides the eligibility criteria for COVID-19 vaccines for residents of Manitoba based on age (children and adults) and health status (i.e., immune compromised, previously infected).

Province of Manitoba | Vaccination and Eligibility (gov.mb.ca)

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COVID-19 Vaccine Pre-Vaccination

- Contraindications and Precautions
- Informed Consent

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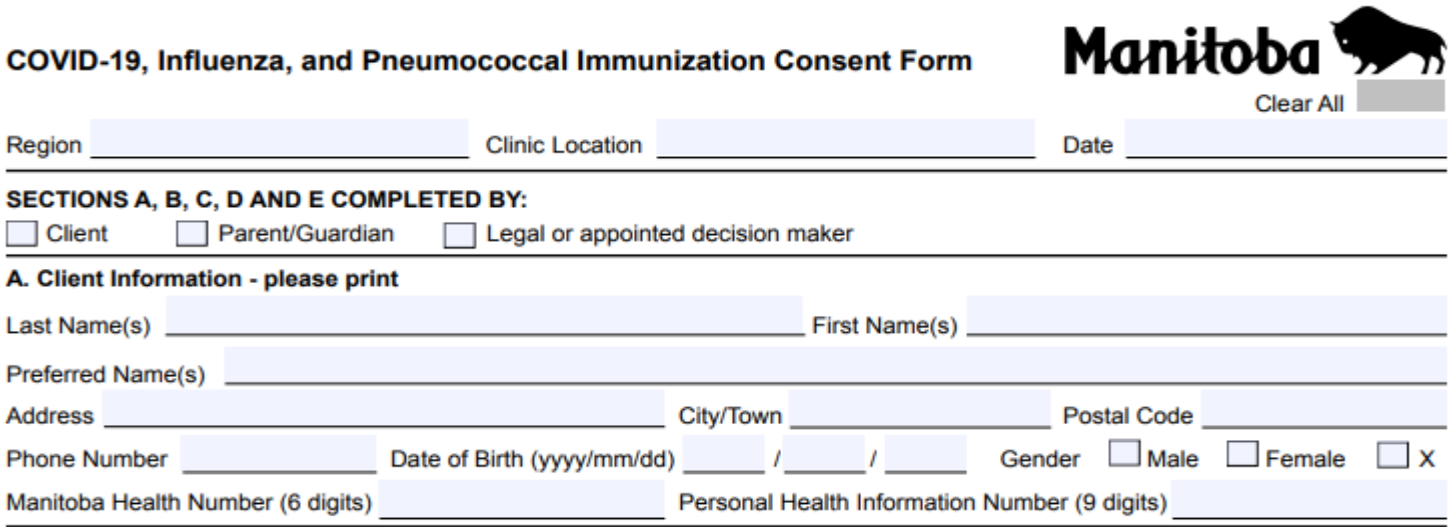
COVID-19 Vaccine: Pre-Vaccination

Client Identification

When contact is made with the client, it is important to ensure proper identification.

Two client identifiers are required prior to any intervention.

- e.g., Name, Birthdate, PHIN, Address.



COVID-19, Influenza, and Pneumococcal Immunization Consent Form

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Clear All

Region _____ Clinic Location _____ Date _____

SECTIONS A, B, C, D AND E COMPLETED BY:

☐ Client ☐ Parent/Guardian ☐ Legal or appointed decision maker

A. Client Information - please print

Last Name(s) _____ First Name(s) _____

Preferred Name(s) _____

Address _____ City/Town _____ Postal Code _____

Phone Number _____ Date of Birth (yyyy/mm/dd) ____ / ____ / ____ Gender ☐ Male ☐ Female ☐ X

Manitoba Health Number (6 digits) _____ Personal Health Information Number (9 digits) _____

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COVID-19 Vaccine: Pre-Vaccination

Contraindications and Precautions

Prior to administering vaccines, an assessment of the client's health history (e.g., allergies, underlying medical conditions) is required to determine if it is safe for the client to receive a vaccine.

Key resources to reference for contraindications and precautions and all other COVID-19 vaccine administration information include:

- COVID 19 Influenza Pneumococcal Immunization Consent Form (gov.mb.ca)
- Product monographs: Province of Manitoba | Resources for Health Care Providers (gov.mb.ca)

The following slides summarize some of the important contraindications and precautions that immunizers and vaccine recipients should be aware of.

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COVID-19 Vaccine: Pre-Vaccination

Contraindications and Precautions

Severe Allergic Reaction to a COVID Vaccine

- For those with a previous history of a severe immediate reaction to a COVID-19 vaccine (e.g., anaphylaxis), require consultation with an allergist or other appropriate physician to determine if future doses of the specific vaccine can be received.
- For those with a previous history of an allergy to an mRNA vaccine where consultation with an allergist or other appropriate physician advises no further vaccination with an mRNA vaccine, re-vaccination with a sub unit vaccine Nuvaxovid (Novavax) may be preferred for individuals in the authorized age group without contraindications to the sub unit vaccine.
- For those with a previous history of an allergy to a subunit vaccine where consultation with an allergist or other appropriate physician advises no further vaccination with a subunit vaccine, re-vaccination with an mRNA may be preferred for individuals in the authorized age group without contraindications to the mRNA vaccine.
- If re-vaccinated, individuals should be observed for an extended period of **at least** 30 minutes after re-vaccination.

