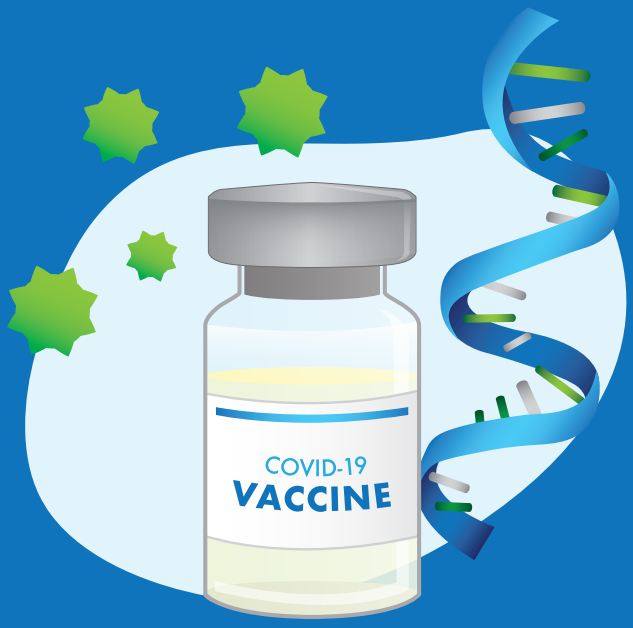
WELLNESS HUB




# COVID-19 Vaccine Information Booklet

Version #18 September 23, 2022

ST. MICHAEL'S
UNITY HEALTH TORONTO

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# What you need to know about the COVID-19 vaccines

## What is the COVID-19 vaccine?

- COVID-19 vaccines provide protection against COVID-19 infection and reduce the risk of severe illness and death.[1]
- While you may still get infected with the COVID-19 virus (also known as SARS-CoV-2) after getting vaccinated, staying up to date with your vaccines greatly reduces your risk of becoming seriously ill from COVID-19.[1]
- Immunization against COVID-19 also reduces your risk of developing long COVID (or post COVID-19 condition), which is a condition characterized by long-lasting symptoms including fatigue, shortness of breath, and brain fog (or cognitive dysfunction) 3 months after infection with COVID-19.[2,3]
- Health Canada has approved the following six COVID-19 vaccines for use: **Pfizer-BioNTech Comirnaty, Moderna Spikevax, AstraZeneca Vaxzevria, Janssen Jcovden (Johnson & Johnson), Novavax Nuvaxovid and Medicago Covifenz COVID-19 vaccines.**[4]
- Health Canada recently approved of the **Moderna Spikevax Bivalent COVID-19 vaccine** as a booster dose in individuals aged 18 years and older. As of September 12, 2022, the bivalent booster dose will be available for the most vulnerable populations. Beginning September 26, 2022, the bivalent booster dose will be available for all individuals 18 years of age and older.
- There are other vaccines currently under review that may be available in Canada in the future, pending approval.

## What is a "Primary Series?"

- A primary series is the first one or two doses of a COVID-19 vaccine, depending on the type of vaccine you get.[1] A primary series consists of two doses for any combination of the following vaccines: Pfizer-BioNTech Comirnaty, Moderna Spikevax, Medicago Covifenz, Novavax Nuvaxovid and Astrazeneca Vaxzevria.[1] A primary series consists of a single dose for the Janssen Jcovden (Johnson & Johnson) vaccine.[1]
- A primary series of three doses is recommended for moderately to severely immunocompromised individuals.[6]
- Eligible Canadians aged six months or older are recommended to be vaccinated with an approved COVID-19 vaccine or vaccines (if mixed).[6,7]
- For more information on doses, and recommendations, please go to page 15 of this booklet.

## What is a "Booster Dose?"

- A booster shot is an additional dose of a COVID-19 vaccine that is given after someone completes a primary series.[6]
- Booster shots are given to restore protection against a disease that may have decreased over time to sufficient levels.[6]
- All eligible Canadians aged 5+ are recommended to receive a first booster dose.[6,7]
- All eligible Canadians aged 18+ are recommended to receive a second booster dose.[6,7]
- For more information on why you should stay up to date on your COVID-19 vaccines and get your booster shot(s), please see Appendix A [Wellness Hub 1-Pager on First and Second Booster Shots (Third and Fourth Doses) for COVID-19].

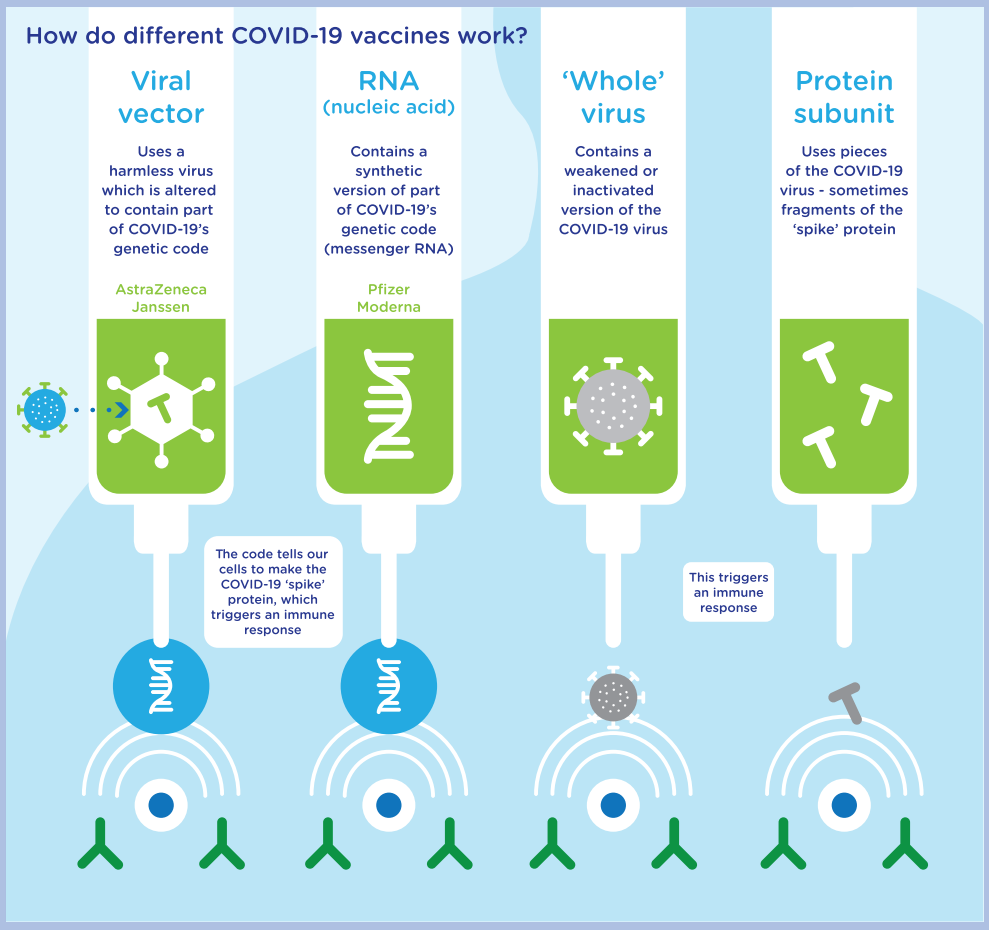
## Where can I find reliable information on COVID-19 vaccines?

- For the most up-to-date information on the safety and effectiveness of COVID-19 vaccines, we recommend you visit the **Health Canada** website here: https://www.canada.ca/en/public-health/services/diseases/coronavirus-disease-covid-19/vaccines.html.
- For information on how to get a COVID-19 vaccine in Ontario (e.g., booking appointments), please visit the **Government of Ontario** website here: https://covid-19.ontario.ca/book-vaccine/
- Additional sources of reliable information on COVID-19:
  - **Public Health Ontario:** https://www.publichealthontario.ca/en/diseases-and-conditions/infectious-diseases/respiratory-diseases/novel-coronavirus/vaccines.
  - **National Advisory Committee on Immunization (NACI):** https://www.canada.ca/en/public-health/services/immunization/national-advisory-committee-on-immunization-naci.html.
  - **World Health Organization:** https://www.who.int/emergencies/diseases/novel-coronavirus-2019

For community-specific or faith-based information on COVID-19, the following sources are available:

- Canadian Muslim COVID-19 Task Force (CMTF): https://www.cmcovidtf.com/
- Toronto Jewish Community COVID-19 Task Force: https://kolhacovid.com/
- Assembly of First Nations COVID-19 National Task Force: https://www.afn.ca/covid-19-task-force/
- South Asian COVID Task Force: https://www.southasiancovidtf.ca/
- Black Health Alliance COVID-19: https://blackhealthalliance.ca/covid-19/
- Black Scientists' Task Force on Vaccine Equity: https://www.torontoblackcovid.com/
- Health Care Access Research and Developmental Disabilities Website: https://www.porticonetwork.ca/web/hcardd

## What are the different types of COVID-19 vaccines and how do they work?




(Image source: Wellcome Trust)[8]

- The Pfizer-BioNTech Comirnaty, Moderna Spikevax, and Moderna Spikevax Bivalent COVID-19 vaccines are **messenger ribonucleic acid (mRNA) vaccines.**[9,10]
  - They carry the genetic code or messenger ribonucleic acid (mRNA) of the spike proteins found on the outer layer of the SARS-CoV-2 virus (the virus that causes COVID-19) into the human cells.
  - Once inside the human cells, the COVID-19 mRNA is used like a recipe by our cells to make a harmless spike protein, which is unique to the COVID-19 virus.[9,10]
  - After the spike proteins have been created, our body's immune system will identify them as dangerous and begin to create defences against them, also known as an immune response.[9,10]
  - Antibodies are created to defend against the spike protein and therefore the SARS-CoV-2 (COVID-19) virus.[9,10] Our antibodies will then be on stand-by in the event of a future infection with the COVID-19 virus, and help our bodies fight off the virus and protect us from getting severely ill from COVID-19.[9,10]
  - For more information on the **Pfizer-BioNTech Comirnaty COVID-19 vaccine**, please visit this website: https://www.canada.ca/en/health-canada/services/drugs-health-products/covid19-industry/drugs-vaccines-treatments/vaccines/pfizer-biontech.html
  - For more information on the Moderna Spikevax and **Moderna Spikevax Bivalent COVID-19 vaccines**, please visit this website: https://www.canada.ca/en/health-canada/services/drugs-health-products/covid19-industry/drugs-vaccines-treatments/vaccines/moderna.html

