Patient Education

COVID-19 Vaccines
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The Basics
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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 multiple COVID-19 vaccines being developed. They work in slightly different ways.

In the United States, there are a few COVID-19 vaccines available. All of these have been found to work very well in preventing serious illness and death from COVID-19. They include:
● **mRNA vaccines** – The first 2 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.

The mRNA vaccines for COVID-19 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.

● **Vector vaccine** – In early 2021, another type of vaccine became available. This is called a "vector vaccine." It contains a weakened version of a different virus, called an adenovirus. This virus does not make you sick, but it acts as a "vector," or a way to deliver instructions to all the cells in your body. These instructions tell your body to make the protein normally found on the virus that causes COVID-19. Then, your immune system makes antibodies that can recognize and attack the virus in the future.

The vector vaccine only requires 1 dose.

It's important to know that these COVID-19 vaccines do **not** contain infectious SARS-CoV-2 virus. So they cannot give you COVID-19. They also do not affect your DNA.

Different COVID-19 vaccines are available in other countries.

**Do vaccines work against the different virus variants?**

Viruses constantly change or "mutate." When this happens, a new strain or "variant" can form. Most of the time, new variants do not change the way a virus works. But when a variant has changes in important parts of the virus, it can act differently.

Experts have discovered several new variants of the virus that causes COVID-19. They are studying them to better understand if and how they act differently. They are also studying how well the available vaccines work to protect against them. From what they know so far, it seems like the available vaccines provide at least some protection from the different variants.

**Can people who have been vaccinated still spread the virus?**

Yes, but the risk is much lower. Vaccines do not prevent 100 percent of infections. So it is still possible for people who have been vaccinated to get COVID-19 and spread the virus to others. But this happens much less often than if they had not been vaccinated.

Also, experts are still studying whether people who have been vaccinated could get "asymptomatic" infections. This means infection that does not cause symptoms but could still spread to others. From what we know so far, it seems likely that vaccines lower a person's risk of getting asymptomatic infection. Experts will learn more about this over time.

**Does the COVID-19 vaccine cause side effects?**

It can. Side effects are common, especially after the second dose of the vaccines that come in 2 doses. 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. If you have had a reaction to the vaccine or its ingredients in the past, you might need to talk to an allergy expert. They can help you figure out if you should get the COVID-19 vaccine. People who do get the vaccine might be monitored for 15 to 30 minutes to make sure they 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. The vector vaccine that is available in the United States does contain virus, but it is a different virus. It is also created in a lab in a weakened form so it will not make a healthy person sick. mRNA vaccines do not contain virus at all.

**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 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 other vaccines that work similarly to the ones made for COVID-19.

Even after people start getting vaccines, researchers will continue to study how they work. 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 need to make decisions about when different people can get the vaccine.

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 has involved starting with health care workers and people who live in long-term care facilities (such as nursing homes). After these groups, the vaccine is generally given to older people, those with certain medical conditions, and other people who are at higher risk (for example, because of their jobs). But the specific plan is different in each state. There is also 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.

**Which vaccine should I get?**

All of the available vaccines work very well to protect against the virus that causes COVID-19. Depending on where you live and when you can get a vaccine, you might not have a choice about which one to get. Since the amount of vaccine available might be limited, it’s best to get whatever version you are offered.

**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.

**Will I have to pay for my vaccine?**

No. In the United States, COVID-19 vaccines are free. When you are eligible to get one based on your state’s rules, you will not have to pay for it. This is true even if you do not have insurance. You might be asked for your insurance information, if you have it, but this does not mean there will be a cost to you.

**How can I prepare for my vaccine?**

Once you have an appointment to get the vaccine, make sure you have a plan for how to get there on time. Be sure you have anything you were told to bring, like your ID or any other information.

You don’t need to do anything else specific to get ready. Doctors recommend **not** taking medicines like acetaminophen (sample brand name: Tylenol) or ibuprofen (sample brand names: Advil, Motrin) just
before you get the vaccine. That's because they don't know if these medicines could make the vaccine work less well. You can take pain medicine after your vaccine if you need to.

Wear a face mask when you go to your appointment. There will be staff to tell you where to wait and what to do after you've gotten your shot. They will also make sure you know when to come back for your second dose.

**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 others 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. For this reason, experts recommend that pregnant people consider getting the COVID-19 vaccine. Your doctor or nurse can help you decide 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 is vaccinated.

When you go out in public, it's important to continue social distancing (staying at least 6 feet, or 2 meters, away from other people), wearing a face mask, 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.

The good news is, while you should still be careful in public, there are some things you can do again once you are fully vaccinated. "Fully vaccinated" means you have had all doses of the vaccine and it has been at least 2 weeks since the last dose. (If you had a single-dose vaccine, you are fully vaccinated 2 weeks after you get the shot.) Here is what you should know:

● You can visit with small groups of other fully vaccinated people indoors. In this situation, you do not need to wear a mask or stay distanced.

● You can also visit indoors with people who are not fully vaccinated if they are all from the same household and at low risk for getting seriously ill. In this situation, you do not need to wear a mask or stay distanced. People who are at higher risk include older people and those with certain health problems. If anyone around you is at higher risk, or if there are unvaccinated people from more than one household, you should wear a mask and stay 6 feet (2 meters) apart.

● People who are not fully vaccinated should continue to avoid gathering with unvaccinated people from other households.

● It is still safest to avoid activities like going to crowded events.

As more people become fully vaccinated, there will be more chances to see friends and family safely.

**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.


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