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COVID-19 Vaccine: Pre-Vaccination

Contraindications and Precautions

Severe Allergic Reaction to a component of a COVID Vaccine

- Individuals with a confirmed severe allergy to an ingredient in a specific COVID-19 vaccine require consultation with an allergist before considering to receive a COVID-19 vaccine.
- Ingredients of authorized COVID-19 vaccines that have been associated with allergic reactions in other products are:
  - **polyethylene glycol (PEG)**
  - **polysorbate 80**
  - **tromethamine (trometamol or Tris)**

  People who have a known allergy to any of the above ingredients should not be immunized with COVID-19 vaccines containing those ingredients.
- In individuals with a serious PEG allergy in whom mRNA vaccination is precluded based on a consultation with an allergist or other appropriate physician, vaccination with Novavax Nuvaxovid may be preferred for individuals in the authorized age group without contraindications to the vaccine.
- Clients who report an allergy to contrast material (CT dye), including gadolinium, can be immunized with vaccines containing Tromethamine (trometamol or Tris). They should be observed for 30 minutes post immunization.

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COVID-19 Vaccine: Pre-Vaccination

Contraindications and Precautions

Myocarditis and/or Pericarditis

- Myocarditis/pericarditis (inflammation of the heart muscle/lining around the heart) has been rarely reported following immunization with the mRNA vaccines.
- It has occurred mostly in males less than 30 years of age, more often after the second dose of vaccine, usually within a week following vaccination.
- Vaccine related myocarditis/pericarditis is a much milder condition than infection related myocarditis/pericarditis.
- The majority of cases have responded well to treatment and recovered quickly.
- The signs and symptoms of myocarditis/pericarditis can include shortness of breath, chest pain, or the feeling of a rapid or abnormal heart rhythm.
- NACI recommends that people with confirmed myocarditis (with or without pericarditis) after receiving a dose of mRNA vaccine may be offered another dose of mRNA vaccine after discussing the risks and benefits with their health care provider.
- Current data do not show a product-specific difference in the risks of myocarditis and/or pericarditis after a dose of an updated formulation of mRNA COVID-19 vaccine.

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COVID-19 Vaccine: Pre-Vaccination

Contraindications and Precautions

Acute Illness

Individuals that are acutely ill should be deferred until their symptoms have improved. If symptoms are mild and the client is recovering and not considered infectious to others, they can be immunized.

Guillain-Barre Syndrome (GBS)

Individuals who developed GBS after a previous dose of a COVID-19 vaccine may receive an mRNA COVID-19 vaccine, after consultation with their health care provider if it is determined that the benefits outweigh the risk and informed consent is provided.

Multisystem inflammatory syndrome in children or adults (MIS-C or MIS-A)

For children or adults with a previous history of MIS-C or MIS-A, vaccination or re-vaccination should be postponed until clinical recovery has been achieved or until it has been ≥ 90 days since diagnosis, whichever is longer.

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COVID-19 Vaccine: Pre-Vaccination

Informed Consent

Informed consent requires that the client 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 or legal decision-maker.

To assist in informed consent, refer to the COVID-19 fact sheets to provide and/or review with clients

Province of Manitoba | Resources for the Public (gov.mb.ca)

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COVID-19 Vaccine Administration

- Infection Prevention and Control (IP&C)
- Rights of Vaccine Administration
- Immunization Counselling and Comfort Measures
- Intramuscular administration
  - Landmarking
  - Positioning
  - 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 guidelines and forms.

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COVID-19 Vaccine Administration

The process of vaccine or biological product preparation and administration utilizes the following "rights" that an immunizer is responsible for:

- **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)
- **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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COVID-19 Vaccine Administration

Immunization Counselling and Comfort Measures

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

Encouraging comfort and relaxation can reduce anxiety and pain associated with immunization for adults and children.

- The C-A-R-D system (comfort, ask, relax, distract) is an evidence-based framework that provides guidance to immunizers, caregivers and clients. It assists to improve the vaccination experience and teaches coping skills. For further information and resources refer to: CARD for Parents | immunizecanada
- For further resources for comfort measures refer to: Pain Management During Immunizations for Children | immunizecanada

