PEDIATRIC UNIT

The Science Behind COVID-19 Vaccines: Parent Frequently Asked Questions (FAQs)

The internet is a blessing and a curse. It's wonderful that we can so rapidly spread helpful information. The downfall is that misinformation is also easily shared. This is certainly the case with COVID-19 and the COVID-19 vaccines.

Three vaccines are currently available for adults, and one also can be given to children aged 12 and older. The American Academy of Pediatrics urges children and adults to get the COVID-19 vaccine as soon as they can. Vaccines for children aged 5 and up may be authorized soon.

Parents, family members and children need a trusted source of information. As a pediatrician who advocates for children and children's health, I want to share information on the efficacy and safety of the COVID-19 vaccines with you today because I believe they are our best hope to end the COVID-19 pandemic.

Beth Summers, MD, PhD
Pediatric Hospitalist
Hendricks Regional Health

Frequently Asked Questions (FAQs)

How does the COVID-19 vaccine work?

The COVID-19 vaccine works similarly to other vaccines your child has had. Germs such as SARS-CoV-2, the virus that causes COVID-19, invade and multiply inside the body. The vaccine helps stop this by teaching the immune system to recognize and make antibodies to fight the virus. After vaccination, your child has less of a chance of getting the COVID illness. And if they do get infected with the virus, including the more contagious Delta variant, they likely will not be as sick as they would without the vaccine. Vaccination results in a **98% decrease** in being hospitalized for COVID-19 illness!

How are mRNA and viral vector vaccines different?

There are two types of COVID-19 vaccines currently available in the United States: **messenger ribonucleic acid (mRNA) vaccines** (Pfizer and Moderna), and a **"viral vector" vaccine** (Johnson & Johnson). They all have the same result – protecting people from COVID-19 – but their delivery systems are a bit different.

- **mRNA vaccines** contain nucleic acids, which are the building blocks of all our cells. The mRNA carries instructions inside a lipid coating or fat bubble that tells cells to produce harmless pieces of "spike" protein found on SARS-CoV-2. Once the protein is created, your immune system identifies it as a foreign molecule. The immune process starts, making antibodies that can attach to the virus. These antibodies protect you from getting COVID-19.

  Although widespread use of mRNA vaccines is new, this technology has been studied for decades. mRNA vaccines do not contain any live or dead parts of the virus. Once they have done their job, the mRNA quickly exits the body. *mRNA vaccines are given in a two-dose series. A third dose is now available for certain adolescents and adults who have medical conditions or take medicines that weaken the immune system.*

- **Viral vector vaccines** also give instructions to your immune cells. Instead of carrying the instructions to your cells on a fat bubble, they are carried in a harmless virus that has been modified so it cannot replicate and cause illness. This creates the same process as seen with the mRNA vaccine – the cells create the protein that is found on the virus that causes COVID-19, the immune system makes antibodies to fight it, and you are protected from getting COVID-19. *The viral vector vaccine available in the United States is given in one dose.*

How do we know COVID-19 vaccines are safe for kids?
Even before getting FDA emergency use authorization, clinical trials showed COVID-19 vaccines to be remarkably safe and effective for adults and teens age 12 and up. Trials involved tens of thousands of volunteers. The FDA recently gave full approval of the first mRNA vaccine for older teens and adults. Clinical trials for both types of U.S. vaccines are underway for children as young as six months old.

The vaccines continue to be monitored very closely. In fact, the Centers for Disease Control and Prevention (CDC) says that COVID-19 vaccines will have "the most intensive safety monitoring in U.S. history."

Do mRNA vaccines change your DNA?
No, the mRNA does not interact with your DNA at all.

What about side effects of the COVID-19 vaccine?
Some people had no side effects after being vaccinated but some experienced short-term side effects such as these:

- Pain, redness, and swelling where the injection was given
- Fever
- Chills
- Headache
- Fatigue
- Nausea
- Pain in the muscles

These symptoms usually go away in a day or so. While very rare, some people have had serious allergic reactions to the COVID-19 vaccine. If your child experiences any of these symptoms following a COVID-19 vaccination, call your pediatrician and ask about medicines that can reduce the effects. As for long-term side effects, the CDC says this is very unlikely.

Are COVID vaccines linked to heart problems?
A small number of adolescents and young adults have experienced mild cases of heart inflammation (called myocarditis) after getting the COVID-19 vaccine. However, ongoing research shows that people who became infected with COVID-19 have a greater risk of developing this potential side effect than those who receive the vaccine.

Is it safe to get the COVID-19 vaccine if I'm pregnant or breastfeeding?
Yes, the American College of Obstetricians and Gynecologists, the American Academy of Pediatrics, and more than a dozen other medical organizations recommend that all pregnant and breastfeeding women get vaccinated. Receiving the vaccine while you are pregnant, or breastfeeding, will protect you and pass along antibodies that may help protect your baby.

