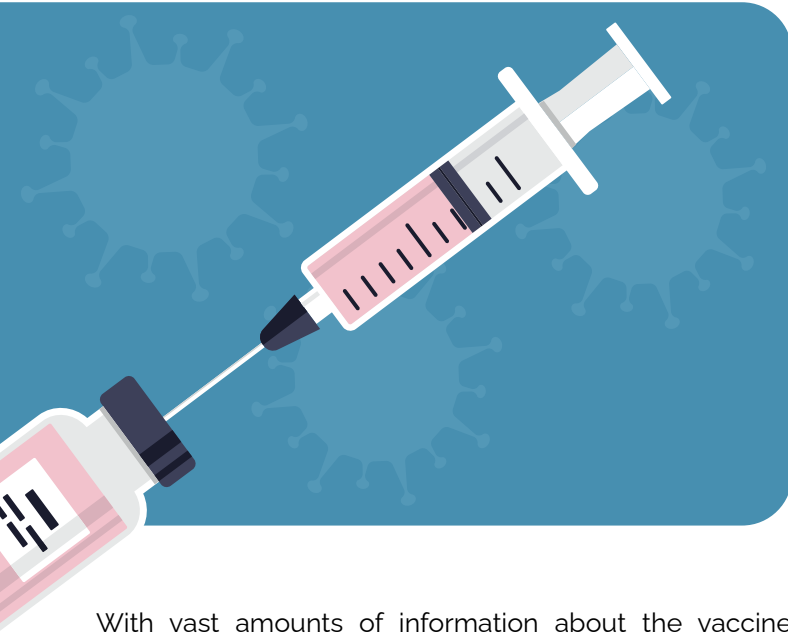


Get the Facts: What You Need To Know About Vaccines

Vaccines are safe and effective — and you should be getting them



With vast amounts of information about the vaccine available to the public, it can be difficult to get just the basic facts about vaccines. Here, we break down what you need to know.

What are vaccines and how do they work?

A **vaccine** is a type of medicine that's given in order to expose your immune system to the disease it's vaccinating against. Once your body has been exposed to a virus, it can create the necessary antibodies to protect you from that disease. Some **vaccines** contain small amounts of **weakened (attenuated)** strains of a disease while some contain partial pathogens (viruses or bacteria) that trigger the immune response. Vaccines allow you to develop immunity to a disease without ever suffering from it, so you won't fall ill if you're exposed to the virus after you've received the vaccine. In other words, vaccines aren't used to treat or cure a disease but prevent you from getting it in the first place.

Sometimes people feel ill after receiving a vaccine and think that the disease they're being vaccinated for is the cause. However, the side effects of receiving a vaccine are actually caused by your body's immune response to something foreign being introduced, not because of the contents of the vaccine itself. Additionally, side effects of vaccines are almost always much less severe than the symptoms of the disease itself.

How do the COVID-19 vaccines work?

The **three main COVID-19 vaccines** being developed and distributed use three different methods of introducing the virus to our immune system.

- The first is an **mRNA vaccine**, which contains a strand of messenger RNA. Messenger RNA is genetic material that contains instructions that are used by the body to build proteins. This vaccine introduces small strands of mRNA that our body reads and uses to build a protein unique to the **novel coronavirus that causes COVID-19**. Once the protein has been created, the body then recognizes the protein as foreign and destroys it, creating **B and T-lymphocytes** (types of **white blood cells**, which fight viruses) in the process. The vaccine **does not actually change your DNA** in any way.
- The next type of vaccine is a protein subunit vaccine. This vaccine introduces a harmless protein used by COVID-19 to get into the body. Like the mRNA vaccine, this protein is then recognized and destroyed, creating T-lymphocytes and antibodies that will help fight the virus if the body is ever exposed to it in the future.
- The final type of vaccine is a vector vaccine, which introduces a live weakened virus that is different from the coronavirus, but contains genetic material from it. Once the virus enters the body, the immune system destroys the live virus and accesses the genetic material within. The body uses this information to create coronavirus proteins, which are then recognized and destroyed, creating B and T-lymphocytes in the process.

All of these are **safe and effective** means of providing your immune system with the tools to fight the real coronavirus in the future, should you be exposed to it.



mRNA



Harmless Protein



Live Weakened Virus

How do I know that vaccines are safe for me and my family?

Over a **billion vaccines are manufactured globally** on a yearly basis, and the majority of these are distributed and administered to healthy individuals of all ages. Therefore, extremely strict and extensive protocols are in place when it comes to developing and testing the safety and efficacy of these vaccines. In the United States, the Food and Drug Administration oversees the production and testing of new vaccines. The COVID-19 vaccines were manufactured and distributed quickly due to the urgency of developing the vaccine but their **safety was not compromised** in the process. "The entire world put forth and funded their best scientists to research, develop, and test the safety and efficacy of COVID-19 vaccines," **Debra Furr-Holden, Ph.D.**, an epidemiologist at Michigan State University, said when asked about the rapidness of the COVID-19 vaccine development.



a vaccine. By vaccinating yourself and your family, you contribute to the protection of the entire community without risking getting sick from the disease. However, the decision to vaccinate should be a well-informed decision between you and your healthcare provider.

Medical mistrust surrounding vaccines exists in part because of the spread of misinformation, but it's important that we **overcome** this skepticism by educating ourselves. "The recent COVID-19 epidemic has shed light on preexisting medical mistrust and skepticism," said Furr-Holden, "but it provides an opportunity for us to educate ourselves and develop relationships with our doctors and healthcare providers, who are better informed than the majority of the population." Your healthcare provider is the best source for medical advice. So you can make an informed decision about receiving the COVID-19 vaccine.