- The AstraZeneca Vaxzevria and Janssen Jcovden (Johnson & Johnson) COVID-19 vaccines are **viral vector-based/ recombinant vaccines**[11,12]:
  - They work in a similar way to mRNA vaccines; except they use a type of harmless virus called adenovirus as a delivery system to carry the SARS-CoV-2 viral DNA into human cells.[11,12]
  - A small portion of the COVID-19 virus's DNA is inserted into the adenovirus, which is used as a vehicle to bring the COVID-19 DNA into our cells.[11,12]
  - The carrier adenovirus is modified so that it can enter the human cell, but it CANNOT cause illness because it is not the virus that causes COVID-19.[12]
  - Adenovirus has been used as the delivery system for other vector-based vaccines, such as the Ebola vaccine, for decades.[12]
  - Once the viral DNA and adenovirus are inside the human cell, the cell makes the spike protein found on the outside of the SARS-CoV-2 virus, which is harmless and only lasts for a short amount of time.[12]
  - While the spike protein is present, our body creates defences against the COVID-19 virus (called antibodies and lymphocytes) to protect us in the future, if we ever encounter the real virus.[12]
  - For more information on the **AstraZeneca Vaxzevria COVID-19 vaccine**, please visit this website: https://www.canada.ca/en/health-canada/services/drugs-health-products/covid19-industry/drugs-vaccines-treatments/vaccines/astrazeneca.html
  - For more information on the **Janssen Jcovden (Johnson & Johnson) COVID-19 vaccine**, please visit this website: https://www.canada.ca/en/health-canada/services/drugs-health-products/covid19-industry/drugs-vaccines-treatments/vaccines/janssen.html

- The Novavax Nuvaxovid COVID-19 vaccine is a **protein subunit vaccine**[13]:
  - Protein subunit vaccines contain pieces of the virus, which are purified and harmless and can trigger immunity against the virus.[14]
  - When a piece of the virus (in this case the spike protein on the COVID-19 virus) enters our bodies through the vaccine, our cells do not recognize them and consequently begin to create defences against them (called antibodies and lymphocytes).[14]
  - In the future, if the virus is encountered, our body is equipped with a layer of protection ready to fight off the virus.[14]
  - Protein subunit vaccines have been used for routine vaccination, including vaccines for Hepatitis B.[14]
  - For more information on the **Novavax Nuvaxovid COVID-19 vaccine**, please visit this website: https://www.canada.ca/en/health-canada/services/drugs-health-products/covid19-industry/drugs-vaccines-treatments/vaccines/novavax.html

- The Medicago Covifenz COVID-19 vaccine is a **plant-based virus-like particle (VLP) vaccine**[15,16]:
  - Using plant-based technology, a portion of the viral DNA that codes for the spike protein on the COVID-19 virus is injected into plant cells.[16]
  - Using this DNA, the plant cells then use plant-based materials to make a VLP, which is non-infectious and is used as the active ingredient in this vaccine.[16]
  - When the VLP is injected into the body, our cells respond to the VLP the same way they would if they encountered the real COVID-19 virus, which creates a defence against the virus in the same way that protein subunit vaccines do.[16]
  - For more information on the Medicago Covifenz COVID-19 vaccine, please visit this website: https://www.canada.ca/en/health-canada/services/drugs-health-products/covid19-industry/drugs-vaccines-treatments/vaccines/medicago.html

All types of approved vaccines work by **using the cell's existing defence mechanisms to prepare the body in the event of future exposure or infection to COVID-19**.[17]

## What is the new bivalent COVID-19 vaccine?

- Health Canada has approved a new bivalent COVID-19 booster shot which offers more targeted protection against the Omicron variant.[18,19]
- The new bivalent COVID-19 vaccine is designed to provide protection against the original strain of the virus as well as the highly contagious Omicron variant and its subvariants.[19]
- It is hoped that bivalent vaccines can help prevent a possible surge in COVID-19 cases that could overwhelm the health-care system as winter approaches and people spend more time indoors.[20]
- If you are between the ages of 18 and 59, you should speak with your healthcare provider about whether getting a second booster dose is right for you.
- For more information on the new bivalent booster shot, please see Appendix A (Wellness Hub 1-Pager on Third and Fourth Doses).

## What do I need to know about the variants?

- All viruses develop mutations (changes) over time:
  - When a mutation or specific group of mutations occur and make the virus behave differently than the original virus, this version of the virus is called a variant.[21]
  - **REMEMBER:** A virus's job is to infect and spread, so it will change or mutate to try and become more powerful and better at infecting and spreading to more people.[22]
  - As with any virus, we expect variants of COVID-19 to emerge.
- The best defense against COVID-19 variants and future emerging variants are to[22]:
  - Get vaccinated if you are eligible
  - Follow public health directives
  - Stay home when you get sick or are exposed to someone with COVID-19
  - Keep up on hand hygiene

### What is a variant of concern (VOC)?

- VOCs are variants that[21]:
  - Spread more easily than other variants.
  - Can lead to more serious cases of COVID-19.
  - Are more resistant or better able to evade existing tools or treatments (like vaccines) against the virus.
- In Ontario, different variants have dominated the majority of infections at different times.[23]

For more information on COVID-19 variants in Canada, please visit the Health Canada website here: https://health-infobase.canada.ca/covid-19/#VOC

### How effective are the existing COVID-19 Vaccines against variants?

- While the existing vaccines may be less effective at preventing symptomatic infection from COVID-19 variants, they are **still effective at preventing serious illness, hospitalization, and death due to infection from the virus and its variants**.[1,24]
  - Moreover, studies show that getting vaccinated and staying up to date with vaccines reduces your risk of developing post COVID-19 condition or long COVID.[2,3]
- Getting vaccinated and staying up to date with your COVID-19 vaccines enhances your protection against variants.
- According to the World Health Organization, updating the composition of COVID-19 vaccines may be required to offer improved protection against emerging variants.[25]

  - For example, a new vaccine called the Moderna Spikevax Bivalent COVID-19 vaccine was recently approved by Health Canada to target the Omicron variant.[26]

Despite this, **you should not delay getting vaccinated or receiving a booster dose** against COVID-19 due to concerns of the existing vaccines being ineffective against variants.

## Research and Trials on Vaccine Effectiveness against Variants:

- When comparing the effectiveness of **mRNA vaccines (Pfizer BioNTech Comirnaty & Moderna Spikevax)** against variants of COVID-19, data show that these vaccines provide the most protection against the original strain of the COVID-19 virus, followed by the Alpha and Delta variants, and then the Omicron variant[27,28]. However, **these vaccines were still found to provide significant protection against serious illness from the variants.**[27,28]
- Compared to other variants, vaccine protection from a primary series only (one or two doses) was much lower for Omicron (B.1.1.529), and it was determined that **additional shots or boosters were needed to achieve similar levels of protection against Omicron.**[29,30]
  - For example, studies of Pfizer-BioNTech and Moderna Spikevax vaccines revealed that three doses of an mRNA vaccine provided similar levels of protection against the Omicron variant as two doses of an MRNA vaccine did against the Alpha variant.[30]

**QUICK FACT:** COVID-19 and its variants do not have to be severe to take a toll. Even mild symptoms have an impact on communities, business, economies, and health systems.[22]

As surveillance of COVID-19 variants and vaccine effectiveness continues, scientists will continue to publish up-to-date information on vaccine protection against variants.

- If you want the most updated information about variants, we recommend you visit the following websites:
- Public Health Ontario website: https://www.publichealthontario.ca/en/diseases-and-conditions/infectious-diseases/respiratory-diseases/novel-coronavirus/variants
- Health Canada website: https://health-infobase.canada.ca/covid-19/#VOC

## Which vaccine should I get?

- **You are encouraged to receive the vaccine that is available and offered to you.**
- Which vaccine you receive will depend on several factors including[31]:
  - Vaccine supply in your area
  - How easy it is to store each vaccine
  - Your age
  - Whether or not you can receive an mRNA vaccine
  - Your medical history.
- If you are not sure which vaccine, you or your family member should get, please speak with your health care provider.

## How safe are the vaccines?

- The COVID-19 vaccines are safe, and it is very rare to experience serious side effects.[1,32,33]
  - As of September 2, 2022, only six out of every 10,000 vaccinated individuals reported one or more side effects from vaccination. And of those individuals, only 0.012% of doses administered were associated with serious adverse events, such as anaphylaxis (severe allergic reaction).[33]
- Only vaccines that meet safety, effectiveness and quality standards are approved for use by Health Canada.[32,33]
- The benefits of getting vaccinated continue to outweigh the risks of getting vaccinated.[32,33]

## How were the vaccines studied?

- Scientists studied all of the COVID-19 vaccines approved by Health Canada in research studies known as "randomized controlled trials (RCTs).[34]
  - RCTs are considered the "gold standard" in health research and produce the best quality evidence on the effectiveness of vaccines.[35]
  - An RCT is a study design that randomly assigns research participants into an experimental group that receives the vaccine or a control group that receives a placebo.[35] The power of RCTs lies in the process of randomization, which is like flipping a coin to see who gets to receive the vaccine or a placebo which is a harmless vaccine medicine or procedure used as a control in testing new vaccines (both vaccine and placebo are safe for use in people).
  - Randomization prevents potential bias as the people developing/testing the vaccine do not decide who will receive the vaccine or the placebo – ideally, this is done by computer generated process.[35]
  - Participants in the study are then followed carefully for the outcome of interest (in this case, COVID-19 infection).[35]
  - The figure on the right shows a visual representation of an RCT (image adapted from McClay et al, 2013).[36]

