Coronavirus Disease 2019 (COVID-19) Vaccines

You must carefully read the "Consumer Information Use and Disclaimer" below in order to understand and correctly use this information

The Basics

Written by the doctors and editors at UpToDate

What is COVID-19?

COVID-19 stands for "coronavirus disease 2019." It is caused by a virus called SARS-CoV-2. The virus first appeared in late 2019 and quickly spread around the world.

More information about COVID-19 is available in a separate article. (See "Patient education: Coronavirus disease 2019 (COVID-19) overview (The Basics)".)

What are vaccines?

Vaccines are a way to prevent certain serious or deadly infections. When a person gets a vaccine, this is called "vaccination" or "immunization."

To understand how vaccines work, it helps to understand what happens when you get an infection. Infections are caused by germs, such as bacteria or viruses. When a germ gets into your body, it multiplies (makes copies of itself) and attacks, which can make you sick. Your "immune system," or infection-fighting system, recognizes that the germ should not be there. In response, it starts to make proteins called "antibodies" to fight the germ.

There are different types of vaccines. They all work by causing your body to make antibodies, like it would if you had an infection. This prepares your immune system to fight off germs if you come into contact with them in the future. Most vaccines are given as shots, although some come in other forms. Some require more than 1 dose in order to fully protect you from infection.

Thanks to vaccines, the number of people who die from infections has gone way down. Experts believe that vaccines will be one of the most important ways to control the COVID-19 pandemic.

How does the COVID-19 vaccine work?

There are several COVID-19 vaccines being developed. They work in slightly different ways.

In the United States, the first 2 COVID-19 vaccines became available in late 2020. Both are a type of vaccine called an "mRNA vaccine." mRNA refers to genetic material from the virus that causes COVID-19. This genetic material is used in the vaccine. It gives the body instructions to make a specific piece of protein that is normally found on the virus. In response, the immune system then makes antibodies that can recognize and attack the virus in the future. In studying the new vaccines, experts found that they work extremely well, preventing about 95 percent of infections.

It's important to know that these COVID-19 vaccines do **not** contain actual live virus. So they cannot give you the infection. They also do not cause your body to make live virus.

The COVID-19 vaccines require 2 doses given a few weeks apart. It's important to get both doses for the vaccine to be most effective. When to get the second dose depends on which vaccine you get.

Does the COVID-19 vaccine cause side effects?

It can. Side effects are common, especially after the second dose of the vaccine. They can include:

● Pain where you got the shot (upper arm)

● Fever

● Feeling very tired

● Headache

While these side effects can be annoying, they should not last longer than a day or 2. They do not mean you are sick, just that your immune system is responding to the vaccine.

Vaccines also sometimes cause more serious side effects, such as severe allergic reactions. But this is rare. After getting the vaccine, you will be monitored for 15 to 30 minutes to make sure you do not have an allergic reaction.

Can I get COVID-19 from the vaccine?

No. You cannot get COVID-19 from the vaccine.

Some people worry that the vaccine actually contains the virus that causes COVID-19. Some vaccines, like the chickenpox and measles, mumps, and rubella (MMR) vaccines, do work in this way. They are made from a virus, but it is weakened so it will not make a healthy person sick. The COVID-19 vaccines that are available in the United States do **not** contain live virus.

Why should I get the COVID-19 vaccine?

Getting vaccinated lowers your chances of getting sick. If you do get COVID-19, the vaccine will probably also keep you from getting severely ill.

The virus that causes COVID-19 spreads very easily. In addition to protecting you, getting the vaccine will probably also help protect other people, including those who are at higher risk of getting very sick or dying. Even if you are not worried about getting very sick yourself, you could still spread the virus to others, even without realizing it.

When a lot of people have been vaccinated, the virus will stop spreading so quickly. This will allow everyone to get back to normal life sooner. But it only works if enough people get the vaccine.

How do I know the vaccine is safe?

COVID-19 vaccines have been developed very quickly. Because of this, some people wonder if they are safe. The answer is **yes**, the new vaccines had to go through the same process as other vaccines to test them for safety. This involved running "clinical trials" with lots of people who volunteered to try the vaccine. The volunteers included adults of all ages and ethnicities. During these trials, researchers studied how well the vaccines work and how many people had side effects. The results were reviewed by doctors and other experts who do not work for the drug companies that made the vaccines. These experts agreed that the vaccines are safe and effective enough to be given to the public.

It's true that clinical trials for the new COVID-19 vaccines have happened much more quickly than usual. That's because experts know that an effective vaccine will be one of the best ways to control the pandemic. In the United States, drug companies were able to work faster to develop vaccines because they received money from the government. This allowed them to focus their efforts on COVID-19. Drug companies were also able to make progress quickly because they had already learned a lot from working on other vaccines. This includes studying "mRNA" vaccines that work similarly to the ones made for COVID-19.

