

COVID-19

What is the new coronavirus?

The SARS-CoV-2 coronavirus, which was first identified in China in late 2019, can cause a serious disease known as COVID-19. A majority of people who contract SARS-CoV-2 will have mild to moderate illness and recover without treatment, but others will develop severe disease. At first, COVID-19 was thought to be primarily a respiratory illness, but it has become clear that the coronavirus can cause complications throughout the body. It can take weeks or months for symptoms to resolve.

How is the coronavirus transmitted?

The coronavirus mainly spreads through the air in respiratory droplets or aerosolized particles released when a person with the virus coughs, sneezes, talks or breathes. People can transmit the virus even if they do not have symptoms.

The coronavirus potentially can also spread when it lands on surfaces and a person transfers it to their mouth, nose or eyes, although this is not a common route of transmission.

SARS-CoV-2 transmission happens most often indoors, especially within households, in institutional settings such as nursing homes and prisons, and in crowded workplaces and social settings such as bars and parties. A growing body of evidence shows that transmission is not common outdoors, as moving air dilutes the concentration of the virus and sunlight rapidly kills it.

Some studies have found genetic material from the coronavirus in semen. SARS-CoV-2 is not thought to be directly sexually transmitted; however, intimate contact during sex— such as kissing—can spread the virus. The coronavirus is detectable in the stool, but fecal transmission appears to be rare.

It is not yet clear whether the coronavirus can be transmitted from mother to child during pregnancy, delivery or breastfeeding, although there have been some reports that suggest perinatal transmission is possible.

How can transmission be prevented?

Several precautions can reduce transmission of the new coronavirus. People can transmit the virus even if they do not have symptoms, so it is important for everyone to observe such precautions even if they do not feel ill.

- Avoid close contact with other people, meaning within six feet.
- Avoid crowded indoor settings.
- Wear a mask or cloth face covering when you are around others.
- Wash your hands with soap and water frequently and thoroughly.
- Use hand sanitizer containing at least 60% alcohol.
- Avoid touching your face, especially your mouth, nose and eyes.
- Clean and disinfect surfaces that are frequently touched.
- Stay home if you are sick.
- Cough or sneeze into a tissue or your elbow.
- Get a flu vaccine.

Physical distancing, wearing a face covering and moving activities outdoors are key prevention measures. Cloth face masks don't filter out virus particles like N95 masks do, but they do block respiratory droplets that carry the coronavirus. Masks made from a double layer of heavy-duty cotton appear to work well, but even a bandana can reduce the spread of virus-containing droplets. Make sure your mask fits snugly and completely covers your mouth and nose.

More stringent measures may be implemented if the virus is spreading more rapidly. These include avoiding contact with people outside your household, staying away from public gatherings, working from home and closing schools. Some areas have implemented stay-at-home or shelter-in-place orders and closure of nonessential businesses.

Quarantine is a more individualized approach that requires people who might have been exposed to the coronavirus to stay at home or in a designated facility for a certain period of time, usually 10 to 14 days. Stricter isolation practices, including the use of personal protective equipment, are important when caring for a person known to have the virus at home or in a hospital.

Who is at risk for COVID-19?

While anyone can catch the new coronavirus, certain groups are at greater risk of developing more severe illness

- People age 60 or older
- People with compromised immune systems
- People with preexisting health conditions, including cardiovascular disease, chronic lung disease, high blood pressure (hypertension), diabetes or obesity.

While older people and those with other health conditions are more likely to develop severe

disease, young and healthy people can also become seriously ill. Although children seldom develop severe disease, they can carry the virus and transmit it to others. A small proportion of children develop a severe multisystem inflammatory syndrome.

What are the symptoms of COVID-19?

Around 80% of people with COVID-19 have mild or moderate illness and will recover without special treatment. About 15% will develop severe respiratory problems, and about 5% of cases are critical or life-threatening.

Many people who contract the coronavirus have few or no symptoms but can still transmit the virus to others. Some studies suggest that up to half of people who contract the virus may be asymptomatic.

The most common early symptoms of COVID-19 are cough, shortness of breath, fever, chills, muscle pain, sore throat and loss of the sense of taste or smell. A range of other symptoms have been reported, including headache, "pink eye" (conjunctivitis) and gastrointestinal symptoms such as nausea, vomiting or diarrhea. It takes around five days, on average, between exposure to the virus and the appearance of symptoms.

As the disease progresses, people may find it increasingly difficult to breathe. In serious cases, they may develop pneumonia, in which air sacs in the lungs (alveoli) fill with fluid, preventing oxygen from entering the bloodstream. In the most severe cases, patients can develop acute respiratory distress syndrome, or widespread lung inflammation that requires mechanical ventilation. COVID-19 can also affect other organs and systems throughout the body, including the cardiovascular system. Some people develop neurological symptoms. Both the coronavirus itself and the immune system's response to it contribute to COVID-19 symptoms. Some people with severe illness experience an immune overreaction that can lead to organ failure.

