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# COVID-19 Vaccines: What You Should Know

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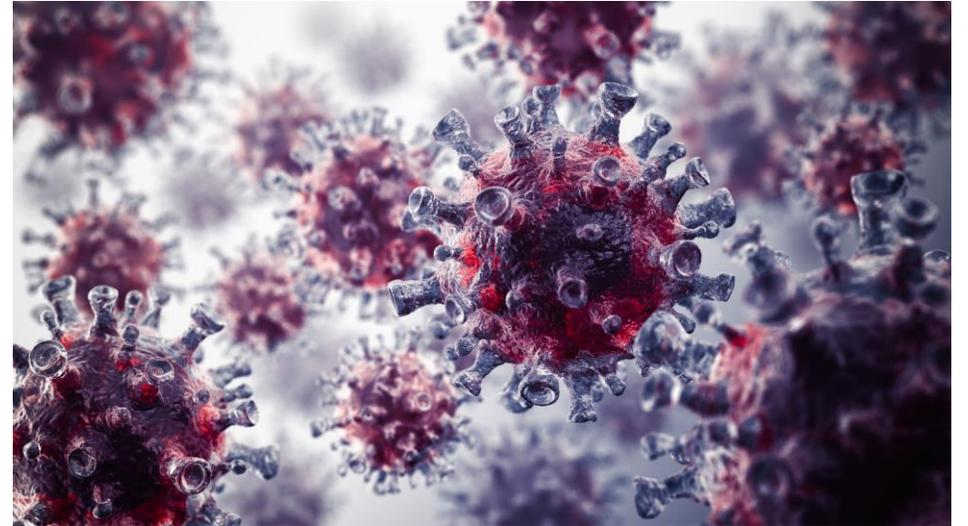
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# What We Will Cover

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- Overview of COVID-19 symptoms and complications
- Pfizer, Moderna, and Johnson & Johnson vaccines
- How the vaccines work
- How the vaccines were developed
- Common myths and concerns
- Boosters vs. extra doses
- Pediatric vaccines
- Answering your questions



## U.S. COVID-19 Vaccination Progress

People who have received at least one dose of any vaccine:

**236**  
MILLION



People fully vaccinated with a single-dose vaccine:

**16**  
MILLION



People fully vaccinated with a two-dose vaccine:

**183.3**  
MILLION



People fully vaccinated:

**199.3**  
MILLION



Percentage of people who received at least one dose:

**71.1%** 

Percentage of people who are fully vaccinated:

**60%** 

Find the latest data on  
**CDC's COVID Data Tracker**

Data as of December 6, 2021  
Source: COVID Data Tracker – Vaccinations



# COVID-19 Symptoms and Complications

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- Symptoms include:
  - Fever/chills
  - Cough
  - Shortness of breath
  - Fatigue
  - Muscle/body aches
  - Headache
  - Loss of taste/smell
  - Sore throat
  - Congestion/runny nose
  - Nausea/vomiting
  - Diarrhea

- Most people have mild illness, but some people get extremely sick, are hospitalized, and die
  - This is not limited to older populations

| Age Group<br>(in years)     | 0-4    | 5-9    | 10-14  | 15-19  | 20-24  | 25-29  | 30-34  | 35-39  | 40-44  |
|-----------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| <b>All Cases</b>            | 28,983 | 44,562 | 54,149 | 70,240 | 79,450 | 77,542 | 77,240 | 75,919 | 69,865 |
| <b>Hospitalizations</b>     | 439    | 175    | 283    | 718    | 1,187  | 1,696  | 2,074  | 2,035  | 2,139  |
| <b>ICU Hospitalizations</b> | 94     | 44     | 57     | 132    | 118    | 189    | 273    | 352    | 390    |
| <b>Deaths</b>               | 1      | 2      | 0      | 2      | 8      | 17     | 37     | 50     | 73     |

