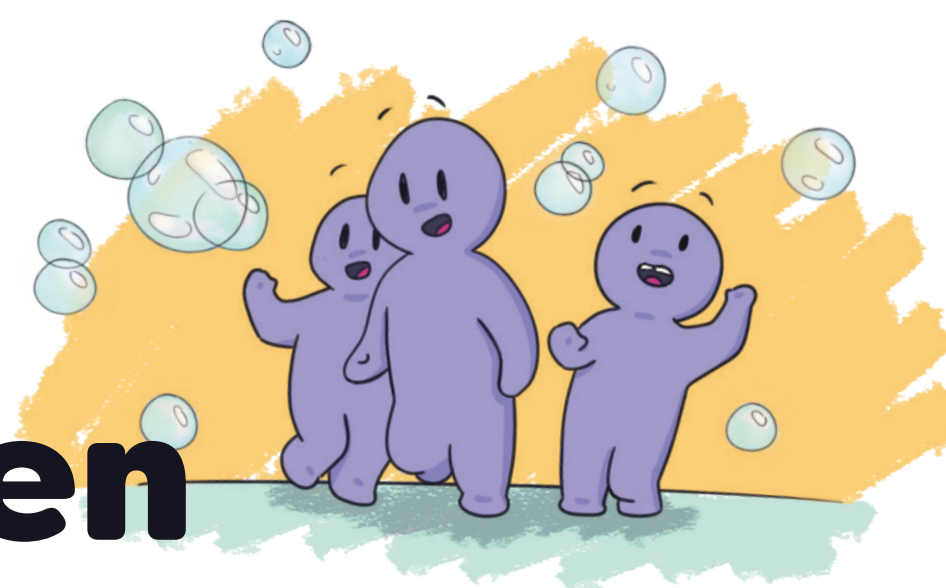



UPDATED: April 7, 2022

## FREQUENTLY ASKED QUESTIONS

# COVID-19 mRNA Vaccines for Children



 The National Advisory Committee on Immunization (NACI) recommends mRNA vaccines for children.<sup>1,2</sup> <https://www.canada.ca/en/public-health/services/publications/healthy-living/canadian-immunization-guide-part-4-a-ctive-vaccines/page-26-covid-19-vaccine.html>

### + Which vaccine can children get?

The Pfizer-BioNTech (Comirnaty®) COVID-19 mRNA vaccine is approved for children aged 5 to 11.<sup>3</sup> The Moderna (Spikevax®) mRNA vaccine is approved for children aged 6 to 11.<sup>4</sup> Experts think that the risk of myocarditis may be higher with the Moderna vaccine.<sup>2</sup> For this reason, the Pfizer vaccine is preferred for children at this time.<sup>2</sup>

### + How many vaccine doses are recommended for children?

For most children in the age groups studied, 2 doses of the Pfizer or Moderna vaccine are recommended.<sup>1,2</sup> Children who have a weakened immune system should have 3 doses.<sup>1,2,5</sup> This includes children who have specific health conditions or who take medications that affect their immune system (e.g., DiGeorge syndrome, chemotherapy).

### + What is the spacing between doses for children?

In studies, dose 2 of the Pfizer vaccine was given 3 weeks after dose 1.<sup>3</sup> In studies, dose 2 of the Moderna vaccine was given 4 weeks after dose 1.<sup>4</sup> The spacing used in the studies is the spacing approved by Health Canada.<sup>3,4</sup> NACI, however, recommends 8 weeks between dose 1 and dose 2.<sup>1,2</sup> Longer spacing between doses may give better long-term protection.<sup>1,2,5</sup> The risk of side effects may be lower.<sup>1,2</sup>

For children with a weakened immune system, NACI recommends 4 to 8 weeks between doses.<sup>1,2</sup>

Children will have the best possible protection once they have had all of the recommended doses.<sup>1,2,5</sup>

