

PARENTS: ANSWERS TO YOUR QUESTIONS RELATED TO COVID-19 AND VACCINATIONS





INTRODUCTION: SHOULD I GET MY CHILD VACCINATED?

As a parent or guardian, one of your main concerns is the health and safety of your child. Naturally, your concerns are heightened due to the current pandemic. It has been over a year since we have been masked-up and hand-washed down, doing everything that we can to protect ourselves and our loved ones from disease.

The development and availability of a vaccine is a huge step in the fight against this disease and another excellent precaution we can take to help protect ourselves and our children. In this brochure, we will take a brief look at COVID-19 and how the vaccine can help in protecting us.



LET'S FIRST ADDRESS: WHAT IS COVID-19?

COVID-19 is the name of the disease caused by the virus **SARS-CoV-2 (severe acute respiratory syndrome coronavirus 2)** [2]. SARS-CoV-2 belongs to a family of viruses known as coronaviruses.

Although SARS-CoV-2 has only recently been discovered, there are other notorious coronaviruses such as the one that causes the Middle East Respiratory Syndrome (MERS) or even more common severe acute respiratory syndrome (SARS) [3]. COVID-19 also causes infection of the respiratory system, infecting the upper and lower respiratory tract which includes the lungs and esophagus [4,5].



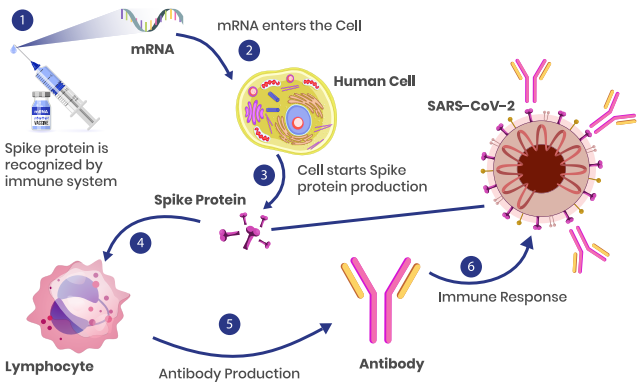
VACCINE HISTORY: HOW DID WE GET HERE SO QUICKLY?

For many, one of the biggest concerns about the COVID-19 vaccine is **how quickly it was developed**. It's no secret that vaccine development can take several years, but the usual rate of vaccine development is dependent on several factors. For instance, research funding plays a significant role in the rate of vaccine development. With the global urgency created by the COVID-19 pandemic, public funding of COVID-19 vaccine research became a priority [6].

COVID-19 is caused by a virus that comes from a fairly well-studied family of coronaviruses. A recent *Nature* article explains that mRNA vaccines have been in the making for decades dating back to 1978 [21]. This technology has been evolving over the years since the success of **Malon's Experiment where he mixed strands of mRNA with droplets of fat to make a molecular stew. Why was the mRNA vaccine developed so quickly?** In short, the technology was already developed, and just needed one final breakthrough (effective encapsulation with lipid nanoparticles - developed at UBC in Canada) to allow it to be applied to COVID-19 and mass-produced. With billions of dollars of funding available and the severe risk to life of COVID-19, the manufacturers deployed all their resources to accelerate development and testing. Ultimately, billions of vaccine doses will need to be manufactured.



How the mRNA vaccine works



VACCINE MECHANISM: HOW IT WORKS TO PROTECT US

The **two vaccines** that have currently been approved for children ages 12+ are those produced by Pfizer and Moderna. Both vaccines are **mRNA vaccines**, but what exactly does that mean?

Well to start, let's take a look at how the virus enters the cell. On the virus's outermost surface, there is a protein that binds to targeted human cells and triggers fusion with the cell membrane – going completely undetected [8, 9]! Think of this like a thief copying the key to your home and being able to let themselves in any time, because there are no signs of forced entry you may not realize until things start to go missing.

The vaccine provides the body with the blueprint, mRNA, to copy the “key”, the viral protein, that SARS-CoV-2 will use to enter the human cell. By doing so the body can now recognize that key and build a defense mechanism just in case the real virus tries to enter the body [11].

FREQUENTLY ASKED QUESTIONS (FAQS)

Now, we've taken a broad look at the virus and its history. Let's answer some of the questions that we've gathered from parents and guardians like yourself! All questions will be answered based on research literature that is currently available and is referenced for you in this brochure.

Q Is the vaccine safe for children?

A Based on current research and clinical trials, the mRNA vaccines developed by Pfizer-BioNTech and Moderna have been deemed safe and approved for use in children 12 years of age and older [12]

Q What are the side effects of the vaccine?