# COVID-19 Symptoms and Complications, Cont.

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- **“Long COVID”**
  - Occurs in 10-30% of people with COVID-19
  - COVID-19 can damage the lungs, brain, heart and other organs, leading to symptoms that can persist for weeks/months
  - About 20% of people experiencing long COVID have symptoms of fatigue, mental fog, and weakness one month after infection
    - About 10% of people experiencing long COVID have these symptoms for 3 months or more
    - Can impact ability to work, study, and workout
- **Myocarditis – heart inflammation**
  - Usually improves over time
  - Treatable with medication upon seeing a physician, may require hospitalization

# Pfizer and Moderna Vaccines

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- mRNA vaccines
  - Not new! mRNA research started in the 1970s
  - Vaccine technology was in place before COVID emerged (Ebola vaccine uses mRNA)
  - Used in cancer research to target and kill cancer cells
  - Makes a copy of a molecule that will trigger an immune response
  - Both vaccines require two doses
    - Pfizer – second dose administered 21 days after the first
    - Moderna – second dose administered 28 days after the first
- Common side effects
  - Sore arm/pain at the site of injection
  - Fatigue
  - Headache
  - Chills/fever



# Uncommon Adverse Effects of COVID-19 Vaccines



- Myocarditis (inflammation of the heart muscle) and pericarditis (inflammation of the lining outside of the heart) have been reported after the Pfizer and Moderna COVID-19 vaccines
  - These adverse effects are rare and occur much less often compared to myocarditis/pericarditis caused by COVID-19 (i.e. CDC data shows that patients with COVID-19 had nearly 16 times the risk for myocarditis)
  - These cases associated with vaccines have been mild with quick recovery
- Rare clotting disorder has been reported in a handful of persons who received the Johnson and Johnson vaccine
  - As of November 24, 2021, more than 16.4 million doses of the J&J/Janssen COVID-19 Vaccine have been given in the United States. CDC and FDA identified 54 confirmed reports of people who got the J&J/Janssen COVID-19 Vaccine and later developed TTS.

If someone had developed or believed they had developed myocarditis after receiving their second dose, is there any increased risk or extra precaution to be taken for the third dose?

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- Talk to your health care provider and make sure that they are aware of your medical history
- If you have any serious concern after a vaccine, talk to a health care provider
- More information about myocarditis can be found on the CDC's website: [Clinical Considerations: Myocarditis after mRNA COVID-19 Vaccines | CDC](#)

# How common are adverse events from the vaccine?

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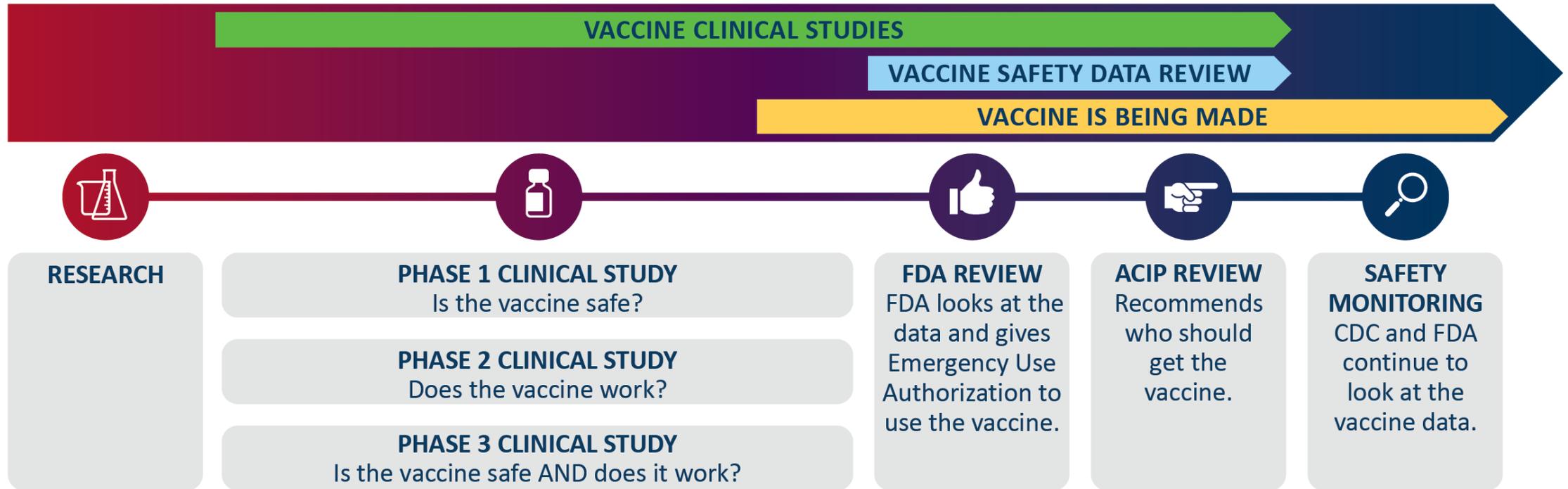
## Anaphylaxis