Even after people start getting the vaccine, researchers will continue to study how it works. They will learn more about how long a person is protected after getting a vaccine, and how well vaccination is working to slow the spread of COVID-19.

When will I be able to get a vaccine?

It depends. In the United States, each state is making plans for how to get a vaccine to the people who need it. Because it takes time for the drug companies to make enough doses for everyone, states will need to make decisions about who should get the vaccine first.

Some people are at higher risk for getting COVID-19, or getting seriously ill if they are infected. In general, plans aim to make sure these people are able to get a vaccine early on. In the United States, this involves starting with health care workers and people who live in long-term care facilities (such as nursing homes). After these groups, the vaccine will likely be given to people over the age of 65, those with certain medical conditions, and other people who are at higher risk (for example, because of their jobs). There will also be an effort to make sure vaccines reach groups of people that have been impacted by COVID-19 more than others. In the United States, this includes Black, Latino, and Indigenous communities.

While it will take time to get there, eventually a vaccine should be available for everyone who can safely get it.

Do I still need the vaccine if I have had COVID-19?

Yes. Experts recommend getting vaccinated even if you had COVID-19 in the past. People who get COVID-19 do develop antibodies that likely provide some protection against getting infected again. But it is not known exactly how long antibodies last after a person recovers.

Can children get the COVID-19 vaccine?

One of the available vaccines in the United States can be given to people 16 years of age or older. The other can be given to people 18 or older. Eventually, younger children will be able to get a vaccine as well, once experts have studied this more to make sure it is safe.

What if I am pregnant?

Experts are also still studying the safety of the COVID-19 vaccine during pregnancy. However, pregnant people might be more likely to get seriously ill if they get COVID-19. Talk to your doctor or nurse about whether or not you should get the vaccine.

If I get the vaccine, can I stop social distancing and wearing a mask?

Not yet. Even though vaccines work very well to prevent COVID-19, it is still possible to get the infection. It will also take some time to learn exactly how long immunity lasts after a person gets a vaccine. Experts also need to learn more about how many people are getting vaccinated and how this is affecting the spread of COVID-19.

For the time being, it's important to continue social distancing (staying at least 6 feet, or 2 meters, away from other people), wearing a face mask in public, and washing your hands often. While this will not go on forever, for now it's still the best thing we can do to slow the spread.

When will the pandemic end?

The pandemic will be controlled when we have "herd immunity." This is when enough people are immune to a disease that it can no longer spread easily. When vaccines are widely available, this is the best way to make people immune.

Trying to reach herd immunity without vaccines would involve allowing lots of people to get infected on purpose. But this would be dangerous. Even though most people with COVID-19 do not get seriously ill or die, some do – even young and healthy people. And people who do not get very sick can easily spread the infection to someone who might.

To get to herd immunity, lots of people need to get vaccinated. This is why it's so important to get the COVID-19 vaccine once you are able. The more people who get vaccinated, the sooner we will be able to reopen businesses and schools and get back to normal activities.

What if I have other questions?

It's normal to have a lot of questions or to be nervous about the idea of getting a new vaccine. Your doctor or nurse can help answer your questions or direct you to sources you can trust.

Be careful with information you find on the internet or social media. In some cases, it can be hard to tell what is true and what is false. This is especially dangerous if people share health information that is not based on science or evidence.

You can find more information about COVID-19 vaccines through the United States Centers for Disease Control and Prevention (CDC): www.cdc.gov/coronavirus/2019-ncov/vaccines/index.html.

All topics are updated as new evidence becomes available and our peer review process is complete.

This topic retrieved from UpToDate on: Dec 21, 2020.

Topic 130329 Version 5.0

Release: 28.5.3 - C28.469

© 2020 UpToDate, Inc. and/or its affiliates. All rights reserved.

Consumer Information Use and Disclaimer:

This information is not specific medical advice and does not replace information you receive from your health care provider. This is only a brief summary of general information. It does NOT include all information about conditions, illnesses, injuries, tests, procedures, treatments, therapies, discharge instructions or life-style choices that may apply to you. You must talk with your health care provider for complete information about your health and treatment options. This information should not be used to decide whether or not to accept your health care provider's advice, instructions or recommendations. Only your health care provider has the knowledge and training to provide advice that is right for you.The use of UpToDate content is governed by the UpToDate Terms of Use. ©2020 UpToDate, Inc. All rights reserved.

Last Updated 12/21/20

Wolters Kluwer