November 2021

FREQUENTLY ASKED QUESTIONS

COVID-19 mRNA Vaccines for Children

What vaccine will children aged 5 to 11 years get?

Health Canada has approved the Pfizer-BioNTech COVID-19 mRNA vaccine for children aged 5 to 11.[1]

How does the Pfizer-BioNTech mRNA vaccine work?

Traditional vaccines put a weakened or inactivated virus into our bodies. However, **messenger ribonucleic acid (mRNA) vaccines** like the Pfizer BioNTech vaccine teach cells how to make a protein that triggers an immune response if someone is infected with COVID-19.[2,4] When the vaccine is injected into our arm, the mRNA enters cells near the site of the injection and tells the cells to start making the same protein that is found in the COVID-19 virus.[2,3] The immune system recognizes this protein and starts making antibodies that can fight the virus if the vaccinated person is later infected.[3,4] **The vaccine does NOT expose you to the virus that causes COVID-19, it CANNOT cause a COVID-19 infection, and does not get into our genetic material or DNA.**[3]

How effective is the vaccine at protecting children from COVID-19?

In vaccine trials, children had a strong immune system response to the Pfizer-BioNTech vaccine.[5] The vaccine was 90.7% effective at preventing COVID-19 in children 5-11 years[1], and offered protection from getting sick with the Delta variant.[5]

Is messenger RNA (mRNA) technology safe?

Yes. Scientists have been studying mRNA for decades.[4] The reason the COVID-19 vaccines were made so quickly is because governments, scientists, public health authorities and manufacturers around the world worked together and made them a priority.[4,6,7] Like all new vaccines, the mRNA COVID-19 vaccines had to go through a very specific and scientifically strict process of testing and review (including clinical trials) to make sure they are safe and effective.[4,5,7] Strong vaccine safety systems have been developed to monitor for rare vaccine side effects.[4,6] As of October 2021, more than 1.4 billion doses of Pfizer-BioNTech vaccine has been safely delivered around the world.[5] The Pfizer-BioNTech vaccine has also been tested in clinical trials on young children and both Health Canada and the National Advisory Committee on Immunization (NACI) have reviewed the study data for use of this vaccine on young children.[1,8] It is has been approved for safety, efficacy and manufacturing standards, and Health Canada and NACI will continue to monitor it for safety.[1,8]

What are the risks of COVID-19 infection in children?

Children who get infected with COVID-19 usually experience no or mild symptoms. However, COVID-19 can cause serious illness, hospitalization and death in **any** child, even if they don't have other health conditions.[5,9] Children are also at risk for myocarditis/ pericarditis[5,10] or developing multisystem inflammatory syndrome (MIS-C) following infection with the COVID-19 virus.[1,9] MIS-C is a rare but serious event that can happen several weeks following infection.[1] We are still learning about long haul COVID-19, where people experience symptoms long after the infection has cleared; however, we know children may also be at risk.[1,5,11] In early studies, one to four out of every 100 children with a COVID-19 infection had lasting symptoms.[12] Symptoms include tiredness, headache, sore throat and loss of smell. Children can get long haul COVID even after a mild illness.[5,11,12]

What are the common side effects of mRNA COVID-19 vaccines in children?

As with other vaccines, it is normal and expected to experience side effects. Common side effects are a sore or red arm, tiredness, chills, and muscle/joint pain.[5,13] Many children in the trials had mild side effects after getting the Pfizer-BioNTech vaccine. Side effects usually go away within one to three days.[5,13]

What are the serious side effects of mRNA COVID-19 vaccines in children?

No new serious side effects were seen in the Pfizer-BioNTech vaccine trials for children. Serious side effects, like anaphylaxis (a severe allergy), after mRNA COVID-19 vaccines are rare.[7,14] For every 1 million Pfizer doses given to people aged 12 and older, there are two to eight cases of anaphylaxis (0.0002 - 0.0008%).[13] Children with allergies to foods, drugs, insect stings, or other vaccines can safely get mRNA COVID-19 vaccines.[13]

Inflammation of the heart **(myocarditis)** and of the sac around the heart **(pericarditis)** can happen rarely after being vaccinated against COVID-19.[13,15] These conditions are more likely for young males after dose two.[15] Most cases are mild and are treated with rest and anti-inflammatory medicines.[14] These conditions happen **far more often after a COVID-19 infection.**[10] This situation, as well as all potential side effects of vaccination are continuously monitored in Canada and many other countries.[7] The benefit of COVID-19 vaccination still outweighs the very rare risk of myocarditis. Parents should seek medical attention if their child develops sudden chest pains, shortness of breath or palpitations.[7]

What are the long-term side effects of mRNA COVID-19 vaccines in children?

Long-term side effects are not expected from mRNA COVID-19 vaccines.[16] Vaccine side effects tend to happen in the first six weeks. mRNA vaccines have been studied in humans since 2013 with no known long-term side effects.[4,16] The mRNA in the COVID-19 vaccine is broken down by the body in two to three days.[6] The spike protein may stay in the body for up to two to three weeks.[6] There have been reports of short-term menstrual cycle changes,[17] but vaccines **do not** impact fertility (problems trying to get pregnant), genes (DNA), or hormone levels.[13,12]

Will children aged 5 to 11 get the same dose as teens and adults?

