

COVID-19 PEDIATRIC VACCINE

Top 8 parental concerns answered

October 2021

- For **5-11 year olds**, starting November 2021, a COVID-19 vaccine will be authorized for emergency use. The vaccine is a 2-dose series taken 3 weeks apart. Each dose is 10 µg, which is 1/3 the dosage of the adolescent/adult vaccine
- For **12-17 year olds**, a vaccine is already authorized and more than 11.1 million adolescents have been vaccinated. This vaccine is a 2-dose series taken 3 weeks apart. Each dose is 30 µg.

The vaccine is effective

- 90-100% efficacy in clinical trials
- There were no severe cases of COVID-19 during clinical trials
- Vaccines work against Delta and other known variants of concern

Your child may experience side effects

- Mostly mild-to-moderate side effects are reported: fever, fatigue, headaches, chills, diarrhea, muscle and joint pain
- More kids report side effects with the 2nd dose compared to the 1st dose
- Rare side effects include swollen lymph nodes and skin sensitivity

Myocarditis is rare

- Myocarditis (heart inflammation) has been linked to mRNA vaccines
- It is very rare. We expect 26 cases of myocarditis per 1 million doses administered
 - It's more common for young males and more common for the 2nd dose
- Symptoms typically arise within 7 days of vaccination
- Majority of cases have been hospitalized. No kids have died. Cases fully recover within ~34 days.
- Vaccine-induced myocarditis is much milder compared to COVID-19-induced myocarditis

There is a need

- COVID-19 disease in kids can range from asymptomatic to severe illness
- As of October 21, over 6.3 million COVID-19 pediatric cases have been reported
 - Only 43% of kids under 12 years old have natural immunity
- In 23 states, 24,073 pediatric hospitalizations have been reported
 - 30% of hospitalized had **no** underlying medical condition
 - Hospitalization rates for COVID-19 are higher than for the flu
 - As of October 2021, 5,217 MIS-C cases have been linked to COVID-19
- Over 600 pediatric deaths have been reported. Although this seems low compared to adults, **COVID-19 is a top 10 cause of death** for kids in the United States.
- Long COVID-19 is reported among 7-8% of kids

The vaccine got to us fast

- Speed does not mean rushed. It meant leveraging a whole lot of people, money, and decades of previous work to get us a vaccine in 9 months. This included:
- Previous research (mRNA research started in 1961; first clinical trial was in 2001);
 - Lots of money and resources for scientists around the world;
 - Production started before clinical trials were complete because the government financially supported the effort;
 - Although vaccines went through Phase I, II, and III, phases were overlapped to remove white space. This is standard practice;
 - High rates of disease in the community (unfortunately) meant we didn't have to wait for a minimum number of COVID-19 cases during clinical trials;
 - Over 150,000 people flooded to participate in the U.S. trials. This couldn't have been done without each and every one of them

mRNA does not change DNA

- It's biologically impossible for messenger RNA (mRNA) to alter DNA. In order for a mRNA vaccine to alter someone's DNA, several events would have to occur...
- mRNA cannot enter the cell nucleus where DNA lives. mRNA does not have the "secret door code" (called nuclear access signal) that would allow it to enter.
 - mRNA can't be converted to DNA. This would require a tool called "reverse transcriptase", which the vaccine doesn't have.
 - mRNA cannot insert itself into the DNA. The mRNA would need a tool called "integrase" to do this, which the vaccine doesn't have.

Long term side effects, like infertility, are highly unlikely

- We do not know the long term effects of mRNA COVID-19 vaccines. However, based on our knowledge of mRNA and the human body, we do not expect long term side effects:
- Vaccine ingredients are cleared from the body very quickly. mRNA is very fragile and degrades within 72 hours of injection. Ingredients do not linger in the body.
 - mRNA vaccines are not made of the actual pathogen. This means that they don't contain weakened, dead, or noninfectious parts of a virus
 - In the history of vaccines, serious adverse side effects only occur within the first 2 months of rollout. We have more than 12 months of vaccine follow-up data by now.
 - Thousands of people have gotten pregnant after vaccination
 - There are reports that menstrual cycles change after a COVID-19 vaccine. The body is mounting an immune response and this is likely a temporary side effect, like a fever.

Previously recovered still need the vaccine

- Efficacy of "natural" immunity is high, but protection wanes for some
- Getting a vaccine, even for people who have already recovered from COVID-19, strengthens your immune response (antibody and T-cell protection)
- The immune response is messier from natural infection. Its not as focused as vaccine immunity, so evidence shows the vaccine better protects against variants of concern