### + When can children who have had a COVID-19 infection be vaccinated?

Children who have had COVID-19 infections can be vaccinated once they are feeling better and their isolation period has ended.<sup>1,2</sup> Waiting 8 weeks after a COVID-19 infection to get a COVID-19 vaccine may give children better protection in the long-term.<sup>1,2</sup> For children who have a weakened immune system, getting a COVID-19 vaccine dose 4 to 8 weeks after a COVID-19 infection may give better protection in the long-term while also giving the most protection as soon as possible.<sup>1,2</sup> Children who have had multisystem inflammatory syndrome (MIS-C) should wait to be vaccinated for at least 90 days.<sup>1</sup>

\* Vaccine efficacy is the reduction in risk of disease in people who are vaccinated compared with people who are not vaccinated. The Pfizer vaccine trial included ~2500 children. The rate of symptomatic Covid-19 infection in children who got vaccinated was ~2 per 1,000. The rate of Covid-19 infection in children who got a placebo (salt water) was ~25 per 1,000. Vaccine efficacy is 91%.

✦ **Are the vaccine doses for children the same as for teens and adults?**

No. The Pfizer and Moderna vaccines for children use lower doses.<sup>3,4</sup> The Pfizer vaccine used for teens and adults has 30 micrograms of mRNA.<sup>1</sup> The vaccine for children has 10 micrograms.<sup>2,3</sup> The Moderna vaccine used for initial doses for teens and adults has 100 micrograms of mRNA.<sup>1</sup> The vaccine for children has 50 micrograms.<sup>1,2,4</sup> Smaller vaccine doses are often used for children.<sup>6</sup> They work well because children have stronger immune responses than adults.<sup>6</sup>

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

No. Children who weigh more or are nearly 12 do not need bigger doses. Vaccine doses are not based on weight.<sup>6</sup> Children who turn 12 between doses can get the child or teen dose for dose 2.<sup>5</sup>

✦ **Do COVID-19 vaccines work for children?**

Yes. In the Pfizer and Moderna COVID-19 vaccine trials, children had a strong immune system response to the vaccines.<sup>3,4</sup> The Pfizer and Moderna vaccines protect children from getting sick with the Delta variant.<sup>3,4</sup> During the Omicron wave, children who had 2 doses of the Pfizer vaccine had a 68% lower chance of needing to be treated for COVID-19 in hospital.<sup>7</sup>

✦ **What is in mRNA Covid-19 vaccines?**

The Pfizer and Moderna vaccines contain mRNA. mRNA instructs your cells to make the COVID-19 spike protein.<sup>8</sup> A lipid (fat) envelope protects the mRNA while it is getting into cells.<sup>8</sup> The Pfizer vaccine for children has slightly different sugars and salts than the one used for adults, so it can be stored in the fridge longer.<sup>1</sup> Neither vaccine contains any COVID-19 virus.<sup>9</sup> They cannot cause a COVID-19 infection.<sup>9</sup>

✦ **Is mRNA technology safe?**

Yes. Scientists have been studying mRNA since the 1960s.<sup>8</sup> Scientists around the world worked together to develop COVID-19 mRNA vaccines.<sup>7,8</sup> COVID-19 mRNA vaccines were tested in clinical trials.<sup>8,9</sup> Trial results were reviewed by regulatory bodies before the vaccines could be used.<sup>9</sup> Strong vaccine safety systems monitor for rare vaccine side effects.<sup>8,9,10</sup> More than 78 million doses of mRNA vaccines have been safely given in Canada.<sup>11</sup>

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

Many children have mild side effects (e.g., sore arm, chills, headache) that go away in a few days.<sup>1-4,12</sup>

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

Anaphylaxis (a severe allergy) happens very rarely after COVID-19 vaccines.<sup>1,2,9,10</sup> Children with allergies to foods, drugs, insect stings, or other vaccines can get COVID-19 mRNA vaccines.<sup>1</sup>