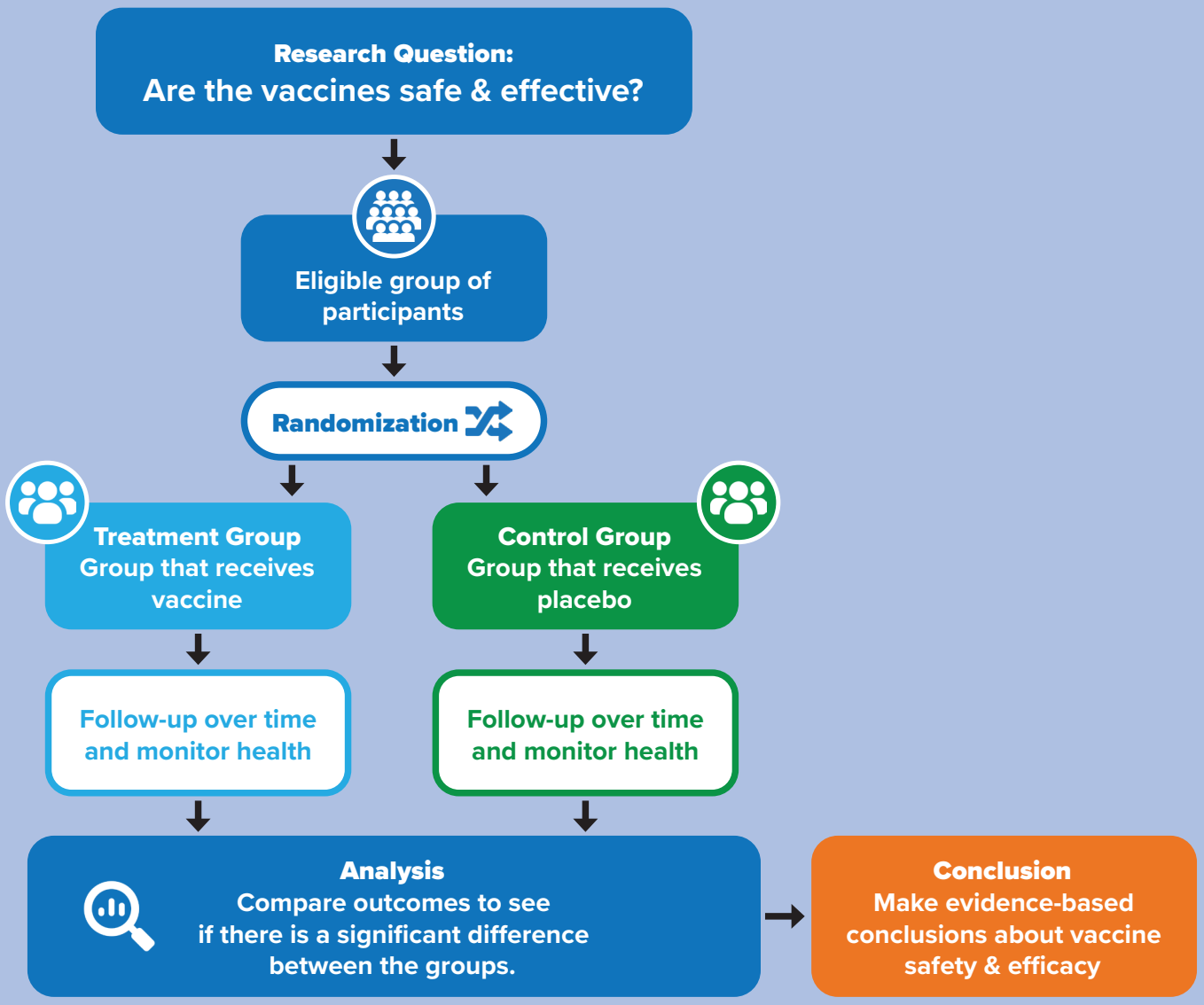



Figure 1: Diagram of the RCT Process for Vaccines

- Typical RCT studies of drugs and other interventions require 6,000 to 8,000 people to participate.[35]
- Here is a summary of the **number of people** involved **in RCT studies** for the approved COVID-19 vaccines in Canada:
  - Pfizer-BioNTech Comirnaty — 44,000 people aged 12+.[37]
  - Moderna Spikevax — over 30,000 people aged 18+, over 3,700 people aged 12-17, and over 4,000 children aged 6-11.[38]
  - AstraZeneca Vaxzevria — more than 26,000 people aged 18+ years.[39]
  - Janssen Jcovden (Johnson & Johnson) — more than 39,000 people aged 18+ years.[40]
  - Medicago Covifenz — more than 750 participants aged 18+ (Canada and US only).[41]
  - Novovax Nuvaxovid—more than 17,000 participants aged 18+.[42]

## What are the possible side effects after receiving the vaccine?

- Side effects are expected to occur with many vaccines, including the flu vaccine.
- **Common side effects** for the COVID-19 vaccines include[32,33]:
  - Pain, redness, or swelling at the injection site
  - Chills
  - Fatigue (feeling tired)
  - Joint pain
  - Headache
  - Mild Fever
  - Muscle aches
- Side effects after vaccination typically last a few hours to a few days. Whether you experience side effects or not, the vaccine will still be effective at protecting you against COVID-19.[32,33]
- As of September 2022, over 88 million (88,000,000) doses of COVID-19 vaccines have been administered in Canada, and only 0.012% of all doses administered had reported side effects that were considered serious.[33]
- In comparison, there were over 1.2 million (estimated 1,209,041) cases of COVID-19 in Ontario, as of June 2022. Around 1% (1.04%) of cases or approximately 1 in every 100 COVID-19 infections, caused the death of a person in Ontario.[43]
- For more information on side effects or adverse events, please see the following links:
  - https://health-infobase.canada.ca/covid-19/vaccine-safety/#a4
  - https://www.canada.ca/en/public-health/services/diseases/coronavirus-disease-covid-19/vaccines/safety-side-effects.html#a2

## I'm experiencing side effects days after receiving the vaccine. What should I do?

- Despite rigorous testing and approval processes in Canada, there is still a small chance that vaccines can cause side effects/adverse reactions, like any other medication or supplement[32,33]
- You can take over-the-counter medications to help manage vaccine side effects like pain or fever.[32,33]
- Delayed local reactions (e.g., pain, swelling, tenderness) near the vaccine injection site may occur more than 8 days after the date of vaccination.[44] These reactions are usually mild and will disappear on their own.
- If you experience serious delayed local reactions, resembling cellulitis (i.e., warm, red and swollen arm), have questions about managing symptoms, or are concerned about symptoms after vaccination, please speak with your health care provider right away for support.

# Should I get the COVID-19 vaccine?

**Answers to COVID-19 vaccine questions for those with specific concerns.**

## Can I get the vaccine if I have had serious allergic reactions before?

- Allergic reactions are rare but may happen following administration of a COVID-19 vaccine.[45] There are ways to reduce the risk of severe allergic reaction, based on your personal medical history[45]:
  - If you have an allergy to any of the vaccine ingredients, such as PEG, polysorbate or a history of allergic reaction to previous vaccines, an allergist should be consulted to determine a safe way to protect you against COVID-19.
  - Those who experience an allergic reaction to their first dose of an mRNA COVID-19 vaccine are still able to receive future doses of that vaccine by consulting with an allergist, receiving their next dose in a controlled, supervised setting, and remaining under observation for 30 minutes following their shot
  - Those who experience food allergies, environmental allergies (i.e., pollen, molds, dust mites, etc.), or reactions to bee stings can all receive the COVID-19 vaccine without any additional precautions
  - Those with asthma are advised to stay up to date with their COVID-19 vaccines, and to continue taking their usual medications, unless advised otherwise by their healthcare provider
  - An allergist will be able to review your personal medical history and determine which vaccine is right for you, and what your dosing schedule should look like.
- All vaccine clinics have trained staff and volunteers who will help you after you receive the vaccine. After you receive the vaccine, you will be asked to stay for 15 minutes to monitor for potential allergy. If you experience an allergic reaction, they will be able to help and assist you.
- An allergic reaction to the vaccine involves the following symptoms: difficulty breathing, swelling of the face, tongue or throat, and hives or bumps on the skin that may be itchy.[32]
- If you experience or witness any of these symptoms, seek assistance right away either at the vaccination clinic or by calling emergency services.[32]

## Can I get the vaccine if I am pregnant or breastfeeding?

- Yes. Individuals who are pregnant (in any trimester) and/or breastfeeding are recommended to get fully vaccinated (including boosters) against COVID-19.[46, 47]
- The risks associated with becoming infected with COVID-19 while pregnant are higher, and include increased risk for [48-50]:
  - Severe COVID-19 (including cases requiring hospital admission, critical care, or treatment with a ventilator)
  - High blood pressure
  - Early labour
  - Stillbirth
  - Possible fetal growth problems
  - Need for the baby to receive treatment in the neonatal intensive care unit (NICU)
- All approved COVID-19 vaccines in Canada can be used while pregnant/ breastfeeding. However, there is a **preference for an mRNA vaccine** to be administered **during pregnancy**, as there is more evidence available of its safety & efficacy in this population.[46]
- Emerging evidence suggests that pregnant/ lactating individuals who get vaccinated may pass on some protection/ antibodies to their fetus or infant.[49,50]
- **If you are trying to become pregnant now or in the future**[47]:
  - You may receive a COVID-19 vaccine when one is available to you.
  - Getting vaccinated prior to pregnancy

is important to ensure that you and your pregnancy are protected. You should discuss your options with your healthcare provider.

## Can children get the COVID-19 vaccine?

- Yes. Health Canada has approved the use of COVID-19 vaccines for children ages 6 months and up.[24]
- Health Canada continues to update recommendations on vaccine use for children and youth based on the latest data. Please refer to Health Canada website for the latest recommendations: https://www.canada.ca/en/public-health/services/vaccination-children/covid-19.html#a1
- Please consult your provincial ministry of health websites for province-specific guidelines.
- For summarized COVID-19 vaccine recommendations for children and youth please see the following 1-pagers created by the Wellness Hub for more information:
  - Appendix B [Wellness Hub 1-Pager on COVID-19 Vaccines for Youth (ages 12 to 17)]
  - Appendix C [Wellness Hub 1-Pager on COVID-19 Vaccines for Children (ages five to 11)]

## Can I get the vaccine if I have a weakened immune system?

- Individuals who are immunocompromised have a higher risk for prolonged or serious outcomes/ complications from SARS-CoV-2 infection, therefore vaccination is recommended, but they may require a different vaccine schedule compared to others.[51]
- Individuals who are immunocompromised may not achieve the same immune response from COVID-19 vaccines as someone with a healthy immune system, however, the vaccines are still safe to use and may be more beneficial to this group based on the increased risk for severe outcomes from COVID-19 in those who are immunocompromised.[51,52]
- mRNA vaccines (i.e., Moderna and Pfizer) are preferred and have been authorized for a three-dose primary series in individuals who are immunocompromised.[51]
- For individuals unable or unwilling to receive an mRNA vaccine, a protein subunit vaccine (i.e., Novavax Nuvaxovid) or a virus-like particle vaccine (Medicago Covifenz) are approved for use but do not have the same amount of data on their effectiveness as other vaccines.[51]
- In cases where all other vaccines are contraindicated, a viral vector COVID-19 vaccine may be offered (such as Astrazeneca or Johnson & Johnson).[51]

## Should I get the COVID-19 vaccine if I have an underlying health condition(s)?

- Yes. The COVID-19 vaccine is currently recommended for all individuals who are 6 months of age and older, including those with underlying or chronic health conditions.[52]
- Chronic conditions increase a person's risk of developing serious COVID-19 infection, making protection against the virus through vaccines more important[71]
- It is also safe for you to get a COVID-19 vaccine if you have one or more of the following health conditions[52-54]:
  - Spleen disorders (including asplenia or hyposplenia)
  - Rheumatologic diseases, including rheumatoid arthritis, juvenile arthritis, systemic lupus erythematosus (SLE), psoriatic arthritis, vasculitis or spondylarthritis
  - Inflammatory bowel disease, Crohn's disease and ulcerative colitis
  - Allergies (to allergens other than those ingredients contained in the COVID-19 vaccines. See page 12 for more information on allergies)
  - Cancer
  - Individuals with cochlear implants