No. The Pfizer-BioNTech vaccine for children aged 5 to 11 uses a lower dose.[5] The Pfizer-BioNTech vaccine used for teens and adults has 30 micrograms (mcg) of mRNA and the vaccine for children has 10mcg.[1,13] Smaller vaccine doses are often used for children.[19] They work well because children have stronger immune responses than adults.[19]

Should children who weigh more, or who are nearly 12, get bigger doses?

No. Vaccine doses for COVID vaccine are not based on weight.[19]

What does a child receive if they turn 12 years old after receiving their first dose?

Children who are 11 years old should get the vaccine as soon as they are eligible, since it takes two weeks after the second dose to maximize protection. The lower dose provides a strong immune response with fewer side effects. If a child turns 12 after receiving their first dose, they can receive the adolescent/adult dose (30mcg) for their second dose. [1]

When should children get their second dose?

The National Advisory Committee on Immunization (NACI) is recommending that **children receive two doses of Pfizer BioNTech vaccine, at least eight weeks apart**.[1] Emerging evidence in adults suggests that longer intervals between the first and second doses produce a stronger immune response, higher vaccine effectiveness that lasts longer, and may be associated with a lower risk of myocarditis and/or pericarditis in adolescents and young adults.[1] **NACI recommends that children receive the Pfizer vaccine at least 14 days before or after another vaccine**. [1]

My child already had COVID-19. Do they need to get the vaccine?

Children who have had a prior COVID-19 infection may have some protection; but we do not know how long that will last or if it will protect against new variants. **Even if a child has already been infected with COVID-19, they should still get two doses of vaccine** once symptoms are gone, they are not in self-isolation and no longer considered infectious.[1,3]

Is COVID-19 vaccination safe for people with a medical condition or allergies?

Individuals taking medications that weaken their immune system or those with allergies to any of the vaccine ingredients should consult with their health care provider.[3] However, people who have medical conditions are often at higher risk of becoming more ill if they are infected with COVID-19 and are strongly encouraged to be vaccinated as soon as possible. COVID-19 vaccines do not contain eggs, gelatin (pork), gluten, latex, preservatives, antibiotics or aluminum.[3] Children with allergies to foods, drugs, insect stings, or other vaccines can safely get mRNA COVID-19 vaccines.[13]

What are the benefits of COVID-19 vaccination for children?

- Vaccines will protect children from getting sick with this virus.
- In children, teens and adults, vaccines lower the risk of hospitalization, death, long haul COVID, and spreading COVID-19 to others.[5,13,20,21]
- Some organizations or groups may require proof of vaccination from those who are eligible in order to participate.
- Vaccines help schools, extra-curricular activities and businesses stay open and make them safer places to be.[8] School, participation in activities and socializing are very important to a child's mental health and well-being.

How can I support a child who is anxious about vaccines?

Be open and honest with your children about COVID-19 and COVID-19 vaccines. Listen to and answer their questions, and let them know how the vaccine will help them get back to being kids.

- Have them bring an item to distract from the needle (e.g. music, mobile device, stuffed animal).
- Advise them that they might feel a "poke" or "pinch."
- Take deep breaths together and try to stay calm.
- Offer praise – positive reinforcement works for kids of all ages.
- Numbing skin patches or creams from a pharmacy can help children who are worried about pain.
- The CARD (Comfort, Ask, Relax, and Distract) system may help your child as they receive their vaccine.
- Talk with your healthcare team, including staff at clinics, to make a vaccine plan for children with more complex needs (e.g. a longer appointment or a quiet space).

The nurses at our clinics are well trained in vaccinating children and youth, and are happy to accommodate your family's needs in any way possible**. If you have something you would like to ask about before attending a clinic, contact our COVID-19 Call Centre at** 1-844-478-1400 or 1-705-995-3810 (local).

Additional resources for parents/guardians:

- A Caregiver's Guide to Safeguarding School-Aged Children's Health Through Vaccination
- All About Me
- CARD: Improving the Vaccination Experience
- COVID-19 Vaccine: information for Parents/Guardians **(Health Unit)**
- Needle Pain Management for Vaccinations & More
- Pain Management During Immunizations for Children
- Reduce the Pain of Vaccination in Kids and Teens
- **SickKids Vaccine Support Line** (Free, safe, judgement-free space to have an open conversation about the COVID-19 vaccine for children and youth. Over the phone interpretation is available free in many languages. Appointments made online or by calling 437-881-3505**.**

Sources:

[1] Public Health Agency of Canada. (2021, November 19). *An Advisory Committee Statement (ACS) National Advisory Committee on Immunization (NACI): Recommendation on the use of the Pfizer-BioNTech COVID-19 vaccine (10 mcg) in children 5-11 years of age.* https://www.canada.ca/content/dam/phac-aspc/documents/services/immunization/national-advisory-committee-on-immunization-naci/recommendations-use-covid-19-vaccines/pfizer-biontech-10-mcg-children-5-11-years-age/pfizer-biontech-10-mcg-children-5-11-years-age.pdf

