

# COVID-19 mRNA Vaccines

## Pfizer-BioNTech Vaccine and Moderna Vaccine

Public Health Factsheet

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Manitoba 

Immunization is one of the most important accomplishments in public health. Over the past 50 years, immunization has led to the elimination, containment and control of diseases that were once very common in Canada.<sup>1</sup> Vaccines help our immune system recognize and fight bacteria and viruses that cause diseases.

After getting vaccinated, continue to focus on the fundamentals including practicing physical distancing, wearing a mask, washing your hands, staying home if you're sick and practicing good cough and hand hygiene. For more information, visit [www.manitoba.ca/covid19/updates/prepareandprevent.html#fundamentals](http://www.manitoba.ca/covid19/updates/prepareandprevent.html#fundamentals).

### What are the COVID-19 mRNA vaccines and how do they work?

COVID-19 mRNA vaccines are used to prevent COVID-19. mRNA vaccines teach our cells how to make a protein that will trigger an immune response without using the live virus that causes COVID-19. Once triggered, our body then makes antibodies. Antibodies protect us from being infected if the real virus does enter our body in the future.

RNA stands for ribonucleic acid, which is a molecule that gives cells instructions for making proteins.

**Messenger RNA (mRNA) vaccines contain the genetic instructions** for making the SARS-CoV-2 spike protein. This protein is found on the surface of the virus that causes COVID-19.

**mRNA vaccines cannot change a person's DNA.** When a person is given the vaccine, their cells will read the genetic instructions like a recipe and produce the spike protein. After the protein piece is made, the cell breaks down the instructions and gets rid of them.

The cell then displays the protein piece on its surface. Our immune system recognizes that the protein doesn't belong there and begins to build an immune response by making antibodies. It takes about two weeks for the vaccine to start working. **You cannot get COVID-19 from the vaccine and it cannot offer protection against the flu or other viruses or bacteria.**

There are two mRNA COVID-19 vaccines available in Manitoba: the Pfizer-BioNTech vaccine and the Moderna vaccine. Clinical trial data suggest that the Pfizer vaccine and the Moderna vaccine have been demonstrated to be 95 per cent and 94 per cent effective after two doses, in the short-term in preventing people from getting lab-confirmed COVID-19.

**Vaccine effectiveness against COVID-19 variants of concern is evolving. Current emerging data suggests the vaccines offer protection against variants of concern although this varies by vaccine and variant.** For example, a recent study showed the Pfizer vaccine was 87.9 per cent effective after the second dose against the Delta variant of concern.

### Why were the mRNA vaccines developed?

At first, Health Canada had issued both the Pfizer and Moderna vaccines a market authorization with conditions to support early access to the vaccines. Health Canada can do this for promising health products when the potential benefits outweigh the potential risks. This authorization gave Canadians access to safe and effective vaccines more quickly than typical circumstances. On September 16, 2021, Health Canada approved the Pfizer and Moderna vaccines under the Food and Drug Regulations (i.e., they are no longer issued market authorizations with conditions for early access as sufficient data is now available to approve them under normal regulatory processes).

These two COVID-19 mRNA vaccines being offered in Manitoba are given by injection (needle) into a muscle of the upper arm. Details about the COVID-19 vaccines are subject to change as the evidence continues to evolve. Talk to your health care provider with any questions you may have about the COVID-19 mRNA vaccines.

<sup>1</sup> The Public Health Agency of Canada

## Is the vaccine safe?

Health Canada conducted a rigorous scientific review of the available medical evidence to assess the safety of the COVID-19 mRNA vaccines. Health Canada did not identify any major safety concerns, and continues to monitor post-marketing studies. More than one hundred million doses of mRNA COVID-19 vaccines have been administered worldwide.

The safety signal of blood clots after vaccination that has been seen rarely with the AstraZeneca vaccine has not been detected to date with the mRNA vaccines.

Rarely, myocarditis (inflammation of the heart muscle) and pericarditis (inflammation of the lining around the heart) has been reported following immunization with an mRNA vaccine. The majority of cases have responded well to treatment and recovered quickly.

## Who should get the COVID-19 mRNA vaccine?

Everyone in Manitoba 12 years of age and older<sup>1</sup> is recommended to receive the COVID-19 mRNA vaccine. Eligible adolescents are recommended to get the Pfizer vaccine.

**People who live with a medical condition (e.g., heart failure, liver disease, chronic kidney disease) can get the vaccine. If you are immunosuppressed because of disease or treatment, have an autoimmune condition, are pregnant and/or breastfeeding, refer to the appropriate factsheet for more information:** [manitoba.ca/covid19/vaccine/resources.html](https://manitoba.ca/covid19/vaccine/resources.html).

