

The COVID-19 Vaccine

Answers to common questions about the COVID-19 vaccine.

Is the COVID-19 vaccine safe?

Yes, the Pfizer/BioNtech and Moderna COVID-19 vaccines have gone through each step of the usual process required to understand the safety and effectiveness of a new vaccine. We will learn more about the safety of other COVID-19 vaccines as they go through the FDA's approval process.

Which COVID-19 vaccines have been approved?

At this time, the FDA has approved two vaccines: one from the drug companies Pfizer/BioNtech, and one from the drug company Moderna. The research for both vaccines shows that they are more than 90% effective in preventing COVID-19 infection. This means they work very well at stopping people from getting sick with COVID-19.

Two more vaccines, one from Johnson & Johnson and another from AstraZeneca, may also be approved soon. These vaccines have shown closer to 60-70% effectiveness in stopping people from getting sick altogether; however, they are both very effective at preventing severe illness or death from COVID-19. In addition, the Johnson & Johnson vaccine requires only one dose.

Will my child be able to get the vaccine?

The vaccine isn't ready for kids right now for two reasons:

- There is a limited supply of the vaccine. Healthcare workers are the first to get the vaccine and experts are still figuring out who should get them next. Kids will be further down the list because they often don't get as sick from COVID-19 as adults, especially older adults.
- Kids' bodies are different, and they may react differently to this vaccine than adults do. The vaccine needs more clinical trials before a vaccine can be approved for children. Studies that involve children are happening now, and the results of those studies will likely be ready in 2021.

How does a vaccine work?

To understand how a vaccine works, it's helpful to know how viruses work. The virus enters the body, attaches to your cells and takes over the cell to make copies of itself. The immune system then makes antibodies that kill the virus off. But, while the immune system is learning how to fight the virus, the virus can still cause a lot of harm. A vaccine's job is to stop the virus from infecting the body in the first place. Vaccines train the body to kill a virus as soon as it comes along before it can cause any harm.

What is mRNA?

Both Pfizer's and Moderna's vaccines use a technology called messenger RNA. Some types of traditional vaccines use parts of the virus that are dead or weakened to get the immune system ready to fight the germs. mRNA, tells cells what to build inside themselves to protect themselves from the virus.

The advantage of mRNA vaccines is that they're faster and cheaper to make. The main downside is that mRNA vaccines need to be stored at incredibly cold temperatures, which makes it harder to get the vaccines to where they need to go and for storing them.

Either vaccine would be the first mRNA-based treatment ever approved, but the science behind them is based on many years of research on this type of vaccine.

How are vaccines tested for safety and to make sure they work?

Once scientists learn more about the virus and test potential vaccines in animals, they eventually start testing in humans. Those tests are called clinical trials, and they happen in three phases.

Phase one

The big question in phase one is, "Is it safe?" Phase one trials involve a small group of people. If the treatment is shown to have harmful results, the testing ends, and the research process starts over again.

Phase two

Phase two often involves a randomized control trial, where participants are split into two groups: one gets the treatment being tested; another gets a placebo, or a medicine that doesn't have any effect. In this phase, researchers are building a better understanding of the treatment's safety, as well as how and if it works.

Phase three

The final phase involves the largest group of people, often in the thousands or tens of thousands. This phase seeks to answer, "How effective is it, and how does it work best?" Researchers study how the drug works on people of different ages and medical histories, comparing different doses and how often the vaccine needs to be given to work.

How does a new vaccine get approved?

- If a treatment is shown through clinical trials to be safe and effective, the pharmaceutical company then submits all their data to the FDA.

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- The FDA reviews the data and decides whether to approve the treatment — meaning it decides whether the company can sell the treatment to the public.
- The FDA also has an outside group of experts called the Vaccines and Related Biological Products Advisory Committee, or VRBPAC for short. This group has 15 experts who study disease and other related topic areas.
- All its members are fully vetted for potential conflicts of interests and not beholden to political interests. In general, without the VRBPAC approval, the FDA doesn't approve.

How were these vaccines created so quickly?

The U.S Department of Health and Human Service made a special program called Operation Warp Speed to help drug companies quickly make a safe and effective COVID-19 vaccine. They gave money to six different drug companies to try to make a successful vaccine within a year and a half. Operation Warp Speed helps drug companies overcome the usual challenges of making a vaccine:

- Funding – vaccines cost a lot of money to develop. Operation Warp Speed helped drug start working on research and making the vaccines by paying companies up front. The U.S Government has spent tens of billions of dollars with the hope of making at least one vaccine that works.
- Efficiency – It takes a lot of people and organizations to create a vaccine that works. Operation Warp Speed helped make this process go smoother.

It's important to note that although this is a new vaccine, there is decades of research that led to this historic breakthrough.

Where can I find more up-to-date information about the vaccine?

Vaccinate Your Family:

<https://vaccinateyourfamily.org/vaccines-diseases/covid19/>

Centers for Disease Control and Prevention (CDC):

<https://www.cdc.gov/coronavirus/2019-ncov/vaccines/index.html>

Coronavirus Vaccine Tracker:

<https://www.nytimes.com/interactive/2020/science/coronavirus-vaccine-tracker.html>

Children's Hospital Colorado COVID-19 Vaccine Updates:

<https://www.childrenscolorado.org/conditions-and-advice/parenting/parenting-articles/covid-vaccine-updates/>