- Diabetes (type I or II) and other endocrine disorders (including Grave's disease, Hashimoto's, thyroiditis, etc.)
- Cardiac conditions (e.g., coronary artery disease/myocardial infarction, heart failure, cardiomyopathy)
- COPD (i.e., emphysema and chronic bronchitis), pulmonary hypertension
- Previous medical surgeries (e.g., coronary artery bypass surgery)
- Kidney disease & patients on dialysis
- HIV (experts consider COVID-19 vaccines to be safe & effective for those with HIV who are taking ART and have an undetectable viral load[68])
- For the latest evidence and access to COVID-19 resources for people living with HIV in Canada, please visit the CATIE website: https://www.catie.ca/hiv-covid
- Clotting disorders (suggestion is to apply pressure to the vaccine injection site for 3 – 5 minutes after injection to reduce bruising)
- Neuroimmunological disorders (e.g., multiple sclerosis)
- Fibromyalgia
- Sickle-cell anemia
- Liver disease (vaccination should be done early in the course of disease for optimal response, otherwise higher vaccine doses / re-immunization may be required)
- Mast cell disorders (a pre-treatment protocol is recommended before the vaccine is given and it is recommended that you talk to your hematologist or immunologist for further information)

- **If you have an inherited bleeding disorder, you may still receive COVID-19 vaccine[55]:**
  - Please let the person administering the vaccine know that you have a bleeding disorder prior to the injection.
  - They may use a smaller gauge needle, if possible, and ask you to apply 10 minutes of pressure at the injection site after the injection.
  - Please speak with your health care provider for guidance tailored to your condition(s).

Getting the COVID-19 vaccine is a personal choice. If you are concerned about taking the vaccine due to underlying health conditions or medications that you are currently taking, speak with your healthcare provider or contact the following services to have your questions regarding the COVID-19 vaccine answered.

**Health Connect Ontario**

- Call if you develop symptoms
- Telephone: 811

**Toronto Public Health Hotline**

- Call if you have any questions about COVID-19. Translation is available in multiple languages.
- Telephone: 416-338-7600
- TTY: 416-392-0659
- Email: PublicHealth@toronto.ca

**Health Canada COVID-19 Information Line:**

- Call if you have any questions about COVID-19. Translation is available in 200+ languages
- 1-833-784-4397
- TTY: 1-800-465-7735

**Sick Kids COVID-19 Vaccine Consult Service**

- A free, by-appointment phone service where eligible individuals can have a safe, judgement-free conversation and receive expert guidance on COVID-19 vaccines. Eligible individuals include youth under the age of 18, parents/ caregivers/ legal guardians of children or youth, those who are pregnant or trying to conceive, those who are breastfeeding, and family members of those who are pregnant or breastfeeding
- Online booking system: https://www.sickkids.ca/en/care-services/support-services/covid-19-vaccine-consult/#book

# Getting the vaccine

## What are the recommendations for Canadians on when and how to get vaccinated against COVID-19?

- All Canadians aged 6 months and older are eligible to receive the COVID-19 vaccine free of cost.[31]
- When you attend your vaccination appointment, you will need to provide your health (OHIP) card or a government-issued photo ID (provincial health card, Status Card, driver's license, passport, birth certificate, foreign passport, etc.).[31] You can still get vaccinated if you do not have an OHIP card or if your OHIP card is expired.
- You can check your eligibility and book vaccination appointments through Ontario's online vaccine booking system: https://www.ontario.ca/page/covid-19-vaccines#who-can-get-vaccinated

### COVID-19 Vaccine Recommendations Based on Age (As of September 22, 2022)

The following vaccine recommendations are informed by recommendations from the Public Health Agency of Canada (PHAC), the National Advisory Committee on Immunization's (NACI) Canadian Immunization Guide, and Guidance from the Ontario Ministry of Health. [56-58]

See the table on page 17 for a summary on booster recommendations.

### ADULTS (AGED 18+)

### PRIMARY SERIES

- Adults aged 18+ are recommended to get **an mRNA vaccine** (i.e., Pfizer-BioNTech Comirnaty or Moderna Spikevax), unless contraindicated, due to mRNA vaccines' higher efficacy and to reduce the rare risk of adverse events associated with viral vector vaccines. [18,58]
- Time between doses: at least 8 weeks.[18,58]
- For individuals **aged 18-29 years, Pfizer-BioNTech is preferred to Moderna Spikevax** for starting or continuing a primary series, because the rare risk of myocarditis/pericarditis is lower with Pfizer-BioNTech than with Moderna Spikevax in this age group.[18,58]
  - Note: although there is a preference for Pfizer-BioNTech over Moderna Spikevax, that does not mean that Moderna Spikevax is contraindicated (or not allowed) for this age group. If you have concerns about which vaccine to get, please discuss with your healthcare provider.
- For those aged 30+ years, either mRNA vaccine (Pfizer BioNtech or Moderna Spikevax) should be used to start or continue a primary series.[18,58]
- If unable or unwilling to receive an mRNA vaccine, Novavax Nuvaxovid or Medicago Covifenz may be offered.[18,58]
- If all other authorized COVID-19 vaccines are contraindicated, a viral vector vaccine (i.e., AstraZeneca or Johnson & Johnson) may be offered.[58]
- Individuals in this age group who are immunocompromised have unique recommendations for a primary series and can learn more here: https://www.canada.ca/en/public-health/services/publications/healthy-living/canadian-immunization-guide-part-4-active-vaccines/page-26-covid-19-vaccine.html#a6.4

### FIRST BOOSTER DOSE (THIRD DOSE)

- At least **6 months after completing a primary series**, a first booster dose of an authorized COVID-19 vaccine should be offered.[57,58]
- Unless contraindicated, **mRNA vaccines are preferred** as a first booster, regardless of which vaccine was used for the primary series.[18,58]
- **Aged 18-29 years: Pfizer-BioNTech may be preferred over Moderna Spikevax** due to the lower relative risk of rare adverse effects (e.g., myocarditis/pericarditis).[18,58]
- **Aged 30+ years:** Either Pfizer-BioNTech or Moderna Spikevax may be used.[18,58]
- **For those with contraindications or who are**

**not willing to receive an mRNA first booster:** Novavax Nuvaxovid may be offered instead. However, it should be noted that this vaccine is not currently authorized by Health Canada as a booster, although clinical trials have been done.[58] Janssen may be offered when all other vaccines are contraindicated.[58]

  - Medicago Covifenz is not currently authorized or recommended for use as a booster vaccine.[58]

### SECOND BOOSTER DOSE (FOURTH DOSE)

- **Those aged 18+ years** are eligible to receive a second booster dose (fourth dose) at least 6 months since their last dose, but no sooner than 3 months since their last dose.[18, 58]
- **Individuals who are at an increased risk for severe outcomes from COVID-19 are recommended to get a second booster dose as soon as they become eligible, including**[18]:
  - Individuals aged 60+ years
  - First Nation, Inuit and Metis individuals, and their non-indigenous household members who are aged 18+ years
  - Residents of long-terms care homes, retirement homes, or elder care lodges, and older adults living in other congregate settings that provide assisted-living and health services
  - Moderately-to-severely immunocompromised individuals (for whom this may be a 5th dose depending on how their prior doses were administered)
- **For those Aged 70+ years or living in long-term care/ congregate settings**, Moderna (50mcg) or Pfizer (30mcg) may be considered.[18]
  - Moderna (100mcg) may be considered based on clinical discretion.[18]
  - For those unable or unwilling to get an mRNA booster: Novavax Nuvaxovid may be offered.[18]

## ADOLESCENTS (Aged 12-17 years)

### PRIMARY SERIES

- Those aged 12-17 years are recommended to receive a primary series with **an mRNA COVID-19 vaccine**, unless contraindicated, with an interval of at least 8 weeks between doses.[18,58]
- **Pfizer-BioNTech is preferred to Moderna Spikevax** to start or continue this series due to a lower risk of rare adverse effects, specifically, pericarditis/ myocarditis.[18,58]
  - Note: Although it is not preferred, Moderna Spikevax is still approved for this age group. If you have concerns about which vaccine, you or your child should receive, contact your healthcare provider.
  - Individuals in this age group who are immunocompromised have unique recommendations for a primary series and can learn more here: https://www.canada.ca/en/public-health/services/publications/healthy-living/canadian-immunization-guide-part-4-active-vaccines/page-26-covid-19-vaccine.html#a6.4

### FIRST BOOSTER DOSE

- At least 6 months after completing a primary series, a first booster dose of an authorized COVID-19 vaccine should be offered.[57,58]
- Unless contraindicated, mRNA vaccines are preferred as a first booster regardless of which vaccine was used for the primary series.[57,58]

### SECOND BOOSTER DOSE

- Not currently recommended for this age group.[57,58]

For more information on vaccination recommendations for this age group, please see the Wellness Hub 1-pager at Appendix B (Wellness Hub 1-Pager on COVID-19 Vaccines for Youth (12 to 17 years) or visit the Government of Canada website at: https://www.canada.ca/en/public-health/services/vaccination-children/covid-19.html

## CHILDREN (AGED 5-11 years)

### PRIMARY SERIES

- Those aged 5-11 years are recommended to receive a primary series with **an mRNA COVID-19 vaccine**, unless contraindicated, with an interval of at least 8 weeks between doses.[59]
- Individuals in this age group who are immunocompromised have unique recommendations for a primary series and can learn more here: https://www.canada.ca/en/public-health/services/publications/healthy-living/canadian-immunization-guide-part-4-active-vaccines/page-26-covid-19-vaccine.html#a6.4

### FIRST BOOSTER DOSE

- At least **6 months after completing a primary series**, a first booster dose of an authorized COVID-19 vaccine should be offered.[57,58] The Pfizer-BioNTech vaccine is the only vaccine approved for use in children of this age group.[57,58]

### SECOND BOOSTER DOSE

- Not currently recommended for this age group.[57,58]

For more information on vaccination recommendations for this age group, please see the Wellness Hub 1-pager in Appendix C (Wellness Hub 1-Pager on COVID-19 Vaccines for Children (ages five to 11)) or visit the Government of Canada website at: https://www.canada.ca/en/public-health/services/vaccination-children/covid-19.html