Talk to your immunizer or health care provider if you have any questions about your medical conditions or if you are uncertain if you are immunosuppressed or have an autoimmune condition. Your immunizer can give you more information based on what we know from clinical trial data and real-world studies.

## How many doses do I need?

All individuals without contraindications after the first dose of any type of vaccine, are recommended to receive a second dose of mRNA vaccine 28 days after the first dose.<sup>2</sup> At this time, only certain populations should get a third dose of an mRNA vaccine at least 28 days after the last dose of any COVID-19 vaccine (Pfizer, Moderna or AstraZeneca). Before getting a third dose, your immunizer or health care provider will talk to you about the known and unknown risks and benefits of receiving a third dose, including a discussion about:

- **safety.** At this time, limited data on real world use suggests that the side effects experienced after a third dose were the same as previous doses, but the risk of myocarditis or pericarditis following a third dose of mRNA vaccine is unknown.
- **effectiveness.** There is limited data available on how well a third dose works and for how long across all populations, however, studies are ongoing. There is growing evidence that a third dose may produce a better immune response in certain populations (e.g., immunocompromised people).
- **use in Canada.** The use of third doses has not been approved by Health Canada to this point. Some jurisdictions in Canada have made third dose recommendations for certain populations. Canada's National Advisory Committee on Immunization<sup>3</sup> recommends a third dose for certain populations (e.g., people who are moderately to severely immunocompromised).

Your immunizer or health care provider will advise you on when the best time is to receive a third dose, as well as which mRNA vaccine (Pfizer or Moderna) would be best for you, taking into consideration your immunization and medical history and personal circumstances.

The need for booster doses in the general population is under active review. For the most current third dose eligibility, please visit: [manitoba.ca/covid19/vaccine/eligibility-criteria.html](https://manitoba.ca/covid19/vaccine/eligibility-criteria.html).

<sup>1</sup> Children aged 11 years who are turning 12 in the fall of the 2021 school year, are also eligible to receive the COVID-19 vaccine.

<sup>2</sup> To develop a better immune response, individuals who received the AstraZeneca vaccine are recommended to receive the Pfizer or Moderna vaccine for subsequent dose(s) at least eight weeks after the last AstraZeneca dose.

<sup>3</sup> The National Advisory Committee on Immunization (NACI) is an independent committee of recognized experts that provides informed advice on the use of vaccines in Canada. After Health Canada approves a vaccine, NACI critically evaluates all available evidence to make recommendations about its optimal use.

## Who should NOT get the COVID-19 mRNA vaccine?

At present, infants and children younger than 12 years old who are not turning twelve in the fall of the 2021 school year, should not be given the Pfizer-BioNTech or Moderna vaccine. However, clinical trials studying the vaccine in infants and younger children are underway.

As a precautionary measure, individuals who experienced myocarditis or pericarditis following vaccination with the first dose of an mRNA COVID-19 vaccine, should defer getting the second dose until more information is available. People who have a history of myocarditis unrelated to mRNA COVID-19 vaccination should consult their clinical team prior to vaccination.

An allergy referral is required before vaccination, if you are allergic to an active substance or any ingredients of the Pfizer-BioNTech vaccine or Moderna vaccine, or if you have had a severe allergic reaction after the first dose of mRNA vaccine. An allergic reaction can be life-threatening. For information about any of the COVID-19 vaccine ingredients, please review the vaccine manufacturer's product monograph at [manitoba.ca/vaccine](https://www.manitoba.ca/vaccine) or speak with your health care provider.

Polyethylene glycol (PEG) is an ingredient in both the Pfizer-BioNTech vaccine and Moderna vaccine. It is a potential allergen known to cause possible allergic reactions, including serious reactions. Polyethylene glycol may be found in a multitude of products including bowel preparation products for colonoscopies, laxatives, cough syrup, cosmetics, contact lens care solutions, skin care products, and as an additive in some food and drinks. People with PEG allergies may also be allergic to polysorbate 80. If you are allergic to PEG or polysorbate 80, regardless of the severity of reaction, speak with your health care provider before immunization.

Tromethamine (trometamol or Tris) is an ingredient of the Moderna vaccine and is a potential allergen known to cause possible allergic reactions, including serious reactions. Tromethamine may be found in certain medications. If you are allergic to tromethamine, regardless of the severity of reaction, speak with your health provider before getting immunized with the Moderna vaccine.

**You must be observed for a minimum of 15 minutes after immunization.**

NACI recommends that COVID-19 vaccines should not be given at the same time as other (live or inactivated) vaccines. Wait 14 days after any other vaccine before receiving your COVID-19 vaccine. After receiving a dose of COVID-19 vaccine, wait 28 days before receiving any other vaccine. There may be individual circumstances when the minimum waiting period between vaccines can be shortened, such as due to exposure to a virus (e.g., hepatitis B), starting immunosuppressive therapy or treatment, pregnancy or as determined by a health care provider.