Inflammation of the heart (myocarditis) and of the sac around the heart (pericarditis) can happen rarely after COVID-19 vaccines.<sup>1,2,10,12</sup> These conditions happen even less commonly in children than in teens and adults.<sup>12,13</sup> In the United States, there were 8 cases of myocarditis after the first 7.1 million doses of the Pfizer vaccine for children aged 5 to 11.<sup>12</sup> The rate of myocarditis in children was 1.1 cases per 1 million doses (0.0001%).<sup>12,13</sup> In children aged 5 to 11, myocarditis and pericarditis happen far more often after a COVID-19 infection. They happen after 126 - 176 per 1 million COVID-19 infections in children (0.0013 - 0.0018%).<sup>14</sup> For more information, visit:

[https://uwaterloo.ca/pharmacy/sites/ca.pharmacy/files/uploads/files/myocarditis\\_and\\_pericarditis\\_after\\_covid-19\\_vaccines.pdf](https://uwaterloo.ca/pharmacy/sites/ca.pharmacy/files/uploads/files/myocarditis_and_pericarditis_after_covid-19_vaccines.pdf)

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

Long-term side effects are not expected from COVID-19 mRNA vaccines.<sup>10</sup> Vaccine side effects tend to happen in the first 6 weeks. mRNA vaccines have been studied in humans since 2013 with no known long-term effects.<sup>5,10</sup> The mRNA in the COVID-19 vaccine is broken down by the body in 2 to 3 days.<sup>6</sup> The spike protein may stay in the body for up to 2 to 3 weeks.<sup>6</sup> There have been reports of short-term menstrual cycle changes,<sup>11</sup> but vaccines **do not** impact fertility, genes (DNA), or hormone levels.<sup>6,12</sup>

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

Numbing skin patches or creams from a pharmacy can help children worried about pain. The CARD (Comfort, Ask, Relax, and Distract) system may also help: <https://www.aboutkidshealth.ca/card>. Guardians can talk with their healthcare team to make a plan for children with complex needs. For more tools, visit: [https://caringforkids.cps.ca/uploads/handout\\_images/painreduction\\_kidsandteens\\_e.pdf](https://caringforkids.cps.ca/uploads/handout_images/painreduction_kidsandteens_e.pdf) and <https://www.yummymummyclub.ca/health/it-doesnt-have-to-hurt-bc>.

✦ **How can I support a child with a disability or specific needs?**

Some children need support to access COVID-19 vaccines.<sup>13</sup> Guardians and children can speak with their healthcare team to make a plan (e.g., a longer appointment or a quiet space<sup>13</sup>), as needed.



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

COVID-19 infection can cause serious illness and death in **any** child.<sup>1,13</sup> COVID-19 can cause myocarditis/pericarditis.<sup>1,9</sup> Multisystem inflammatory syndrome (MIS-C) is most common in children aged 5 to 11.<sup>13</sup>

We are still learning about Long Covid.<sup>1,14</sup> In early studies, 1 to 4 out of every 100 children with a COVID-19 infection had lasting symptoms (1% to 4%).<sup>15</sup> Symptoms include tiredness, headache, sore throat, and loss of smell.<sup>15</sup> Children can get Long Covid even after a mild illness.<sup>1,14,15</sup>



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

COVID-19 is very contagious. It continues to spread in Canada. COVID-19 vaccines protect children from getting sick with COVID-19.<sup>1-5,7</sup> Vaccines lower the risk of hospitalization, death and MIS-C.<sup>1-5,7,21</sup> We are still learning whether vaccines protect from Long Covid.<sup>5</sup> We are still learning whether vaccines lower the risk of spreading new COVID-19 variants to others.<sup>5</sup>

<sup>1</sup> NACI. (2022). COVID-19 vaccine - Canadian Immunization Guide. <https://www.canada.ca/en/public-health/services/publications/healthy-living/canadian-immunization-guide-part-4-active-vaccines/page-26-covid-19-vaccine.html#t1>

<sup>2</sup> NACI. (2022). Recommendations on the use of Moderna (Spikevax Vaccine in children 6-11. <https://www.canada.ca/en/public-health/services/immunization/-national-advisory-committee-on-immunization-naci/recommendations-use-moderna-spikevax-covid-19-vaccine-children-6-11-years-age.html>