## INFANTS (AGED 6 MONTHS-5 YEARS)

### PRIMARY SERIES

- Children aged 6 months to 5 years are recommended to receive a primary series of **two doses of the Moderna Spikevax (25 mcg)** vaccine at least 8 weeks apart or **three doses of the Pfizer-BioNTech (3mcg)** vaccine with the initial two doses 21 days apart and the third dose administered atleast 8 weeks after the second dose.[31, 60]
- This is half of the dose that is used in children aged 6-11 years, and one quarter of the dose used in those ages 12+ years.[31, 60]
- For more information from the Government of Canada on COVID-19 vaccination for children, please visit this website: https://www.canada.ca/en/public-health/services/vaccination-children/covid-19.html

### BOOSTER DOSES

- Not currently recommended for this age group [31,60]

**Summary Table of Booster Recommendations** [6,7,61-63]

| First Booster | | |
|---|---|---|
| **Age** | **Eligible?** | **Products** |
| 70+ years | Yes | Pfizer-BioNTech or Moderna Spikevax |
| 30 to 69 years | Yes | Pfizer-BioNTech or Moderna Spikevax |
| 18 to 29 years | Yes | Pfizer-BioNTech or Moderna Spikevax |
| 12 to 17 years | Yes | Pfizer-BioNTech preferred* |
| 5 to 11 years | Yes | Pfizer-BioNTech |
| 6 months to 5 years | Not currently | N/A |

| Second Booster | | |
|---|---|---|
| **Age** | **Eligible?** | **Pfizer-BioNTech or Moderna Spikevax** |
| 70+ | Yes | Pfizer-BioNTech or Moderna Spikevax |
| 30-69 | Yes | Pfizer-BioNTech or Moderna Spikevax |
| 18-29 | Yes | Pfizer-BioNTech preferred* |
| 12-17 | Not currently | N/A |
| 5-11 | Not currently | N/A |
| 6 months to 5 years | Not currently | N/A |

* For those aged 18+, non-mRNA booster doses can be used if mRNA vaccines are contraindicated or not desired.[24] Novavax Nuvaxovid may be offered.[24] Johnson & Johnson can be offered as a first booster if all other vaccines are contraindicated.[24] Medicago Covifenz is not authorized to be used as a booster at this time.[6,24]

The **Moderna Spikevax Bivalent COVID-19 vaccine** can be used as a single booster dose in individuals 18 year of age and older.[62]

For more details on COVID-19 vaccine eligibility and provincial recommendations, please see the Government of Ontario's website here: https://www.ontario.ca/page/covid-19-vaccines#vaccine-types

## Can I get the vaccine/booster if I was infected with COVID-19?

- Yes, eligible Canadians can and are recommended to get vaccinated against COVID-19 after being infected with the virus to protect against reinfection.[24]
- In Ontario, individuals who have had COVID-19 can get vaccinated as soon as they are asymptomatic and have completed isolation, or up to 6 months after infection. However, longer time intervals between infection and COVID-19 vaccination may result in a better level of protection.[24]
- For more information on suggested intervals between previous COVID-19 infection and COVID-19 vaccination, please see page 19 of this resource: https://www.health.gov.on.ca/en/pro/programs/publichealth/coronavirus/docs/vaccine/COVID-19_vaccine_administration.pdf

## What happens during the vaccine appointment?

- The healthcare provider will explain the process before your vaccination.
- You will need to agree or consent to getting the COVID-19 vaccine.
- The staff may also collect your sociodemographic data, such as your race and household size. You can choose whether to provide this information or not – you can still get the vaccine if you refuse to provide this information.
- You will be asked to wait in the clinic/pharmacy for about 15 minutes after getting the vaccine. Staff will make sure that you feel well enough before letting you leave the clinic/pharmacy safely and will watch for any serious reactions.
- To download your COVID-19 vaccination record, please visit this website: https://covid-19.ontario.ca/proof-covid-19-vaccination

## Should I still wear a mask and physically distance after I get the vaccine?

- As of June 11, 2022, in Ontario provincial mask mandates have been lifted in most public places such as social gatherings, public events, fitness and sport activities, retail setting, restaurants, bars, food/drink establishments, places of worship, and public transit.[56]
- You can continue to wear a mask based on your personal preferences.[56]
- Masks are still recommended for:
  - Those who are high risk for severe illness
  - Those recovering from COVID-19 or have symptoms of COVID-19
  - Those who are a close contact or have been exposed to someone with COVID-19 symptoms/infection.
- If you choose to wear a mask, a tight-fitting, well-constructed mask is encouraged.[56]
- Masking is still required in acute care settings, long term care and retirement homes, and continues to be recommended in high-risk congregate living settings.[56]
- In Ontario, businesses and organizations are permitted to implement their own rules in regard to masking.[56]
- For guidance on masks, including fit and guidance on putting on and taking off personal protective equipment (PPE) correctly, please see this website from the Government of Ontario: https://www.ontario.ca/page/face-coverings-and-face-masks#section-3
- Please find the latest federal recommendations on the Health Canada website: https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection/guidance-documents.html
- For information on the evidence and research supporting public health measures in Canada, please find justifications from Health Canada here: https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection/guidance-documents/summary-evidence-supporting-covid-19-public-health-measures.html
- If you are returning to or entering Canada from International travels, please refer to the Government of Canada website for the latest testing and quarantine requirements: https://travel.gc.ca/travel-covid.

## Will I need to get the COVID-19 vaccine every 6 months or every year?

- Current evidence shows that protection from vaccines decreases over time, which is why staying up to date with COVID-19 vaccines and boosters is so important.[64]
- Needing boosters or subsequent doses of vaccines is common for other viruses that Canadians routinely receive, including influenza (the flu), Hepatitis A and B, and Human Papilloma Virus (HPV), to name a few.[64]
- In addition to protection decreasing over time, the SARS- CoV-2 virus has mutated (undergone changes) into variants such as Beta, Delta, and Omicron, which are more transmissible and less targeted by existing COVID-19 vaccines.[64, 65]
- Despite decreased protection against variants by the vaccines, they still provide sufficient protection against severe outcomes from COVID-19 and may provide protection against post COVID-19 condition (or long COVID), as long as vaccination is up to date.[64, 65]
- These reasons explain why additional doses beyond a primary series (the first 1 or 2 doses depending on what brand of vaccine received) were recommended in Ontario during April of 2022 when Omicron infection rates were high.[66]
- It is unclear how regularly Canadians will need to receive COVID-19 boosters to maintain protection against the original virus and its variants. However, decisions about vaccination are made by the Public Health Agency of Canada based on guidance from the National Advisory Council for Immunization (NACI).[66]
- The latest announcements from the Ontario

government regarding COVID-19 vaccine recommendations and eligibility can be found here: https://covid-19.ontario.ca/covid-19-vaccines-ontario

## Testing for COVID-19

- COVID-19 testing is now only available for certain individuals. For information on testing for COVID-19, please see this resource: https://covid-19.ontario.ca/covid-19-clinical-assessments-and-testing

## Vaccine Myths & Facts

**Q: Can I get COVID-19 infection from the vaccine?**

**A:** No. COVID-19 vaccines do NOT contain the SARS-CoV-2 virus (the virus that causes COVID-19). Therefore, you cannot get COVID-19 infection from any of the vaccines.[67]

**Q: Why can I still get infected with COVID-19 after I get vaccinated? Does that mean the vaccines don't work?**

**A:** Although you may still become infected with COVID-19 after being vaccinated, being vaccinated against the virus significantly reduces your chances of developing serious outcomes from COVID-19, including hospitalization and death.[68]

– **All approved vaccines have been determined to be safe and significantly effective against COVID-19, and its variants, including Omicron.**[1,69]

**Q: Are the vaccines still effective against variants, like Omicron?**

**A:** Yes. The available COVID-19 vaccines do an excellent job at protecting you against severe disease outcomes (such as hospitalization and death) from COVID-19 infection, with 95-99% efficacy based on clinical trial data done at the time of the original strain of the virus.[69-72]

- Although the level of vaccine protection is slightly lower for the Omicron variant, evidence has shown that the approved vaccines still provide effective protection. [69-72]
- Vaccine effectiveness against symptomatic infection has decreased further since the arrival of the Omicron variant (and decreases as time passes since the last vaccine dose), but it is improved or restored with a booster dose. This is why it is recommended to get a booster shot to protect yourself against COVID-19 / Omicron.[69-72]
- **You can also opt to receive the new Moderna Spikevax Bivalent COVID-19 vaccine, which targets the Omicron B.1.1.529 variant**, as a booster dose. Individuals 18 years of age and older will be eligible to receive this vaccine as of September 26, 2022.

**Q: Can the mRNA vaccines alter my DNA?**

**A:** No. The mRNA vaccines cannot change your DNA for these reasons:

1) Location – viral mRNA is never in the same place as human DNA. The viral mRNA can only stay in the fluid that fills the cell (i.e., cytoplasm), while human DNA is the in-center core of the cell (i.e., the nucleus) which is protected by a shield-like layer called the nuclear envelope.[73] The viral mRNA never enters or mixes with your own DNA, and your DNA cannot be altered by these vaccines.[73]

2) Process – viral mRNA is different from human DNA. Neither the vaccine nor your cell has the tools to make or change human DNA from viral mRNA.[73,74]

3) Stability – viral mRNA is not very stable and can only stay alive in human cells for a few hours.[73] After the COVID-19 mRNA vaccine is injected, our cells use the mRNA to make proteins that help build our immune response against COVID-19 and then break down the mRNA.[73,74]

– You cannot get infected with COVID-19 from mRNA vaccines.[73]

**Q: Can viral vector-based vaccines alter my DNA?**

**A:** No. Viral vector-based vaccine, such as AstraZeneca Vaxzevria or Janssen (Johnson & Johnson), cannot change your DNA[12]:

- COVID-19 viral vector-based vaccines are non-replicating, which means that the viral DNA in the vaccine is modified so that it cannot make copies of itself and cause disease.[12]
- The viral DNA in the COVID-19 vaccine can only be used to create spike proteins which trigger an immune response.[12]

**Q: Do the vaccines protect me against or reduce my risk of developing long COVID?**

**A:** Yes. The latest evidence suggests that getting vaccinated with 2 or more doses reduces the risk of developing post COVID-19 condition, or long COVID-19.[2,3]

**Q: Can the vaccine impact fertility, pregnancy, and breastfeeding**

**A:** Current scientific data show that COVID-19 vaccines are not linked to negative effects on fertility, pregnancy, or breastfeeding.[46-50]

**Q: Do COVID-19 vaccines contain fetal tissue?**

**A:** No. None of the COVID-19 vaccines contain fetal tissue.[75]

- Although early research studies on mRNA vaccine technology used fetal cell cultures, fetal tissues were not used in the design, development, or production of the COVID-19 vaccines.[67,75]

**Q: Do the COVID-19 vaccines contain any meat products? Are they Halal/Kosher?**

**A:** The COVID-19 vaccines that are available in Canada are all Halal, Kosher, and do not contain any meat products[1]

  - For a full list of ingredients found in each of the approved vaccines, please visit the Health Canada website here: https://www.canada.ca/en/health-canada/services/drugs-health-products/covid19-industry/drugs-vaccines-treatments/vaccines.html

**Q: Can the COVID-19 vaccine cause long-term autoimmune issues?**

**A:** Scientific data show that mRNA and vector-based vaccines are NOT linked to new autoimmune disease and do not worsen existing autoimmune diseases.[77]

- If you have an autoimmune disease, we encourage you to talk to your doctor/ healthcare providers to decide if the vaccine is right for you.