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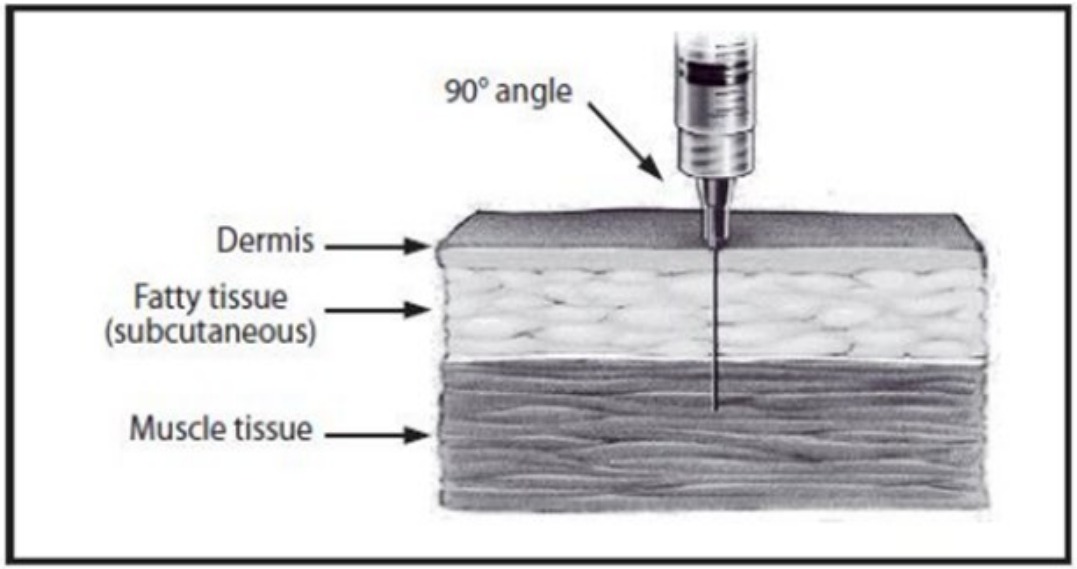
COVID-19 Vaccine Administration

COVID-19 Vaccines are administered intramuscularly.

The two intramuscular (IM) injection sites used for COVID-19 vaccine administrations are:
Deltoid: 1 year of age and older
Vastus lateralis (anterolateral thigh muscles)**: less than 1 year of age**

Intramuscular injections are given at a 90 degree angle



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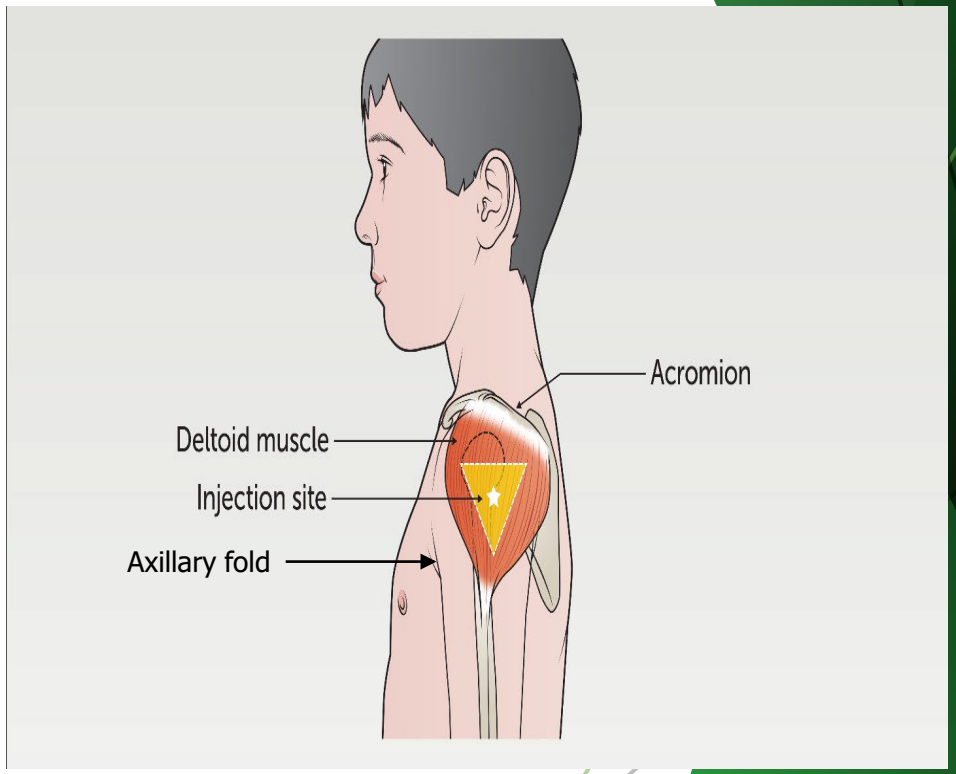
COVID-19 Vaccine Administration

Landmarking the Deltoid Site

- 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 axillary fold. The injection site is in the center of the triangle – the central and thickest portion of the deltoid muscle.
- For adults and older children: 2.5 to 5 cm below the acromion process.
- For younger children: 2.5 to 3 cm below the acromion process.

To avoid causing injury, do not inject too high (near the acromion process) or too low.