[2] Mayo Clinic. (2021, November 5). *Different types of COVID-19 vaccines: How they work*. https://www.mayoclinic.org/diseases-conditions/coronavirus/in-depth/different-types-of-covid-19-vaccines/art-20506465

[3] Ontario Ministry of Health. (2021). *Child and Youth COVID-19 Vaccine Fact Sheet*. https://files.ontario.ca/edu-child-and-youth-covid19-vaccine-fact-sheet-en-2021-05-27.pdf

[4] Nature. (2021, October 22). *The tangled history of mRNA vaccines*. https://www.nature.com/articles/d41586-021-02483-w

[5] Food and Drug Administration (FDA). (2021, October 26). *Vaccines and Related Biological Products Advisory Committee October 26, 2021 Meeting Document.* https://www.fda.gov/media/153409/download?_clid=IwAR3H3WCpEtBeTYjb0_LG2ywfOXrFBcojtJhAWkLpvf9trTY2XER6irhHhA

[6] Centers for Disease Control and Prevention (CDC). (2021, November 3). *mRNA Vaccines*. https://www.cdc.gov/coronavirus/2019-ncov/vaccines/different-vaccines/mrna.html

[7] Canadian Paediatric Society. (2021, November). *COVID-19 vaccine for children and youth*. https://caringforkids.cps.ca/handouts/immunization/covid-19-vaccine-for-children

[8] Government of Canada. (2021, October 4). *Reported side effects following COVID-19 vaccination in Canada*. https://health-infobase.canada.ca/covid-19/vaccine-safety/summary.html

[9] FDA. (2021, October 26). *Vaccines and Related Biological Products Advisory Committee Meeting*. https://www.fda.gov/media/153508/download

[10] Immunize BC. (2021, November 18). *Question: Are there long-term side effects caused by mRNA COVID-19 vaccines?* https://immunizebc.ca/ask-us/questions/are-there-long-term-side-effects-caused-mrna-covid-19-vaccines

[11] Ontario COVID-19 Science Advisory Table. (2021, September 14). *Understanding the Post COVID-10 Condition (Long COVID) and the Expected Burden for Ontario*. https://covid19-sciencetable.ca/sciencebrief/understanding-the-post-covid-19-condition-long-covid-and-the-expected-burden-for-ontario/

[12] Antonelli, M. (2021, September 1). *Risk factors and disease profile of post-vaccination SARS-CoV-2 infection in UK users of the COVID Symptom Study app: a prospective, community-based, nested, case-control study*. The Lancet. https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(21)00460-6/fulltext

[13] Government of Canada. (2021, October 22). *Recommendations on the use of COVID-19 vaccines*. https://www.canada.ca/en/public-health/services/immunization/national-advisory-committee-on-immunization-naci/recommendations-use-covid-19-vaccines.html

[14] SickKids. (2021, August 6). *Myocarditis and pericarditis after mRNA COVID-19 vaccination in children: Interim guidance.* https://www.sickkids.ca/contentassets/50c1bd3c95e74dcf9fa7c9f6fd707bd7/interim-guidance_myocarditis-pericarditis-after-mrna-covid-19-vaccination-in-children.pdf

[15] Boehmer et al. (2021). *Association Between COVID-19 and Myocarditis Using Hospital-Based Administrative Data – United States*. Centers for Disease Control and Prevention: Morbidity and Mortality Weekly Report, 70(35), 1228-1232. https://www.cdc.gov/mmwr/volumes/70/wr/mm7035e5.htm

[16] Male, V. (2021). *Menstrual changes after COVID-19 vaccination*. British Medical Journal, 373, n2211. https://www.bmj.com/content/374/bmj.n2211

[17] Canadian Fertility and Andrology Society. (2021, April 9). *Fertility Care during the COVID-19 Pandemic: Guiding Principles for COVID-19 Vaccination in the Fertility Patient*. https://cfas.ca/_Library/SOGC_Statement_/CFAS_COVID-19_Vaccine_Build_Final_April2021_Final_EN.pdf

[18] Tinker, S.C. (2021). *Important Considerations for COVID-19 Vaccination of Children with Developmental Disabilities*. Pediatrics, 148(4). https://pediatrics.aappublications.org/content/148/4/e2021053190

[19] Immunize BC. (2021). *Question: Does an adult get the same amount of vaccine than a bay? How do you decide how much to give if not be weight? If a child is underweight would waiting make more sense?* https://immunizebc.ca/ask-us/questions/does-adult-get-same-amount-vaccine-baby

[20] CDC. (2021, September 15). *COVID-19 Vaccines and Vaccination.* https://www.cdc.gov/coronavirus/2019-ncov/science/science-briefs/fully-vaccinated-people.html

[21] Toronto Public Health. (2021, November 23). *COVID-19: Children & Vaccines*. https://www.toronto.ca/home/covid-19/covid-19-vaccines/covid-19-about-the-vaccines/covid-19-children-vaccines/

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