**Q: Can I get blood clots from the COVID-19 vaccine, specifically the AstraZeneca vaccine?**

**A:** A very rare type of blood clot that is associated with low platelet counts (thrombocytopenia) may occur following the AstraZeneca Vaxveria/ COVISHIELD COVID-19 vaccine).[32,78]

- As a result of these observations, Health Canada and Astrazeneca do not recommend getting the Astrazeneca vaccine if you have a history of blood clots following vaccination (i.e., arterial, or venous thrombosis), or if you have had episodes of capillary leak syndrome.[32,33]
- Most of these cases occurred within the first 3-4 weeks following vaccination.[51,52]
- Vaccinated individuals should seek immediate medical attention if they develop the following symptoms related to this rare side effect[32,33]:
  - Shortness of breath
  - Difficulty speaking
  - Confusion or Seizures
  - Severe headaches or blurred vision that does not go away
  - Blurred vision
  - Chest pain
  - New serious swelling, pain or color change in an arm or leg

  - Difficulty moving part of your body
  - Serious abdominal pain that goes on for days
  - Skin bruising (other than at the side of vaccine shot)
- The recommendations on vaccine use are updated based on the latest data. Please refer to the Health Canada website for current recommendations: https://www.canada.ca/en/public-health/services/diseases/coronavirus-disease-covid-19/vaccines/how-vaccinated.html#a9
- Please consult with your provincial ministry of health websites for province-specific guidelines.
- For the province of Ontario, please check the latest provincial vaccination plan and updates here: https://covid-19.ontario.ca/getting-covid-19-vaccine
- Side effects following COVID-19 are continuously monitored in Canada, and reports are updated regularly, here: https://health-infobase.canada.ca/covid-19/vaccine-safety/summary.html

**Q: Is the vaccine permitted and recommended for those practicing different religions and who are from different communities within Canada**

**A:** Many North American faith-based communities or cultural groups permit vaccination and have created resources for the members of their communities. Among these are[79-86]:

  - The Canadian Muslim COVID-19 Task Force (CMTF),
  - Toronto Jewish Community COVID-19 Task Force,
  - The Orthodox Union and Rabbinical Council of America,
  - Assembly of First Nations COVID-19 National Task Force,
  - South Asian COVID Task Force,
  - Black Health Alliance,
  - Black Scientists' Task Force on Vaccine Equity,
  - The United States Conference of Catholic Bishops,
  - Hindu American Foundation,
- Did you know?
  - The approved COVID-19 vaccines are considered Halal and Kosher, and do not contain any meat products.[1]
- Getting the COVID-19 vaccine is a personal choice. If you are concerned about your faith-based or cultural group's guidance on vaccination, talk to your religious leaders within your community or seek additional information before deciding.

**Q: If I already had COVID-19 and recovered, should I still get the vaccine?**

**A:** Yes. COVID-19 vaccines can protect you better and for longer than the immunity (or level of protection) that you develop from COVID-19 infection.[87]

- COVID-19 vaccination, including booster doses, is still recommended if you were infected with COVID-19 as it will help improve your immune response and provide longer-lasting protection against re-infection.[87]
- Health Canada recommends that you receive your booster dose 3 to 6 months after you test positive for COVID-19 or started having symptoms. However, shorter intervals of 3 months between infection and the date of vaccination may be warranted in certain cases.[87]

**Q: Do I need to get the flu shot and the COVID-19 vaccine?**

**A:** Yes. It is recommended that you get vaccinated against COVID-19 as well as the flu.[88-91]

- SARS-CoV-2 (also known as COVID-19) and influenza (or the flu) are two different viruses that require different vaccines to

adequately protect you against them.[88-91]

- For more information on the differences between COVID-19 vaccines and the flu shot, please see the Wellness Hub 1-pager in Appendix D (Wellness Hub 1-Pager on COVID-19 vaccines versus the Flu shot).

**Q: Can I get the flu shot at the same time as my COVID-19 vaccine?**

**A:** For children ages 12 and under, NACI recommends separating the COVID-19 and flu vaccines by 2 weeks.[88-91]

- Individuals ages 12 and older are able to get both vaccines at the same time without concerns.[88-91]

**Q: Is it safe to mix vaccines? Should I wait to get a certain type of vaccine?**

**A:** It is safe to mix vaccines.[92,93]

- Studies have shown that there is a marginal benefit/ advantage for those with certain vaccine mixtures over others.[94]
- However, you should not postpone getting your next shot to get a specific vaccine, as the risks from delaying protection from COVID-19 infection, or waiting for a certain type of vaccine, outweigh the benefit that you may receive from a certain mixture or series of vaccines.[92,93]

**Q: Are there treatments available for those who become infected with COVID-19?**

**A:** Yes. Several treatment options have been approved for eligible Canadians.[95,96]

- Treatment options include the following: Veklury (Remdesivir) and Nirmatrelvir/ Ritonavir (Paxlovid) to name a few.[95]
- Provincial governments have determined eligibility criteria for the approved treatments, which are available for free by prescription for eligible persons who are at a higher risk of progressing to severe disease.[96]
- For the government of Ontario guidance on COVID-19 treatments, please visit this website: https://covid-19.ontario.ca/covid-19-treatments
- To use the Government of Ontario COVID-10 antiviral treatment screening tool, please visit this website: https://covid-19.ontario.ca/covid-treatment-screener/
- Please note, based on individual circumstances, a healthcare provider may determine that you are eligible for treatment even if you are not listed as an eligible recipient. Please discuss your treatments options and pre-assessment for antiviral treatment with your healthcare provider if you are high-risk.[96]
- If you are high-risk and do not have a primary care provider or are having trouble seeing your provider, you can call Health Connect Ontario to get more information on antiviral treatment options at:
  - Telephone: 811

If you have any concerns about taking the COVID-19 vaccine, discuss these with your doctor or healthcare practitioner. You may also reach out to the Toronto Public Health Hotline for additional information at:

**Telephone:** 416-338-7600

**TTY:** 416-392-0658

**Email:** PublicHealth@toronto.ca

Translation is available in multiple languages.

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# Appendix A: First and Second Booster Shots (Third and Fourth Doses) for COVID-19

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## What is a booster shot? And why do I need one?

- A booster shot is an additional dose of a COVID-19 vaccine that is given after someone completes a primary series (which is the first one or two doses of a COVID-19 vaccine).[1,2] A primary series of three doses is recommended for moderately to severely immunocompromised individuals.[1,2]
- Research suggests that protection against COVID-19 infection from vaccines decreases over time.[3,4]
- **Booster shots are given to restore protection against a disease that may have decreased over time** to sufficient levels.[1,3] They help maintain protection against serious COVID-19 outcomes (including hospitalization and death) and reduce the risk of developing long COVID (or post COVID-19 condition).[5]
- Additionally, the original strain of the COVID-19 virus has undergone mutations, or *changes*, which has caused variants like Beta, Delta, and Omicron to emerge.[6] **A primary series (the first two doses of a COVID-19 vaccine for most people)** is less effective against variants of COVID-19 compared to the original virus strain, which is another reason why booster shots are recommended.[7]
- Staying up to date with vaccines greatly reduces your risk of getting seriously ill from COVID-19 and reduces your risk of developing Long COVID-19.[8]

**Did you know?** *Needing booster shots or subsequent doses of a vaccine is common for other viruses that Canadians routinely receive, such as influenza (the flu), Hepatitis A and B, and Human Papilloma Virus (HPV) in Canada.*[9]


## How effective is the first booster shot?

- The first two doses of a COVID-19 vaccine provided much lower protection against the Omicron variant, compared to other variants. **A booster shot, or third dose, was needed to reach similar levels of protection against Omicron.**[10,11]
  - Studies of Pfizer and Moderna vaccines showed that three doses of an mRNA vaccine achieved similar levels of protection against the Omicron variant that two doses offered against the original strain of the virus.[12]
  - Vaccine effectiveness against severe disease from Omicron is about 90% after the first booster shot and remains above 70% for up to 20 weeks.[13-16]
  - According to vaccine effectiveness data collected in Canada between May and June of 2022, individuals who received their first two doses plus their first booster shot had a 4X lower rate of hospitalization and 6X lower rate of death compared to unvaccinated individuals.[17]

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## How effective is the second booster shot?

- Evidence on the effectiveness of a second booster shot is limited.[18]
- Small-scale research studies suggest that receiving a second booster shot provides more protection against COVID-19, including against severe illness, compared to receiving a first booster shot only.[18] However, the duration of protection is currently unknown.[19]

## Who can receive a booster shot?

- All eligible Canadians 5 years of age or older are recommended to receive a first booster dose.
- All eligible Canadians 18 years of age or older are recommended to receive a second booster dose.
- For a summary of the booster recommendations for Canadians, please see the summary table below:

**Summary Table of Booster Dose Recommendations (adapted from the Government of Canada[2,20,21])**

| First Booster Recommendations | | |
|---|---|---|
| Age | Eligible? | Products & Dosage |
| 70+ years | Yes | Moderna (100mcg) or Pfizer (30 mcg) * |
| 30 to 69 years | Yes | Moderna (50mcg) or Pfizer (30mcg) * |
| 18 to 29 years | Yes | Pfizer (30mcg) is preferred * |
| 12 to 17 years | Yes | Pfizer (30mcg) is preferred |
| 5 to 11 years | Yes | Pfizer (10mcg) |
| 6 months to 5 years | Not at this time. | N/A |

| Second Booster Recommendations | | |
|---|---|---|
| Age | Eligible? | Products & Dosage |
| 70+ | Yes | Moderna (50mcg) or Pfizer (30mcg) may be considered; Moderna (100mcg) possible based on clinical discretion* |
| 30-69 | Yes | Either Moderna (50mcg) or Pfizer (30mcg)* |
| 18-29 | Yes | Pfizer (30mcg) is preferred* |
| 12-17 | Not at this time. | N/A |
| 5-11 | Not at this time. | N/A |
| Under 5 | Not at this time. | N/A |

* For those aged 18+, non-mRNA booster doses can be used if mRNA vaccines are contraindicated or not desired.[22] Novavax Nuvaxovid may be offered.[22] Johnson & Johnson can be offered as a first booster if all other vaccines are contraindicated.[22] Medicago Covifenz is not authorized to be used as a booster at this time.[2,22]

## Who is recommended to receive a second booster shot?

Second booster shots are being offered at an interval of five months after someone receives their first booster shot.[2]

High-risk individuals who should get their second booster dose as soon as possible include[3]:

- Individuals aged 60 and over
- First Nation, Inuit and Métis individuals and their non-Indigenous household members aged 18 and over
- Residents of a long-term care home,

retirement home, or Elder Care Lodge and older adults living in other congregate settings that provide assisted-living and health services; and

- Individuals aged 12 and over who are moderately to severely immunocompromised.