Deltoid Site



Source: Australian Immunization Handbook

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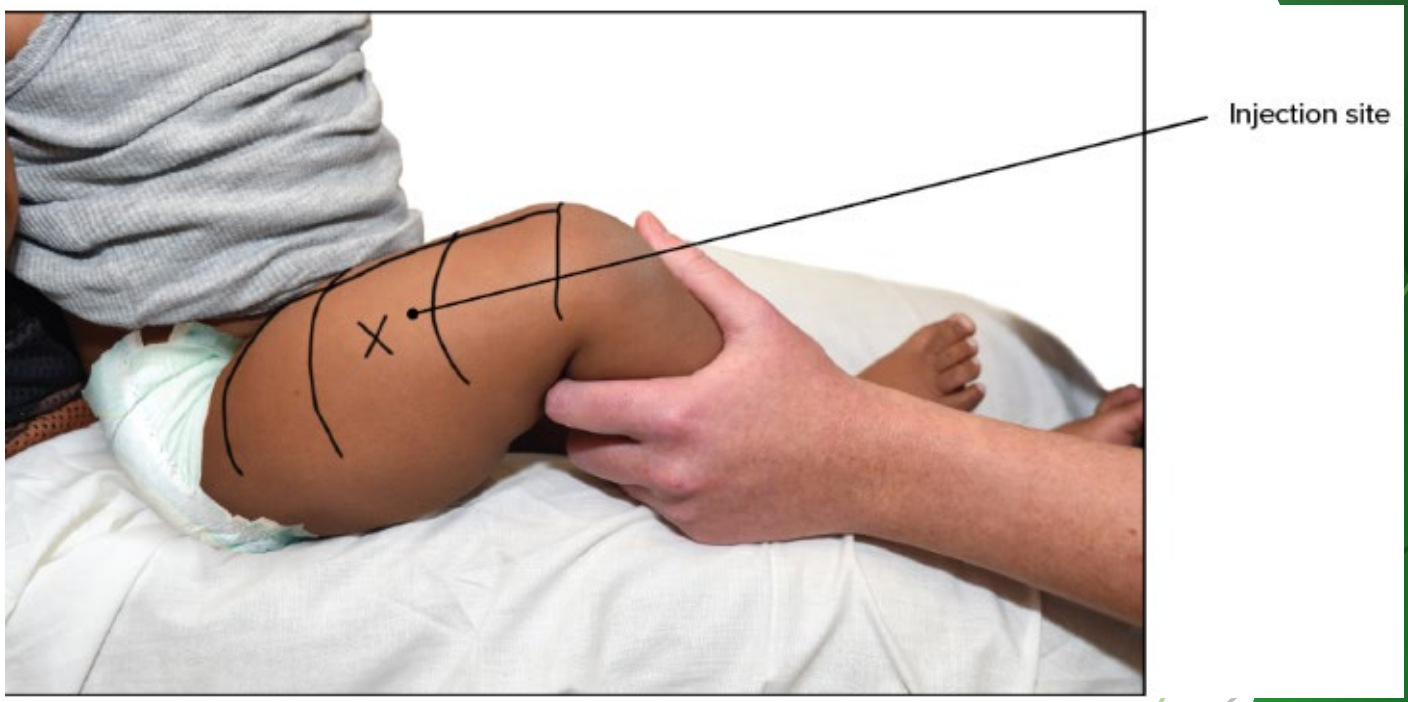
COVID-19 Vaccine Administration

Landmarking the Vastus Lateralis Site

- Define the site by dividing the space between the trochanter major (greater trochanter) of the femur and the top of the knee