Can COVID-19 vaccines affect fertility?
There is no evidence that any vaccine, including those for COVID-19, causes fertility side effects. In fact, among the millions of people now immunized, there are women who got the COVID-19 vaccine while pregnant and women who became pregnant after getting it. Doctors have watched these cases closely and have reported no safety problems.

How quickly after immunization does the vaccine protect me, and how long does immunity last?
For the mRNA vaccines developed by Pfizer-BioNTech and Moderna, studies reported vaccine efficacy at 7-14 days after the second dose. Studies to date have shown that both these vaccines maintain high efficacy levels over a six-month period (e.g., 91% Pfizer-BioNTech, 90% Moderna). More research is being conducted to monitor vaccine efficacy over time. For the Johnson & Johnson viral vector vaccine, immunity is shown 2-4 weeks after vaccination.

An announcement was made in September that a booster dose has been approved for the Pfizer vaccine. A "booster dose" refers to an additional dose of a vaccine that is given to someone who built enough protection after vaccination, but then that protection decreased over time (this is called waning immunity).

The CDC has issued Pfizer booster eligibility guidance for the following eligible individuals:

- Persons aged 65 and older and long-term care facility residents
- Persons aged 50-64 years with underlying medical conditions
- Persons based on individual benefit and risk who are age 18-49 years with underlying medical conditions
- Persons 18-64 at increased risk of exposure and transmission due to occupational or institutional settings

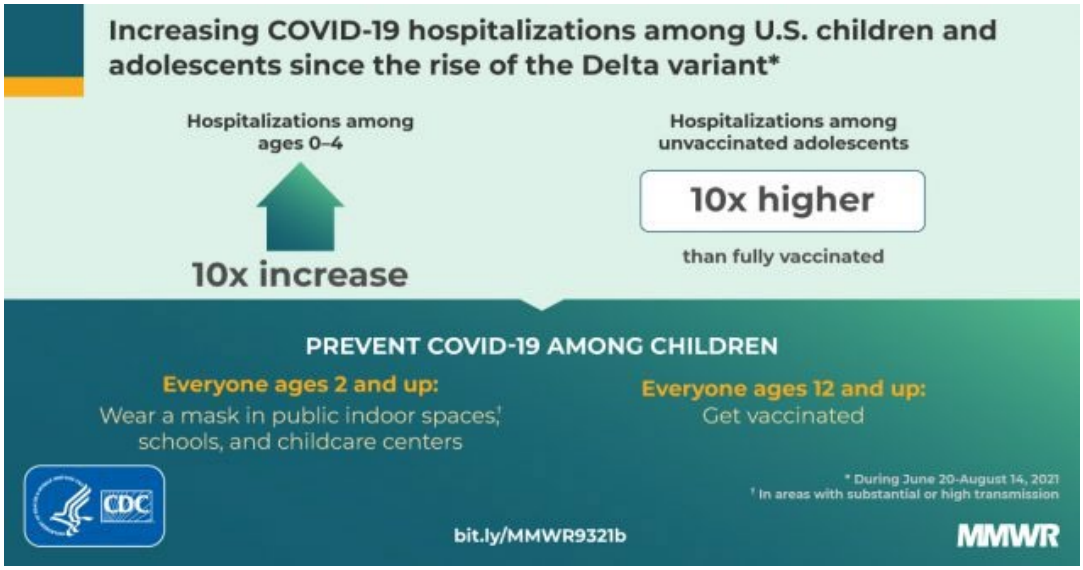
Based on those recommendations, the Indiana Department of Health supports the administration of a Pfizer vaccine booster dose to:

- People 18 years and older
- Received the Pfizer COVID-19 vaccine as their primary series
- Are at least six months after the second dose

How do we prevent our children and family from getting the COVID-19 virus?

1. Everyone ages 2 and up should wear a mask in public indoor spaces, schools and childcare centers.
2. Everyone ages 12 and up should get vaccinated.
    a. Once the COVID vaccine is approved for young children, then they should get vaccinated, too.

Staying Informed and Staying Healthy
The bottom line is research shows these vaccines are remarkably effective and safe. This data shows an unvaccinated child in the United States has a **10 times higher risk** of being hospitalized for COVID-19 illness than a fully vaccinated child.



We're making progress in fighting the pandemic, but we need to keep taking care of ourselves. Wear a mask when you go out of your house. Wash hands often with soap and water (for at least 20 seconds). Disinfect frequently touched surfaces. Cover coughs and sneezes with a tissue or your arm or sleeve. These practices will help prevent the spread of COVID-19 and keep us moving in the right direction in our fight against the virus.

Additional Resources:
www.healthychildren.org
www.CDC.gov
www.AAP.org

Should a situation arise in which your child needs to be admitted to a hospital, remember that Hendricks Regional Health's dedicated pediatric unit is staffed 24/7 to care for children from birth to 18 years. Learn more at ***hendricks.org/pediatrics*****.**