Other populations that can also receive a second booster shot include:

- Individuals aged 18 and over

Most healthy individuals ages 18 to 59 years will continue to have strong protection against COVID-19 for more than six months after receiving their first booster dose.[3] However, expanding second booster dose eligibility will allow Canadians to make an informed decision based on their personal circumstances (for example, your risk of getting or spreading COVID-19 if you are a frontline healthcare worker or caregiver of those at increased risk of severe illness and death).[3,23]

## Do I still need to get a booster shot if I've already had COVID-19?

- Yes, you are recommended to stay up to date with your COVID-19 vaccines, including booster doses, even after being infected with COVID-19.[5]
- This is recommended to help improve your immune response and provide longer-lasting protection against re-infection with COVID-19.[5]
- Health Canada recommends that you receive your booster dose **6 months after you tested positive for COVID-19 or started having symptoms.**[5] However, shorter intervals of 3 months between infection and a booster shot may be warranted in certain cases.[5]

## What is different about the new Moderna Spikevax Bivalent vaccine that was recently approved by Health Canada?

- The new bivalent COVID-19 vaccine by Moderna offers more targeted protection against the Omicron variant.[18,24] It can be used as a booster dose in individuals 18 years of age and older at least four months after completing their primary series or receiving a previous booster dose.[25]
- All other COVID-19 vaccines are monovalent – meaning they were designed to defend against the original strain of the COVID-19 virus only.[18,24]
- Bivalent vaccines are designed to provide protection against two different types, *or variants*, of a virus.[24] The new Moderna Spikevax Bivalent vaccine is designed to provide protection against the original strain of the virus as well as the highly contagious Omicron variant and its subvariants.[24]
- The new bivalent vaccine is essentially a mixture of the original vaccine (which targets the original strain of the virus) and a new vaccine (which targets the Omicron variant), which means this vaccine can provide protection against both.[24]
- A similar process is done for the flu shot, which is a mixture of vaccines that target different variants of the flu virus.[24]
- It is hoped that this bivalent vaccine can help prevent a possible surge in COVID-19 cases that could overwhelm the health-care system as winter approaches and people spend more time indoors.[26]

## How many booster shots will I end up needing and how often?

- It is unclear how regularly Canadians will need to receive COVID-19 shots or boosters to maintain protection against the virus, its variants, and serious illness at this time.
- The latest announcements from the Ontario government regarding COVID-19 vaccine recommendations and eligibility can be found here: https://covid-19.ontario.ca/covid-19-vaccines-ontario
- For the most up to date information on current Variants of Concern, we recommend you visit the following websites:
  - Public Health Ontario website: https://www.publichealthontario.ca/en/diseases-and-

conditions/infectious-diseases/respiratory-diseases/novel-coronavirus/variants

- Health Canada website: https://health-infobase.canada.ca/covid-19/epidemiological-summary-covid-19-cases.html#VOC

## Where can I get a booster shot?

Eligible individuals ages 6 months and older can get a vaccine appointment through the COVID-19 vaccination portal or by calling the Provincial Vaccine Contact Centre at 1-833-943-3900.[3] Eligible individuals can also book an appointment directly through public health units using their own booking system, participating primary care providers and paediatricians, as well as at participating pharmacies and Indigenous-led vaccination clinics.[3]

Public health units may also offer additional options for vaccination of children aged six months to under five years old, such as walk-in clinics, which will not be on the COVID-19 vaccination portal.[3] For information on local options, please visit your local public health unit website.[3]

Eligible individuals ages 5 and older can book an appointment for a vaccine dose[1]:

- at participating pharmacies
- through the provincial booking system
- by calling the Provincial Vaccine Contact Centre at 1-833-943-3900 (TTY for people who are deaf, hearing-impaired, or speech-impaired: 1-866-797-0007)
- with the GO-VAXX bus
- directly through public health units that use their own booking system
- through Indigenous-led vaccination clinics
- at select primary care settings
- at hospital clinics (visit your local hospital or public health unit for booking details, if available in your region)
- through mobile or pop-up clinics, (visit your local public health unit website for details, if available in your region)
- at your retirement home, long-term care home, elder care lodge, or congregate living setting (public health units will work with the homes to give you your shot within your home or at a mobile clinic)

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# Appendix B: COVID-19 Vaccines for Youth (ages 12 to 17)


## Should youth get the COVID-19 vaccine? If so, which vaccines can they get?

- Yes. Youth ages 12 to 17 can receive the mRNA COVID-19 vaccines which include the Pfizer-BioNTech Comirnaty COVID-19 vaccine and the Moderna Spikevax COVID-19 vaccine[1,2,3]. If a choice of vaccine is available, it is recommended that individuals ages 12 to 29 years receive the Pfizer- BioNTech vaccine to further minimize the risk of rare side effects following vaccination[4,5].

## Is the COVID-19 vaccine safe for youth?

- Yes. Health Canada has approved the Pfizer-BioNTech and Moderna Spikevax vaccines for individuals ages 12 to 17 years and has determined that these vaccines are very safe for youth and do not cause any serious side effects[6,7]. Youth appear to have a very good immune response following COVID-19 vaccination, which results in strong protection against COVID-19[7]. Research and surveillance continue to show that the mRNA vaccines are safe for youth[8].

## How effective is the COVID-19 vaccine for youth?

- Clinical trials demonstrated that the Pfizer-BioNTech vaccine was 100% effective in protecting youth ages 12 to 15 years from COVID-19 one week after receiving their second dose[2]. For individuals 16 years of age and older, the Pfizer-BioNTech vaccine was about 95% effective one week following their second dose[2].
- The Moderna vaccine was 100% effective in protecting participants 12 to 17 years of age two weeks after their second dose[3].

## Why do youth need the COVID-19 vaccine if they are less likely to get very sick from COVID-19?

- Although youth typically experience mild symptoms from COVID-19 infection and are less likely to have severe outcomes, some individuals who contract COVID-19 may require hospitalization or experience long-term effects such as fatigue, difficulty breathing or muscle aches[9]. Youth may also be asymptomatic and capable of spreading the virus to other populations who may be at greater risk, such as immunocompromised individuals or seniors[1]. It is essential that youth are fully vaccinated against COVID-19 to protect themselves and others in their community against COVID-19 infection[9].

## How many doses do youth need?

- Youth 12 to 17 years of age should receive two doses of an mRNA vaccine, as well as a booster dose.[9] Youth should receive their second dose at least 8 weeks after their first dose and may receive a booster dose at least six months after their second dose[9]. A third dose plus a booster dose is recommended for youth who have weakened immune systems due to medical conditions.[10] It is also safe to mix-and-match Pfizer and Moderna vaccine doses as they are interchangeable.[11]

## What are the side effects of COVID-19 vaccination for youth?

- Youth typically experience mild side effects from vaccination, such as redness, soreness and swelling at the site of injection.[1,2,3] They may also experience chills, fatigue, joint pain, headache, fever, and muscle aches.[1,2,3] Youth may experience some side effects more often, such as headaches, chills and fever[10]. Side effects that do occur are typically mild and clear up within a few days.[1,2,4]
- Cases of myocarditis (inflammation of the heart) and cases of pericarditis (inflammation of the thin tissue surrounding the heart) following vaccination with mRNA COVID-19 vaccines have been reported but are very rare in youth and occur less often with the Pfizer-BioNTech vaccine compared to the Moderna Spikevax vaccine.[1]

## Can the COVID-19 vaccination affect puberty or fertility in youth?

- No. There is no evidence that suggests the COVID-19 vaccines affect puberty or fertility in youth.[5,8]

## Can youth consent to vaccination themselves?

- If an individual is 12 years of age or older and capable of providing informed consent, parental consent may not be required to accept or refuse COVID-19 vaccination.[10] Informed consent involves understanding the purpose of the vaccine, why it is recommended and the benefits and risks of accepting or refusing vaccination.[10] If an individual is incapable of providing consent, they will need consent from a parent or legal guardian.[7]

## What if I have more questions about COVID-19 vaccination for youth?

- Parents and caregivers who have questions about COVID-19 vaccination for youth can also visit www.sickkids.ca/vaccineconsult or call toll-free at 1-888-304-6558 to book a phone appointment with a SickKids clinician.[12]
- This service is available in multiple languages with the support of an interpreter on the call. You can also speak to your family physician if you have any questions or concerns regarding COVID-19 vaccination for youth.

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# Appendix C: COVID-19 Vaccines for Children (ages five to 11)


## Can children get the COVID-19 vaccine? If so, which vaccine should they get?

- Yes. Children ages 5 to 11 can receive the mRNA COVID-19 vaccines, which include the Pfizer- BioNTech Comirnaty COVID-19 vaccine and the Moderna Spikevax COVID-19 vaccine.[1,2,3]
- Vaccines for children consist of smaller doses of the vaccine compared to the vaccines given to older age groups[2,3]. Vaccine doses are based on age and maturity of the immune system.[4] In clinical trials, these lower doses provided very good protection against COVID-19 for children.[1,2,3,5]

## Is the COVID-19 vaccine safe for children?

- In clinical trials, no safety issues were detected when the pediatric formulas of the Pfizer-BioNTech and Moderna Spikevax vaccines were tested on children.[1,2,3] The evidence continues to demonstrate that these vaccines are effective against severe outcomes in children and are very safe.[1] Serious side effects from vaccination also continue to be rare in children.[1,2,3]

## How effective is the COVID-19 vaccine for children?

- Clinical trials showed that the Pfizer-BioNTech vaccine was 90.7% effective in protecting children 5 to 11 years old from COVID-19 infection one week after receiving their second dose.[2]
- Clinical trials showed that the Moderna Spikevax vaccine was 94.1% effective in protecting children 6 to 11 years old from COVID-19 infection two weeks after receiving their second dose.[3]

## How many doses do children need?

- Children ages 5 to 11 years old are recommended to receive two doses of an mRNA vaccine at least 8 weeks apart, as well as a booster dose of the Pfizer-BioNTech Comirnaty COVID-19 vaccine[1,2,3,6]. Children five years of age should receive two doses of the Pfizer-BioNTech vaccine2. Children six to 11 years of age should receive two doses of the Pfizer-BioNTech vaccine or the Moderna Spikevax vaccine[1,2]. Children who are moderately to severely immunocompromised should receive three doses, waiting four to eight weeks between each dose, plus a booster shot.[6]

## Why do children need the vaccine if they are less likely to get very sick from COVID-19?

- Although children are less likely to experience severe outcomes from COVID-19, the number of children becoming severely ill is increasing due to rising cases in children.[5] Some children who contract COVID-19 may require hospitalization or experience long-term effects.[4] Children infected with COVID-19 may also be asymptomatic and capable of spreading the virus to other populations who may be at greater risk, such as immunocompromised individuals and seniors.[1]
- It is essential that children get fully vaccinated against COVID-19 to protect themselves and others in their community[1,7].