into three parts; draw a horizontal median line along the outer surface of the thigh.
- The injection site is in the middle third of the anterolateral thigh.

Vastus Lateralis



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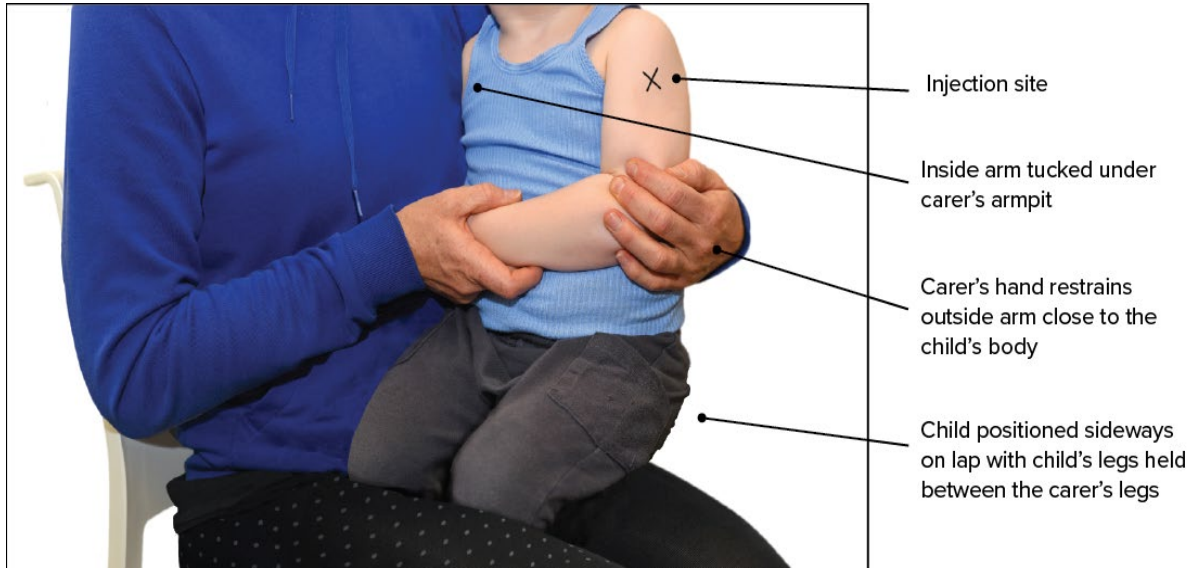
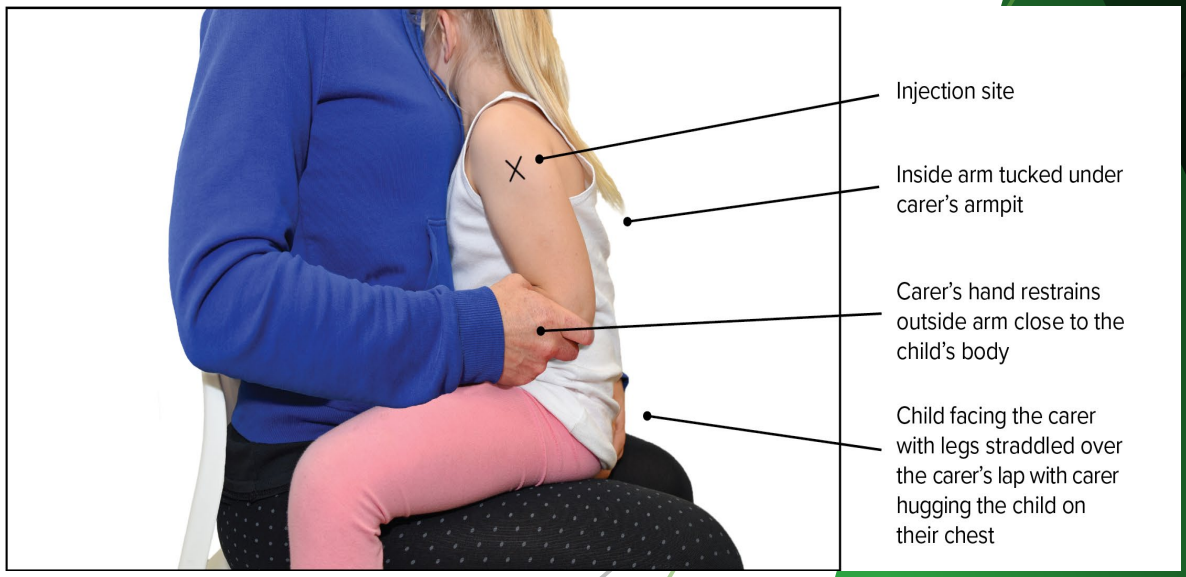
COVID-19 Vaccine Administration