A Possible side-effects seen in children are similar to those seen in adults.

Common side-effects may include chills, fatigue, fever, headaches, mild pain, redness or swelling at the injection site, and muscle or joint aches. [13, 14]

Rare side-effects may include myocarditis (inflammation of the heart) and pericarditis (inflammation of the lining of the heart). [13, 14]

Q If we get vaccinated, does this mean we won't die from COVID?

A Based on current scientific findings, the COVID-19 vaccines are effective in preventing serious illness and death from COVID-19 infection [15]

Q Is it necessary to vaccinate my kids against COVID-19 if I am already vaccinated?

A As a parent, being vaccinated against COVID-19 significantly lowers the risk of contracting the disease and spreading it to your children. However, since breakthrough infections are still possible after vaccination, we recommend vaccinating your children to help reduce the risk of serious illness or death if they contract the disease from you or someone outside your household.

A breakthrough infection is an infection by COVID-19 after being vaccinated. An individual with a breakthrough infection is less likely to have serious illness since they have already been vaccinated and the body has built immunity against the virus. However, a breakthrough infection can still be contagious which is why we recommend that anyone eligible for the vaccine gets vaccinated to prevent severe illness and death. [15]

Q Have there been any child deaths resulting from the vaccine?

A Based on current and available research, there are no reported deaths in children with a causal relationship to the approved COVID-19 vaccines for children.[16]

Q Will my child need to get vaccinated every year against COVID-19?

A While there have been discussions on the need for a booster dose of the COVID-19 vaccine, a decision has not yet been made as research is currently underway. [17]

Q My child has an autoimmune disease, is this a safe vaccine for her/him/them to take?

A There is no data currently available for COVID-19 vaccine safety for individuals with autoimmune disease. [18]

Q My child suffers from asthma, is this a safe vaccine for her/him/them to take?

A Yes. The COVID-19 vaccine is strongly recommended for individuals who suffer from asthma as they are more at risk of developing serious illness if they contract COVID-19 disease. [18, 19]

Q If I am vaccinated, do I pass my immunity on to my breastfeeding baby?

A Current reports show that antibodies are present in the breastmilk of breastfeeding women vaccinated against COVID-19, however, this research is limited and ongoing. [20]

Q My child is just recovering from a cold. Is it a wise decision to vaccinate her/him/them while their immune system is still compromised?

A Individuals with mild illness can receive the COVID-19 vaccine. If the illness is moderate or severe, it is recommended that vaccination be delayed until recovery has been made. [17]

Q I homeschool my children and I also work from home – since exposure to others is so low, why is it still recommended that I take the vaccine?

A Being vaccinated against COVID-19 significantly lowers the risk of contracting the disease and spreading it to your children. However, since breakthrough infections are still possible after vaccination, we recommend vaccinating your children to help reduce the risk of serious illness or death if they contract the disease from you or someone outside your household.

Q Why are children under the age of 18 being vaccinated?

A Children under 18 years old are being vaccinated because they can pass the virus onto adults and other kids as well. To achieve herd immunity, it requires a percentage of the general population regardless of general population, regardless of age and gender, to be vaccinated. In most situations, children can contract the virus and be asymptomatic, but it can still spread to other loved ones such as grandma or grandpa who are vulnerable, and hence, we should get children vaccinated to prevent this occurrence.

Q Since this is the first time this type of vaccine is being used in humans, how sure are we of the effects on the development of young children?

A The vaccines don't have a long-term effect on a child's development. It only helps create the antibodies to combat the virus. For it to have a long-term effect, it would need to change your DNA sequence, which it does not. Also, we all have taken immunizations in school which were vaccines for measles, polio, tetanus, flu, etc, and these never changed our development.

For more information, visit <https://www.cdc.gov/vaccines/parents/diseases/forgot-14-diseases.html> and <https://kidshealth.org/en/parents/vaccine.html>

Q Is there evidence of the effect of the vaccine on humans in the future?

A The vaccines have been studied thoroughly and there are no negative effects for long-term application in the general demographic. For example, some people require insulin to treat diabetes long-term but this does not have a negative impact on the long-term. If the vaccine needs to be taken every two years or so, it will simply be like getting the flu shot yearly, which would be like protection against new strains of coronavirus.

Q Can the vaccine cause cancer in the future?

A No, the vaccine will not cause cancer. It would need to be composed of carcinogenic materials. The ingredients of the vaccine are **not** cancer-causing.

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