## What are the side effects of COVID-19 vaccination for children?

- Children experience similar side effects from vaccination as adults, such as redness, soreness and swelling at the site of injection[1,2,3,7]. They may also experience chills, fatigue, joint pain, headache, fever, and muscle aches[1,2,3,7]. Side effects that do occur are typically mild and clear up within a few days[1,2,3].

## Do children receive a different vaccine than adults?

- Yes. Children receive smaller doses of the COVID-19 vaccines than youth and adults receive[2,3,8]. For the Pfizer vaccine, children ages 5 to 11 receive doses of 10 micrograms each, whereas individuals 12 years and older receive doses of 30 micrograms each[2,8]. For the Moderna vaccine, children ages 6 to 11 receive doses of 50 micrograms each and individuals 12 years and older receive doses of 100 micrograms each[3,8].

## If my child is turning 12 years old in 2022, should I wait for them to turn 12 and be eligible for the adult dose?

- No. Children should get vaccinated as soon as possible and receive the appropriate vaccine for their current age, to increase their protection against COVID-19.[4] Children who are currently under the age of 12 should receive the paediatric dose for their first dose[4]. Children who turn 12 years of age between their first and second dose should receive the adult dose for their second dose.[4]

## Can children receive the new bivalent booster shot by Moderna?

- No. Only individuals 18 years of age and older are eligible to receive the bivalent booster shot.[3] Children should receive the Pfizer-BioNTech Comirnaty booster shot atleast 6 months after completing their primary series.[1,2]

## What if I have more questions about COVID-19 vaccination for children?

- Parents and caregivers who have questions about COVID-19 vaccines for children and youth can also visit www.sickkids.ca/vaccineconsult or call toll-free at 1-888-304-6558 to book a phone appointment with a SickKids clinician.[9] This service is available in multiple languages with the support of an interpreter on the call. You can also speak to your family physician if you have any questions or concerns regarding COVID-19 vaccination for children.

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# Appendix D: Flu Shot

**Q: What is the difference between COVID-19 vaccines and the Flu shot? Why do I need both?**

**A:** Although COVID-19 and the flu have similar symptoms, they are caused by two very different viruses.[1,2] The COVID-19 and flu vaccines are designed to specifically protect against their respective illness, which means the COVID-19 vaccines will not protect you against the flu, and the flu shot will not protect you against COVID-19.[1,2] Therefore, it is essential that you receive both the COVID-19 vaccines and the flu shot to increase your protection against these illnesses.[2]

**Q: What is the difference between the Flu and COVID-19?**

**A:** Although the flu and COVID-19 are both contagious respiratory illnesses, they are caused by entirely different viruses.[3] COVID-19 is caused by infection with a type of coronavirus, which was first identified in 2019, while the flu is caused by infection with influenza viruses, which were first identified much earlier.[3]

**Q: Why is the flu shot important during the COVID-19 pandemic?**

**A:** The flu is among the 10 leading causes of death in Canada.[4] It is estimated that the flu causes 12,200 hospital stays and 3,500 deaths each year in Canada.[4] Although some people only get mildly ill from the flu, others can get very sick such as frail older adults and those whose immune systems may be impaired.[5]


Everyone is encouraged to receive the flu shot to protect themselves and others.[4] When more people receive their flu shot, this will reduce stress on the healthcare system by limiting hospitalizations related to the flu and ensuring more healthcare resources are available to address the COVID-19 pandemic.[4,6]

As more people gather indoors during the winter, it is important to get your flu shot and protect groups who may be vulnerable to this infection[4].

**Q: Who should get the flu shot?**

**A:** Everyone older than 6 months are recommended to receive the flu shot.1,6 Individuals at high risk of severe illness from COVID-19 and those capable of spreading the flu to these populations are highly encouraged to get the flu shot1. This includes[1,4,5,6]:

- people with health conditions, such as:
  - cancer and other immune compromising conditions
  - diabetes

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  - heart disease
  - lung disease
  - anemia
  - obesity
  - kidney disease
  - neurological or neurodevelopmental conditions
  - children up to 18 years of age undergoing treatment for long periods with acetylsalicylic acid (ASA)
- people 65 years and older
- people who live in retirement homes or long-term care homes
- children under 5 years of age
- people who are pregnant
- people who experience barriers in accessing health care
- people who are at an increased risk of disease due to living conditions, such as overcrowding
- caregivers
- childcare providers
- health care providers
- family and other household members of people at risk for worse outcomes from flu
- those who provide services in closed or relatively closed settings to people at high risk, such as workers in long-term care homes or crew on a ship

**Q: I received the flu shot 12 months ago. Why do I need another one?**

**A:** A new flu shot is developed every year because the flu virus often changes from year to year.[1] The protection provided by the flu shot can also wear off, which is why you need to get the new flu shot every year.[1]

**Q: Can I receive a COVID-19 vaccine and the flu shot at the same time?**

**A:** Individuals 12 years of age and older can safely receive both the COVID-19 vaccines and the flu shot at the same time.[6] There is no need to wait between scheduling a COVID-19 vaccine and the flu shot for this group. However, it is recommended that children aged 5 to 11 years of age wait at least 14 days between receiving a COVID-19 vaccine and the flu shot.[2,6]

**Q: Do the symptoms of COVID-19 and the flu differ?**

**A:** Since COVID-19 and the flu have similar symptoms, it is recommended to follow COVID-19 precautions if you start to develop any of the symptoms listed below[2,7]:

- fever
- cough
- muscle aches and pain

Other common symptoms include:

- headache
- chills
- fatigue (tiredness)
- loss of appetite
- sore throat
- runny or stuffy nose

As of December 31st, 2021, the eligibility for COVID-19 PCR testing has changed[9]. It is now recommended that individuals displaying COVID-19 symptoms self-isolate and follow self-monitoring guidelines.[7,8] Positive rapid antigen tests will also no longer require PCR confirmation.[8]

However, COVID-19 PCR testing is available for symptomatic high-risk individuals and individuals working in high-risk settings (e.g., patients and staff within hospitals, long-term care, and retirement homes).[8] Please refer to the Government of Ontario website for a full list of groups eligible for COVID-19 PCR testing: https://www.ontario.ca/page/covid-19-testing-and-treatment#section-1

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# Appendix E: Bivalent COVID-19 Vaccines

## Which bivalent vaccines are approved in Canada?

Currently, the two bivalent vaccines approved in Canada are:

- The Moderna Spikevax Bivalent COVID-19 vaccine.[1]
- The Pfizer-BioNTech Comirnaty Original and Omicron BA.4/BA.5 COVID-19 vaccine.[2]


## What is the difference between the Moderna and Pfizer bivalent vaccines?

- The Moderna Spikevax Bivalent COVID-19 vaccine offers protection against the original strain of the virus and the Omicron BA.1 variant.[1,3]
- The Pfizer-BioNTech Comirnaty Original and Omicron BA.4/BA.5 COVID-19 vaccine offers protection against the original strain of the virus and the Omicron BA.4/BA.5 variants.[2]

## What is different about the bivalent vaccines compared to the original COVID-19 vaccines?

- Bivalent vaccines are designed to provide protection against two different types, or *variants*, of a virus.[4,5]
- The original vaccines are monovalent – meaning they were designed to defend against the original strain of the COVID-19 virus only.[4]
- The new bivalent vaccines by Moderna and Pfizer-BioNTech were designed to provide protection against the original strain of the COVID-19 virus as well as the highly contagious Omicron variant and its subvariants.[1,2,4]
- Additionally, the bivalent vaccines are **only** being offered as booster shots.[1,2]

## Why do I need a booster shot?

- Booster shots are given to restore protection against COVID-19 that may have decreased over time.[5,6] They help maintain protection against serious COVID-19 outcomes, such as hospitalization and death, and reduce the risk of developing long COVID (or post COVID-19 condition).[6]

## What is in the bivalent vaccines?

- Like the original Moderna and Pfizer-BioNTech vaccines, the bivalent vaccines contain mRNA sequences that target the original strain of the COVID-19 virus as well as the Omicron variant and its subvariants.[1,2]
- The new bivalent vaccines are essentially a mixture of the original vaccine (which targets the original strain of the virus) and a new vaccine that targets the Omicron variant, thus allowing for protection against both strains.[7]
  - This is also done for the flu shot to ensure the vaccine targets different variants of the flu virus.[7]

## Who can receive a bivalent COVID-19 booster shot?

- Individuals 18 years of age and older can receive the Moderna Spikevax Bivalent COVID-19 vaccine as a booster shot at least 4 months after completing their primary series or receiving a previous booster dose.[1]
- Individuals 12 years of age and older can receive the Pfizer-BioNTech Comirnaty Original and Omicron BA.4/BA.5 vaccine at least 3 to 6 months after completing their primary series or receiving a previous booster dose.[2]

## Why do I need the bivalent COVID-19 booster shot?

- The bivalent vaccines target the COVID-19 virus strains that are now most common in Canada.[8]
- Currently, approximately 98% of circulating COVID-19 cases are caused by the Omicron subvariants BA.4 and BA.5.9
- COVID-19 cases are rising again and as Canadians spend more time indoors over the winter, increasing chances of virus transmission, it is important to ensure everyone is protected.[8,9]
- It is hoped that the new bivalent vaccines can help prevent a possible surge in COVID-19 cases in the fall and winter that could strain health systems.[8,9]

## Are the bivalent COVID-19 vaccines safe?

- Yes. The bivalent vaccines are as safe as the original Pfizer-BioNTech and Moderna vaccines with mostly mild side effects, such as[1,2]:
  - Pain, redness and/or swelling at the injection site
  - Fatigue
  - Headache
  - Muscle pain
  - Chills
  - Joint pain

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