Positioning Young Children for Deltoid injection

- Instruct younger children to sit sideways or in a straddle position on the lap of the parent/caregiver.
- The arm being used for the immunization should be held close to the child's body by the parent/caregiver, while the other arm is tucked behind the parent's/caregiver's back.
- Ask the parent/caregiver to firmly hold the child's legs and feet between the parent/caregiver's thighs, and if in the straddle position, control the child's legs with the parent/caregiver's forearms, if necessary.
- The deltoid site should be clearly visible, and the child is firmly stabilized by the parent/caregiver to prevent movement during the immunization.



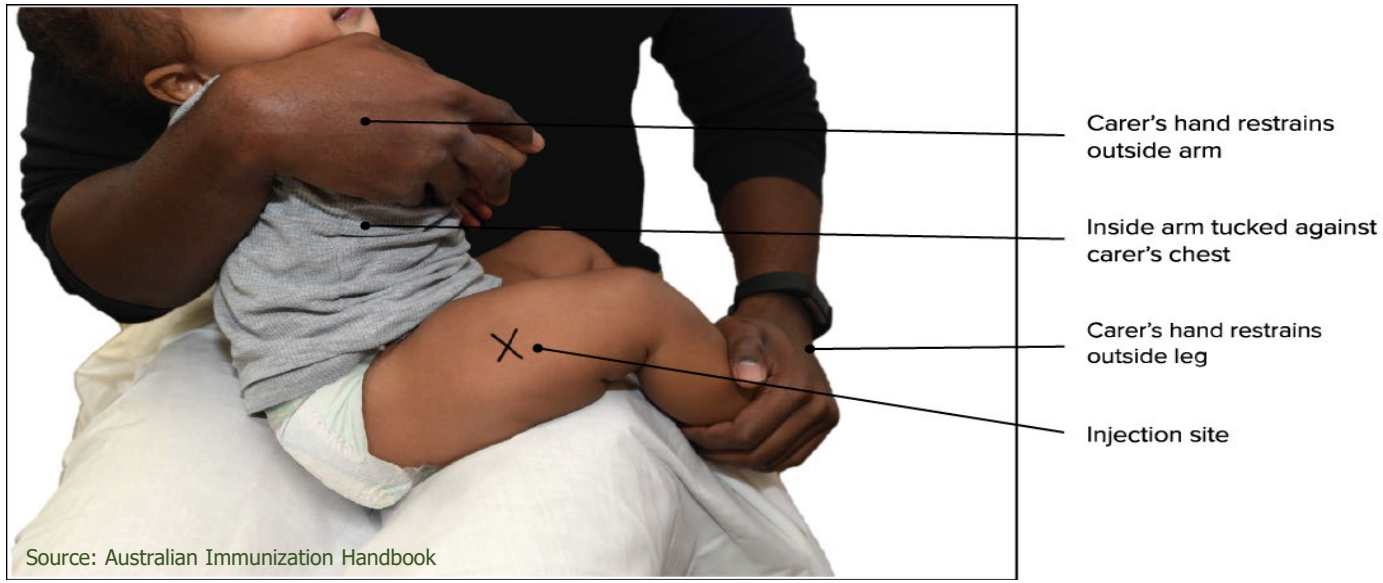


Source: Australian Immunization Handbook

COVID-19 Vaccine Administration

Positioning Infants and Young Children for Vastus Lateralis Injection

- Instruct the parent/caregiver to hold the infant or young child in a "cuddle" or semi-recumbent position on their lap. The child's head should rest on the parent's/caregiver's arm.
- Ensure the child's arm that is positioned closest to the parent/caregiver is tucked into the caregiver's side, or placed behind the caregiver's back. The child's other arm is controlled with the caregiver's arm and hand placed over it.
- Instruct the parent/caregiver to hold the child's outside leg at the calf or knee. Alternately, the parent/caregiver may place the child's feet between their legs and secure the child's legs with their hand.
- The vastus lateralis site should be clearly visible and the child is firmly stabilized by the parent/caregiver to prevent movement during the immunization.



Source: Australian Immunization Handbook

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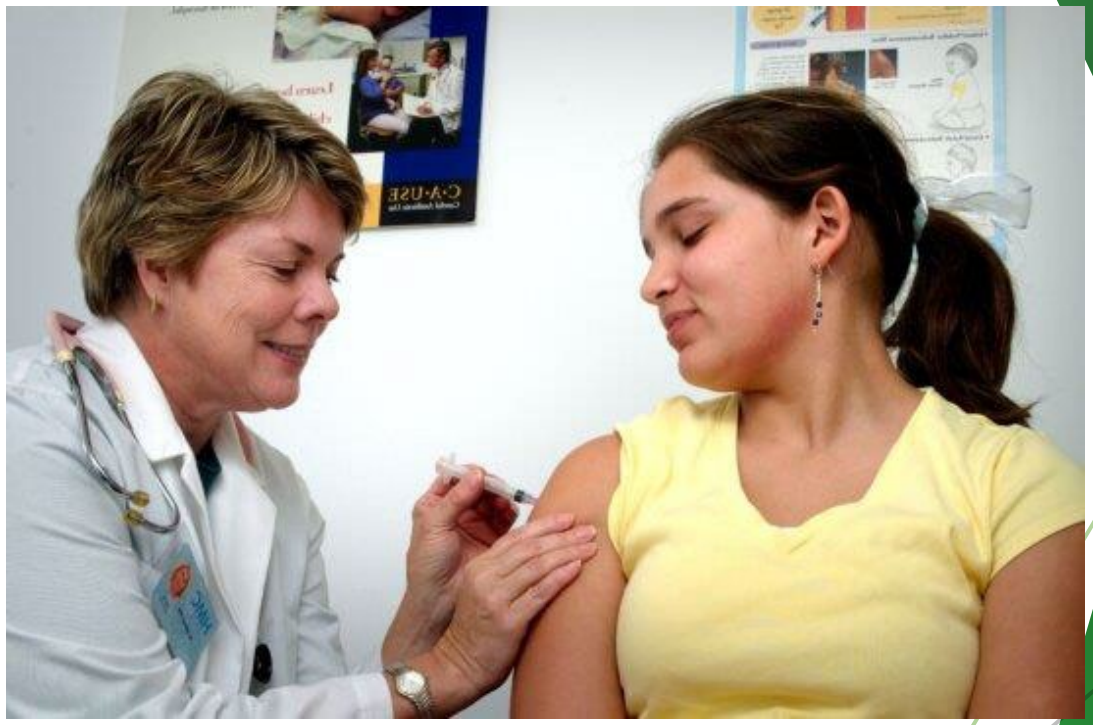
COVID-19 Vaccine Administration

Positioning Older Children and Adults for Deltoid Injection

- Advise older children and adults to sit in a straight-back chair and position their arm to expose the deltoid muscle and relax the arm.
- Encourage the client to place their forearms and hands in a relaxed position on their upper thigh.



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COVID-19 Vaccine Administration

Intramuscular Site and Needle Length Selection

AGE	SITE	NEEDLE LENGTH
Infants (6 to 12 months)	Anterolateral thigh	1″
Young children (12 months to 3 years)	Deltoid	5/8″ to 1″
	Anterolateral thigh	At least 1″
Children 3 to 5 years	Deltoid	5/8″ to 1″
5 years and older	Deltoid	At least 1″

