

# COVID-19 PEDIATRIC VACCINE

## Top 8 parental concerns answered

October 2021

- For **5-11 year olds**, starting November 2021, a COVID19 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 COVID19 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 COVID19-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:

1. Previous research (mRNA research started in 1961; first clinical trial was in 2001);
2. Lots of money and resources for scientists around the world;
3. Production started before clinical trials were complete because the government financially supported the effort;
4. Although vaccines went through Phase I, II, and III, phases were overlapped to remove white space. This is standard practice;
5. High rates of disease in the community (unfortunately) meant we didn't have to wait for a minimum number of COVID19 cases during clinical trials;
6. 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..

1. 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.
2. mRNA can't be converted to DNA. This would require a tool called "reverse transcriptase", which the vaccine doesn't have.
3. 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 COVID19 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 COVID19 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