<sup>3</sup> Government of Canada. (2022). Pfizer-BioNTech Comirnaty COVID-19 vaccine. <https://www.canada.ca/en/health-canada/services/drugs-health-products/covid19-industry/drugs-vaccines-treatments/vaccines/pfizer-biontech.html>

<sup>4</sup> Government of Canada. (2022). Moderna Spikevax COVID-19 vaccine. <https://www.canada.ca/en/health-canada/services/drugs-health-products/covid19-industry/drugs-vaccines-treatments/vaccines/moderna.html>

<sup>5</sup> CPS. (2022). Covid-19 Vaccine For Children and Adolescents. <https://cps.ca/en/documents/position/covid-19-vaccine-for-children-and-adolescents>

<sup>6</sup> Peppers B. (2021). Scientific American, Why vaccine doses differ for kids and adults. <https://www.scientificamerican.com/article/why-vaccine-doses-differ-for-kids-and-adults/>

<sup>7</sup> Price AM et al. (2022). Pfizer protection against Omicron variant in children and adolescents. NEJM, DOI: 10.1056/NEJMoa2202826. <https://www.nejm.org/doi/full/10.1056/NEJMoa2202826>

<sup>8</sup> Dolgin E. (2021). Nature, History of mRNA Vaccines. <https://www.nature.com/articles/d41586-021-02483-w>

<sup>9</sup> CDC. (2022). Understanding mRNA Covid-19 vaccines. <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/different-vaccines/mrna.html>

<sup>10</sup> Government of Canada. (2022). Covid-19 vaccine side effects. <https://health-infobase.canada.ca/covid-19/vaccine-safety/summary.html>

<sup>11</sup> Government of Canada. (2022). COVID-19 vaccination in Canada. <https://health-infobase.canada.ca/covid-19/vaccine-administration/>

<sup>12</sup> CDC. (2021). Adverse events among children 5-11 years after COVID-19 vaccination. <https://www.cdc.gov/vaccines/acip/meetings/downloads/slides-2021-12-16/05-COVID-Su-508.pdf>

<sup>13</sup> Block JP et al. (2022). MMWR, Cardiac complications after COVID infection and vaccination. <https://www.cdc.gov/mmwr/volumes/71/wr/pdfs/mm7114e1-H.pdf>

<sup>14</sup> Male V. (2021). BMJ, Menstrual changes after Covid-19 vaccines. <https://www.bmj.com/content/374/bmj.n2211>

<sup>15</sup> CFAS. (2021). 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](https://cfas.ca/_Library/SOGC_Statement_/CFAS_COVID-19_Vaccine_Build_Final_April2021_Final_EN.pdf)

<sup>16</sup> Tinker SC et al. (2021). Pediatrics, Important Considerations for Covid-19 Vaccination of Children with Developmental Disabilities. <https://pediatrics.aappublications.org/content/148/4/e2021053190>

<sup>17</sup> Havers F. (2021). VRBPAC Meeting October 26, Epidemiology of COVID19 in Ch. <https://www.fda.gov/media/153508/download>

<sup>18</sup> Borch L. et al (2022). European Journal of Pediatrics, Long COVID symptoms and duration in children <https://link.springer.com/article/10.1007/s00431-021-04345-z>

<sup>19</sup> Razak F et al on behalf of the Ontario Science Table. (2021). Long Covid Brief. <https://covid19-sciencetable.ca/sciencebrief/understanding-the-post-covid-19-condition-long-covid-and-the-expected-burden-for-ontario/>

<sup>20</sup> Zimmerman P. et al. (2021). Pediatric Infectious Disease Journal, Review: Long COVID in children and adolescents. [https://journals.lww.com/pidj/fulltext/2021/12000/how\\_common\\_is\\_long\\_covid\\_in\\_children\\_and.20.aspx](https://journals.lww.com/pidj/fulltext/2021/12000/how_common_is_long_covid_in_children_and.20.aspx)

<sup>21</sup> Zambrano et al. (2022). MMWR, Effectiveness of Pfizer against MIS-C in 12-18 year olds. <https://www.cdc.gov/mmwr/volumes/71/wr/mm7102e1.htm>