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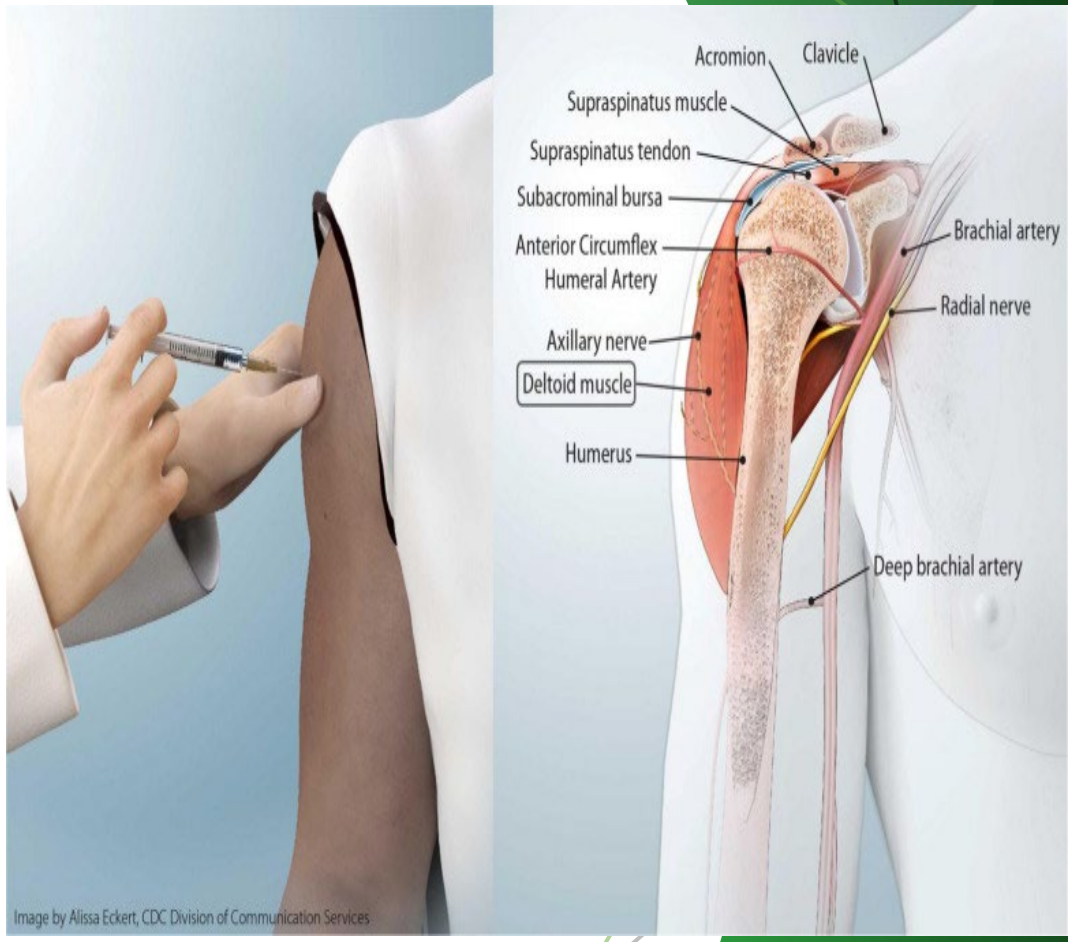
Intramuscular Injection Technique

The following technique is required for administering a vaccination into an intramuscular site (e.g., deltoid or vastus lateralis):

1. Ensure the appropriate needle length for IM injection site is chosen.
2. Complete hand hygiene.
3. Inspect the skin's surface for bruises, scars, or inflammation and palpate the site for masses, edema, or tenderness. If unavoidable, vaccines may be administered through a tattoo or superficial birthmark.
4. Cleanse injection site with an alcohol swab by circling from the center of the site outward 2.5-5 cm (1-2 inches) and let dry.
5. With your free hand, hold the skin firmly between your thumb and forefinger, isolating the muscle and stabilizing the limb.
6. With dominant hand, insert the needle quickly into the muscle at a 90-degree angle, using a steady and smooth motion. After the needle pierces the skin, use thumb and forefinger of the non-dominant hand to stabilize the syringe. (note: do not aspirate as it can cause unnecessary trauma and pain)
7. With dominant hand, inject entire dose of vaccine. Withdraw the needle smoothly and quickly at the same angle of insertion. If the injection device has a retractable safety mechanism, this will have been activated and the needle will already be withdrawn.
8. Activate the safety mechanism and discard the needle into sharps container. Never recap the needle.
9. Use cotton ball to apply pressure to the site.
10. Use adhesive bandage to cover the site, if required.
11. Complete hand hygiene.
12. Provide post-immunization education to vaccine recipient.
13. Complete documentation.



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COVID-19 Vaccine Administration

Video: Deltoid Site Injection

Click this link to watch Deltoid Site Injection - YouTube

Source: Immunize BC

Video: Vastus Lateralis Site Injection

Click this link to watch Vastus Lateralis Site Injection - YouTube

Source: Immunize BC

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Handling Multiple Vaccine Products

All age cohorts (ages 6 month and older) can be offered concurrent vaccine administration with non-COVID-19 vaccines (live or inactivated) when presenting for immunizations.

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Handling Multiple Vaccine Products

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

- Ensures individuals are protected against serious diseases earlier rather than later.
- Fewer immunization appointments saves time for clients, parents/legal decision makers and health care professionals, is more cost efficient, and enhances vaccine compliance.
- Fewer periods of discomfort for the individual due to the lower number of vaccine visits.

Some anxiety should 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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Handling Multiple Vaccine Products

Immunizers should consider the following practices when administering multiple vaccines:

- Review recommendations for concurrent administration for each vaccine.
- Vaccines that are intended for separate administration should never be combined in the same syringe.
- Syringes should be labelled to identify which vaccine each syringe contains.
- When more than one vaccine is to be administered, use separate anatomic injection sites (different limbs) if possible. Use of different limbs assists in differentiation of local adverse events following immunization.