If you have a fever or any symptoms that could be due to COVID-19, you should not be vaccinated at that time. If you were infected with COVID-19, you should get immunized after your symptoms are gone and your period of isolation is over. Talk with your health care provider if you have any new or lingering symptoms of COVID-19. Your health care provider will advise you when you are able to receive the vaccine.

## What are some possible side effects of the COVID-19 vaccine?

In general, the side effects observed during the clinical trials were similar to other vaccines. The side effects were generally mild or moderate, and went away a few days after vaccination. They included things like:

- pain, redness and swelling at the site of injection
- body chills
- feeling tired and feverish
- headache
- muscle and joint pain
- nausea and vomiting

Myocarditis and pericarditis have been rarely reported following vaccination with an mRNA COVID-19 vaccine. These rare cases have been reported mostly in young males less than 30 years of age, more often after the second dose of vaccine and usually within a week following vaccination. The risk of myocarditis and/or pericarditis after a third dose of an mRNA COVID-19 vaccine is unknown at this time. Signs and symptoms can include shortness of breath, chest pain, or the feeling of a rapid or abnormal heart rhythm. If you experience any of these symptoms, go to the nearest emergency department or health centre.

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Over-the-counter medicines like acetaminophen (e.g., Tylenol®) or ibuprofen (e.g., Advil®) may be considered to help manage these adverse events (like pain or fever, respectively), if they occur **after vaccination**.

These are common side effects of the vaccines and are not a risk to your health.

For a full list of possible side effects, please review the vaccine manufacturer's product monograph at: [www.manitoba.ca/vaccine](http://www.manitoba.ca/vaccine) or speak with your health care provider.

As with all vaccines, more serious side effects such as allergic reactions are possible. However, these are rare.

It is important to stay in the immunization clinic for 15 minutes after getting any vaccine in the unlikely event of a severe allergic reaction. You may need to stay in the clinic for 30 minutes if you have had a serious allergic reaction to a vaccine in the past. This can include hives, difficulty breathing, or swelling of the throat, tongue or lips. This can happen up to an hour after you get vaccinated. If this happens after you leave the immunization clinic, call 911 or go to the nearest emergency department or health centre for immediate attention.

**Report any serious or unexpected adverse reactions to a health care provider, or call Health Links-Info Santé at 204-788-8200 or 1-888-315-9257 (toll free in Manitoba).**

## Preparing for your vaccination

Be sure to follow the signs and instructions at the immunization clinic (e.g., stay two metres away from other people), and remember to stay home if you are sick.

- Wear a short-sleeve shirt.
- Be sure you have eaten regularly that day.
- Bring and wear your mask.
- Bring any personal identification required by the immunization clinic, such as your Manitoba Health Family Registration Card.
- Bring your completed and signed COVID-19 Vaccine Consent Form, available at: [ProtectMB.ca/Resources](http://ProtectMB.ca/Resources).

## Your record of protection

All immunizations, including the COVID-19 vaccine, are recorded on your immunization record in Manitoba's immunization registry. This registry:

- allows health care providers to find out which immunizations you (or the people you care for) have received or need to have
- may be used to produce immunization records or notify you or your health care provider if a particular immunization has been missed
- allows Manitoba Health and Seniors Care as well as public health officials to monitor how well vaccines work in preventing disease

The Personal Health Information Act protects your information and the information for any people you provide care for. You can choose to have this personal health information hidden from health care providers. For additional information, please contact your local public health office or speak with a health care provider.

An official Manitoba Government COVID-19 Immunization Record can be obtained online at: [manitoba.ca/covid19/vaccine/immunizationrecord/](http://manitoba.ca/covid19/vaccine/immunizationrecord/). You can request updates to your immunization record by completing an online form available at: [forms.gov.mb.ca/covid-immunization-record-request/](http://forms.gov.mb.ca/covid-immunization-record-request/).

## Where can I find more information?

For more information about COVID-19 or the COVID-19 vaccines, talk to your health care provider. You can also call Health Links – Info Santé in Winnipeg at 204-788-8200 or 1-888-315-9257 (toll free in Manitoba).

Or visit:

**Province of Manitoba:** [manitoba.ca/covid19/index.html](http://manitoba.ca/covid19/index.html)

**Government of Canada:** [canada.ca/en/public-health/services/diseases/coronavirus-disease-covid-19.html](http://canada.ca/en/public-health/services/diseases/coronavirus-disease-covid-19.html)

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