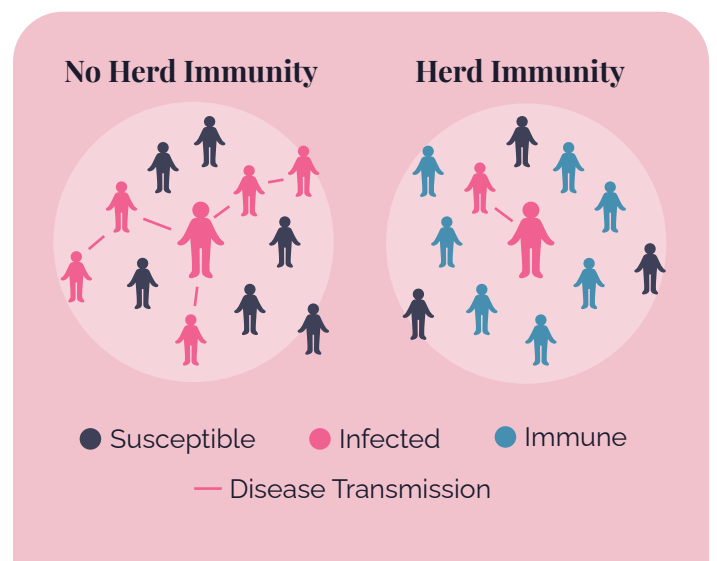
Why should I get vaccinated?

The decision to be vaccinated is ultimately up to each individual. However, for most people, the benefits of vaccines vastly outweigh the drawbacks. Vaccines are held to very high safety standards and can keep you safe, especially in the midst of a global pandemic. While some vaccines do have side effects, this occurs very rarely and, for the most part, they are very mild, particularly in comparison to the symptoms of the diseases they're protecting you from, which can sometimes be fatal.

Individuals who cannot be vaccinated for medical reasons (such as newborns or those who are immunocompromised) rely on herd immunity to stay safe. Herd immunity is indirect protection from a disease and is achieved when a majority of a population becomes immune either through catching the disease or receiving

How does herd immunity work?

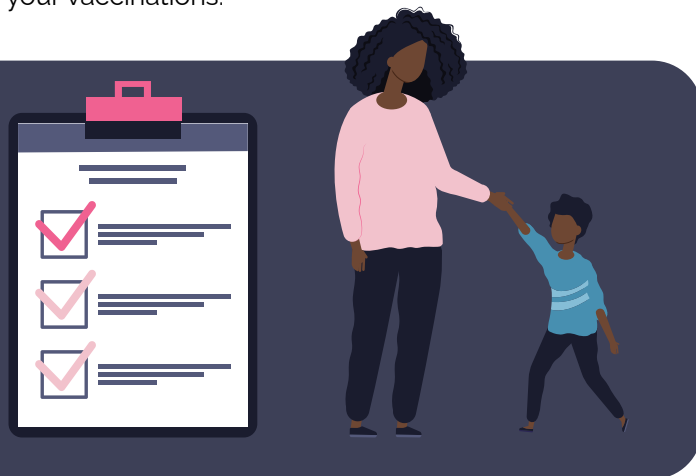
Herd immunity is achieved when the majority of a population becomes immune to a disease because they've either had the disease and recovered or been vaccinated.. While the percentage of immunity varies by disease, a large percentage of the population must be immune in order for herd immunity to be achieved. For example, Mayo Clinic has found that around **94%** of a population must be immune in order for herd immunity to be achieved to stop the measles. Vaccinations have been proven to be the safest preventive measure, putting the least number of people at risk.



There are many diseases, like polio, that caused death and disability **prior to vaccines**. Recent skepticism of vaccinations has led to a **resurgence in diseases** that had previously been eradicated or significantly reduced. Measles, for example, which previously had a very low number of cases, has recently resurged in communities where large numbers of people choose not to vaccinate. As the number of people who refuse vaccinations for previously eradicated disease increases, the risk of these diseases spreading in the general population also increases. It's important to educate yourself and understand the tremendous benefits that vaccines have provided to our nation's health.

What should I be vaccinated for? What should my children be vaccinated for?

The **CDC** provides comprehensive lists of vaccines needed for both **children** and **adults**. Check with your healthcare provider to ensure that you are up to date on your vaccinations.



I received my required vaccinations when I was a child. What are boosters and why do I need them?

Boosters work by reintroducing the disease to the immune system so it can further build up immunity to the disease. The CDC recommends adults receive a yearly influenza (flu) vaccine and a Tdap booster every 10 years. Some diseases, such as the flu, mutate rapidly, which means new strains must be introduced to your immune system each year. Pregnant women are urged to receive an additional Tdap vaccine at around 27-36 weeks gestation to prevent pertussis (whooping cough), which can be fatal for newborns.

The **CDC recommends** children up to the age of 18 receive certain vaccines, which include:

- Diphtheria, tetanus, and acellular pertussis
- Haemophilus influenzae
- Hepatitis A and B
- Human papillomavirus (HPV)
- Influenza
- Measles, mumps, and rubella
- Meningococcal serogroups A, C, W, Y and B
- Pneumococcal 13-valent conjugate
- Pneumococcal 23-valent polysaccharide
- Poliovirus vaccine
- Rotavirus
- Varicella

Adults, who ideally should have received all the above vaccines as a child, should also get a yearly influenza (flu) vaccine and Tdap booster every 10 years as well as some others on a case-by-case basis. Consult with your healthcare provider to determine **which vaccines may be appropriate for you**.

What if I can't afford to pay for vaccinations?

Most health insurance providers, including Medicare Plan B, cover required and suggested vaccines for children and adults; however, for those who do not have health insurance there are options. Some health centers and local state health departments **provide no or low-cost vaccines**.