- 2-5 per 1 million vaccinated people
- Severe allergic reaction
- Thrombosis with thrombocytopenia syndrome after J&J vaccine
  - 54 in 16.4 million people
  - Blood clots with low platelet counts
- Guillain-Barre Syndrome after J&J vaccine
  - 268 people/16.4 million people
  - Immune system damages nerve cells, causing muscle weakness and sometimes paralysis
- Myocarditis and pericarditis after mRNA vaccination
  - 1,071 total cases out of over 437 million mRNA vaccines given
  - Inflammation of the heart/inflammation of the lining of the heart
  - The real risk of myocarditis/pericarditis comes from COVID-19 itself – not the vaccine

- Adenovirus vector technology
  - Adenovirus – a very common virus (think viruses that cause pink eye, the common cold, etc.)
  - A modified version of a *different* virus delivers instructions to the cells, teaching them how to produce a spike protein associated with COVID-19.
  - Our body then creates antibodies to fight off COVID-19 should it be encountered.
- One dose required

# How were these vaccines developed?

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# Common Vaccine Misinformation

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# Do COVID-19 vaccines affect fertility?

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- There is no evidence that any of the vaccines affect current or future fertility
- People who want to have a baby someday or are currently trying to get pregnant can get vaccinated safely
  - Pregnancy is considered a high risk condition
  - Unvaccinated, pregnant women are dying from COVID-19
- We **do** know that COVID-19 **disease** can cause serious complications and death in pregnant people
- COVID-19 can cause lower semen quality in males



# Are there microchips in the vaccines?

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- There are no microchips or tracking devices in the vaccines
- Information on all ingredients in each vaccine can be found here:  
[What's in Vaccines? Ingredients and Vaccine Safety | CDC](#)



# Does the vaccine alter DNA?

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The contents of the vaccine cannot enter the nucleus of the cell where DNA is stored, so there is no contact with DNA



# Can the vaccine make you sick or test positive for COVID-19?

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- You may experience mild side effects after getting the vaccine
  - Sore arm
  - Headache
  - Fatigue
  - Low-grade fever
- The vaccines do not contain the virus that causes COVID-19, so getting vaccinated cannot make you sick with COVID or test positive

# What if I've had COVID-19 already? Am I protected?

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- People who are fully vaccinated get better protection from COVID-19 compared to those who only have natural immunity from a previous infection of COVID-19
- People who recently were infected with Delta and remain unvaccinated are not protected against Omicron infection
- Getting vaccinated helps to protect against variants that are circulating
- Unvaccinated people who have already had COVID-19 are more than 2x as likely than fully vaccinated people to get COVID-19 again
- ([Reduced Risk of Reinfection with SARS-CoV-2 After COVID-19 Vaccination — Kentucky, May–June 2021](#))

# Are there long-term side-effects of the Vaccines?

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- We have more than 18 months' worth of information from the clinical studies of these vaccines, and millions of people have been vaccinated all over the world
- Most adverse effects from vaccines occur within the first 6 weeks after receiving a vaccine