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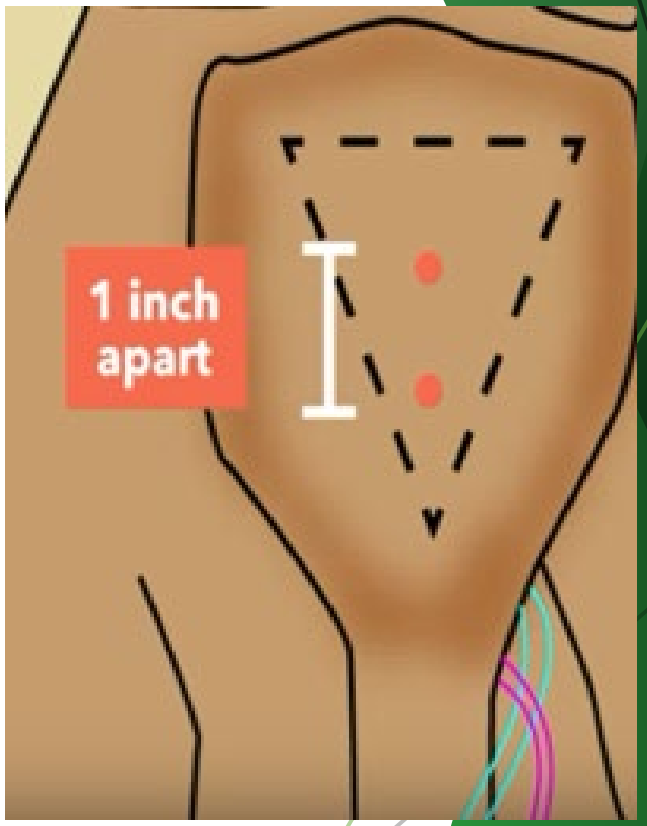
Handling Multiple Vaccine Products

- When administering 2 or more vaccines in the same anatomic site (i.e., deltoid), separate the injection sites by at least 2.5 cm so local reactions are less likely to overlap. In individuals where there is insufficient deltoid muscle mass, the anterolateral thigh muscle may be used.

- If injection volume exceeds the maximum recommendation, please refer to the regional policy on providing multiple injections.

- The site of administration of each vaccine should be recorded so if an injection site reaction occurs, the associated vaccine can be identified (i.e., upper left deltoid, lower left deltoid)



Adapted from: Immunize Canada

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Handling Multiple Vaccine Products

- 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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COVID-19 Vaccine Post-Vaccination

- Adverse Events
- Vasovagal Syncope/Fainting
- Anaphylaxis
- AEFI Reporting

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COVID-19 Vaccine: Post-Vaccination

Adverse Events

Common adverse effects from COVID-19 vaccinations are generally mild to moderate and resolve within hours or a few days:

- redness, swelling and soreness at injection site
- fever
- fatigue
- headache
- joint pain

- All clients are required to be monitored for 15 minutes post immunization to observe for any adverse effects that may require immediate attention (i.e., syncope or anaphylaxis).
- Clients may be directed to stay for a 30 minute observation period if the clinical staff or immunizer has identified potential health concerns (allergy of concern or history of adverse reactions to immunizations).

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COVID-19 Vaccine: Post-Vaccination

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 of 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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COVID-19 Vaccine: Post-Vaccination

Vasovagal Syncope Management

- Place the client in a supine (lying on their back) position and elevating 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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COVID-19 Vaccine: Post-Vaccination

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.

- The following resource Manitoba Provincial Anaphylaxis Protocol: Community Heath Immunization is available for utilization by all immunizers providing immunizations in the community.
- *(Refer to your region's or site's specific anaphylaxis training requirements, protocols and clinical practice guidelines.)*

An additional resource: Anaphylaxis and other Acute Reactions following Vaccination: Canadian Immunization Guide - Canada.ca

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COVID-19 Vaccine: Post-Vaccination

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

COVID-19 Vaccine: 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.

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.

Review the following resources:

- Report of Adverse Events Following Immunization (AEFI) (gov.mb.ca) (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

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Documentation and COVID-19 Immunization Records

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Documentation

Vaccine providers are required to complete an assessment to determine eligibility, obtain informed consent and document all pertinent immunization information as outlined on the COVID-19 vaccine consent form [Province of Manitoba | Resources for the Public (gov.mb.ca)]

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)*
- Vaccine name (product and manufacturer)
- Lot #
- Dose
- Site and route of administration
- Date of administration
- Name and professional designation of the person administering the product

Vaccine	Date Y/M/D	Lot #	Manufacturer	Route	Dose	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.

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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Accessing COVID-19 Immunization Records

Manitobans who have received a COVID-19 vaccine can access their COVID-19 immunization record online at: https://sharedhealthmb.ca/covid19/test-results

If clients do not have a health card or an email address, or cannot access their records online, they can complete the COVID-19 Immunization Record Request electronic form at https://forms.gov.mb.ca/immunization-update-request/ or can be advised to call 1-844-MAN-VACC (1-844-626-8222).

If further assistance is required, they can be directed to their local public health office.
Public Health Offices in Manitoba | Health | Province of Manitoba

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Thank you for completing the Manitoba Health COVID-19 Immunization training.

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