The COVID-19 mortality rate is not yet known because it remains uncertain how many people have contracted the virus. Many experts expect that the overall mortality rate will be around 1%, or about 10 times higher than that of a typical seasonal flu.

How is the coronavirus diagnosed?

SARSCoV-2 can be diagnosed using a PCR RNA test that detects viral genetic material in a deep nasal swab sample. Saliva tests are also available. Viral antigen tests that detect fragments of viral proteins are simpler to perform but less accurate. Testing positive indicates current active infection.

Another type of test detects antibodies to the coronavirus in the blood, which reveal whether someone was infected in the past. These antibodies offer protection against future infection, but it is not yet known how long this immunity will last.

If you think you may have been exposed to the coronavirus, contact a health care provider if you develop a fever, cough, difficulty breathing or other symptoms. Before you go to a clinic or

hospital, call ahead so the staff can give you instructions and take appropriate precautions.

Does COVID-19 lead to immunity?

A year into the new pandemic, there's still much to learn about immunity to SARS-CoV-2, the new coronavirus that causes COVID-19. After natural infection or vaccination, the immune system produces antibodies against the virus; this usually happens within a couple of weeks. But studies that only measure antibody levels don't tell the whole story. Antibody levels in the blood decline over time, but the long-lived memory B cells that make antibodies remain on guard, ready to resume antibody production if they encounter the virus again. T cells, a different type of immune cell, also play a role in maintaining long-lasting protection.

Studies have shown that people who recover from COVID-19 appear to be protected for at least six months and possibly much longer. Although antibody levels naturally decline over time, memory B cell and T cell responses continue to provide protection. Further follow-up is needed to see how long this protection lasts.

SARS-CoV-2 reinfection and breakthrough infection after vaccination are uncommon. People who are reinfected or who contract the virus after vaccination typically have milder disease. Most experts expect that population or herd immunity will be achieved when approximately 75% to 85% of the population has been exposed, either via natural infection or vaccination.

[Click here](#) for more information about COVID-19 immunity.

Is there a coronavirus vaccine?

COVID-19 vaccine development occurred at an unprecedented pace. The first vaccines were authorized for emergency use in the United States in December 2020. There are now four available vaccines.

The Pfizer-BioNTech messenger RNA (mRNA) vaccine is given as two doses three weeks apart for people ages 5 and older, or three doses for younger children. The Moderna mRNA vaccine is given as two doses four weeks apart for people ages 6 months and up. The Novavax protein subunit vaccine, authorized for adults ages 18 and older, involves two doses given three weeks apart. The single-shot Johnson & Johnson (Janssen) vaccine is available for adults who can't or don't wish to use the mRNA vaccines

All of these vaccines are highly effective at reducing the risk of severe COVID-19, hospitalization and death, and they may reduce the risk of developing [long COVID](#). However, they do not reliably prevent infection or transmission, and they do not work as well against newer SARS-CoV-2 variants. All authorized vaccines are generally safe and well tolerated.

As vaccine protection wanes over time, booster doses are recommended for most people. The newest boosters [have been updated](#) to target more recent variants. Click here for the CDC's [current booster recommendations](#). Immunocompromised people, such as those receiving certain types of cancer treatment, those with advanced or untreated HIV and organ transplant recipients, may not respond as well to vaccines and [may need additional doses](#).

[Click here](#) for more information about COVID-19 vaccines on our sister site [COVIDHealth.com](#).

How is COVID-19 treated?

People with mild or moderate illness can usually manage their symptoms with supportive care at home, similar to care for the flu. This may include taking over-the-counter medications for fever, cough and pain, drinking plenty of fluids, using a humidifier and getting adequate rest.

In more severe cases, a person with COVID-19 may require hospitalization for more advanced care. This may involve breathing supplemental oxygen or, if patients can't breathe on their own, the use of a ventilator machine.

There is one approved antiviral medication for COVID-19, [remdesivir \(Veklury\)](#), which is modestly effective for hospitalized patients. Several other drugs have shown activity against SARS-CoV-2 or related coronaviruses in laboratory and animal studies, and many clinical trials are underway.

Two monoclonal antibody regimens, [bamlanivimab plus etesevimab](#) and [casirivimab plus imdevimab](#), have received emergency use authorization for COVID-19 treatment. Another treatment is [convalescent plasma](#), which contains natural antibodies from people who have recovered from COVID-19.

Because most people recover without treatment, it is important to compare new therapies against an inactive placebo or different medications to see which ones work best. Be cautious about rumors and overly optimistic information about treatments that have not yet been tested in randomized clinical trials.

The Infectious Diseases Society of America has produced [Guidelines on the Treatment and Management of Patients with COVID-19](#). The recommendations are updated frequently to reflect new research.

For more information about COVID-19, the disease caused by the new coronavirus, please visit our [sister site COVID Health](#).

Last Reviewed: July 20, 2022