# Why get vaccinated if there are breakthrough infections?

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- No vaccine is 100% effective, but that does not mean they aren't working
- Vaccines remain highly effective at preventing severe disease, hospitalization, and death
- Getting vaccinated helps protect you and others from the virus, and slows the development of mutations, which cause variants, such as Delta and now Omicron

| Total number of fully vaccinated Minnesotans age 12 and older (as of the week beginning 10/31/21)* |                                      | 3,295,436                          |
|--|--------------------------------------|------------------------------------|
|  | Number of vaccine breakthrough cases | Percent of fully vaccinated people |
| Total cases  | 103,764                              | 3.149%                             |
| Total cases hospitalized**   | 4,299                                | 0.130%                             |
| Total deaths***  | 737                                  | 0.022%                             |

# If most people are vaccinated, why is it important that other people are vaccinated? (Herd Immunity)

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- Herd immunity is when most people in a group are immune to a specific disease, making it harder for the disease to “find” susceptible people to infect so person to person spread becomes unlikely
- We do not know enough about COVID-19 to be sure herd immunity is possible. This is a new disease, so there has not been enough time to fully study immunity yet. It is possible that even with most of the population vaccinated, COVID-19 will still be able to spread in the population but at a much lower level/rate.
- We do not know how long a person cannot get sick again after they already were sick with COVID-19 (how long they are immune).
- COVID-19 can make people extremely sick and die – which is why we don't want to rely on natural immunity. Vaccination is a way to gain herd immunity without people getting sick and dying

# What if we don't reach herd immunity?

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- New variants will continue to emerge and circulate
- These variants are unpredictable – they could be more severe, more transmissible
- Less people susceptible to the virus (people who are vaccinated) means the virus will not be able to mutate as much

# How long does protection from a COVID-19 vaccine last?

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|                     | First 6 months | After 6 months |
|---------------------|----------------|----------------|
| Moderna             | 89%            | 58%            |
| Pfizer              | 87%            | 45%            |
| Johnson and Johnson | 86%            | 13%            |

- Keep in mind: this does not mean the vaccines are not working. They are highly effective at preventing severe illness, hospitalization, and death
- This is why it is important to get a booster after 6 months (or 2 months if you receive Johnson and Johnson)

- A booster helps to restore protection that has waned
- People who received the Johnson and Johnson vaccine should get a booster 2 months after their initial dose – which can be another J & J vaccine, Pfizer or Moderna
- People who received Pfizer or Moderna should get a booster 6 months after their second dose
- Important that everyone get boosters when they are able so they have renewed protection against Delta that is circulating now, and Omicron that will be circulating soon

# Are there new strategies to help reach those who remain vaccine hesitant?

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- Do not try to convince or persuade, but rather listen and try to understand where they are coming from
- Meet them where they are, and encourage conversation about vaccines
- Vaccine hesitant individuals may find it helpful to speak with their health care provider to get trusted information

- The Pfizer vaccine was recently FDA approved for children 5-11 years of age
- More information about getting your child/ren vaccinated can be found here: [Pediatric COVID-19 Vaccination - Minnesota Dept. of Health \(state.mn.us\)](https://www.health.state.mn.us/immunization/covid19/pediatric.html)

# Where to Get Vaccinated

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- [COVID-19 Vaccination Registration \(mn.gov\)](https://mn.gov)
- Mall of America community clinic ([Community Vaccination Program Site | Mall of America®](#))
- Grocery stores
- Local pharmacy

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Questions?

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# Resources to Check Out

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- [About COVID-19 Vaccine - Minnesota Dept. of Health \(state.mn.us\)](#)
- [How mRNA Vaccines Work | Children's Hospital of Philadelphia \(chop.edu\)](#)
- [COVID-19 Vaccine Breakthrough Weekly Update - Minnesota Dept. of Health \(state.mn.us\)](#)
- [The Johnson & Johnson adenovirus vaccine explained - Mayo Clinic](#)
- [COVID-19 Vaccine: What You Need to Know | Johns Hopkins Medicine](#)
- [What's in Vaccines? Ingredients and Vaccine Safety | CDC](#)
- [Selected Adverse Events Reported after COVID-19 Vaccination | CDC](#)
- [Vaccines.gov - Find COVID-19 vaccine locations near you](#)