

COVID-19 diagnostic testing

About

Overview



COVID-19 diagnostic testing is done to find out if you're currently infected with SARS-CoV-2, the virus that causes coronavirus disease 2019 (COVID-19).

The U.S. Food and Drug Administration (FDA) approved these types of tests for diagnosing a COVID-19 infection:

- **PCR test.** This COVID-19 test detects genetic material of the virus using a lab technique called polymerase chain reaction (PCR). Also called a molecular test, a health care worker collects fluid from a nasal or throat swab or from saliva. Results may be available in minutes if analyzed onsite or a few days — or longer in locations with test processing delays — if sent to an outside lab. PCR tests are very accurate when properly performed by a health care professional, but the rapid test can miss some cases.
- **Antigen test.** This COVID-19 test detects certain proteins in the virus. Using a nasal or throat swab to get a fluid sample, antigen tests can produce results in minutes. Because these tests are faster and less expensive than PCR tests, antigen tests may be more practical to use for large numbers of people. A positive antigen test result is considered very accurate, but there's an increased chance of false-negative results — meaning it's possible to be infected with the virus but have a negative result. Depending on the situation, the

COVID-19 Self-Assessment Tool

[Assess your symptoms and find out if you're a candidate for a coronavirus disease 2019 \(COVID-19\) test.](#)

Plasma donations needed for COVID-19

[If you've recovered from COVID-19, consider donating plasma to help others fight the disease.](#)

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- [How do COVID-19 antibody tests differ from diagnostic tests?](#)
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doctor may recommend a PCR test to confirm a negative antigen test result.

A PCR test called the Flu SC2 Multiplex Assay can detect any of three viruses at the same time: the COVID-19 virus, influenza A and influenza B. Only a single sample is needed to check for all three viruses, and this could be helpful during the flu season. But a negative result does not rule out the possibility of any of these infections. So the diagnostic process may include more steps, depending on symptoms, possible exposures and your doctor's clinical judgment.

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Why it's done

In the U.S., your doctor may recommend a COVID-19 diagnostic test if:

- You have COVID-19 symptoms, such as fever, cough, tiredness or shortness of breath
- You've had close contact with someone who tests positive for the COVID-19 virus or is suspected of having the virus
- You're at high risk of complications if you become infected

Certain groups are considered high priority for diagnostic testing. These include people with COVID-19 signs and symptoms who:

- Work in a health care facility or as first responders
- Live or work in long-term care facilities, such as nursing homes, or other places where people are housed closely together, such as prisons or shelters
- Are being cared for in a hospital

Other people may be given priority for testing depending on local health department guidelines for monitoring COVID-19 in individual communities.

Some people who are infected with the COVID-19 virus may be asymptomatic, meaning they don't have any signs or symptoms. But they can still transmit the virus to others. In some areas of the U.S., testing is available to asymptomatic people. If people without symptoms have a positive test result, they should follow guidelines for self-isolation to help curb the spread of the virus.

The availability of COVID-19 diagnostic testing and where to get tested may vary depending on where you live and the recommendations of your local public health officials.

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Risks

There's a chance that your COVID-19 diagnostic test could return a false-negative result. This means that the test didn't detect the COVID-19 virus, even though you actually are infected with it. You risk unknowingly spreading the virus to others if you don't take proper precautions, such as following social distancing guidelines and wearing a face mask when appropriate.

The risk of false-negative test results depends on the type and sensitivity of the COVID-19 diagnostic test, thoroughness of the sample collection, and accuracy of the lab analysis. Be wary of any offers for at-home COVID-19 tests that the FDA has not cleared for use — they may give you a false result.

How you prepare

If you think you may have COVID-19, call your doctor's office to review your symptoms, if any, and ask about testing. Then your doctor and other staff can prepare for your visit, wear personal protective equipment, and give you instructions about where to go and how the test will be done. Plan to wear a face mask to and from the testing center, and have anyone

who accompanies you wear one, too.

What you can expect

For a COVID-19 diagnostic test, you provide a sample of mucus from your nose or throat, or a sample of saliva. The sample needed for diagnostic testing may be collected at your doctor's office, a health care facility or a drive-up testing center.

- **Nose or throat swab.** The U.S. Centers for Disease Control and Prevention recommends a nasal swab, though a throat swab is acceptable. Your doctor or other health care professional inserts a thin, flexible stick with cotton at the tip into your nose or brushes the swab along the back of your throat to collect a sample of mucus. This may be somewhat uncomfortable. For the nasal sample, swabbing may occur in both nostrils to collect enough mucus for the test. The swab remains in place briefly before being gently rotated as it's pulled out. The sample gets sealed in a tube and sent to a lab for analysis.
- **Saliva sample.** Though not considered the best way to get a good sample, a saliva test may be done if discomfort is an issue with a nose or throat swab. You spit into a tube several times to provide a sample of your saliva to test. The tube is sealed before being sent to a lab for analysis.

If you have a productive cough, your doctor may collect a sputum sample, which contains secretions from the lungs, a part of the lower respiratory system. The virus is more concentrated in the nose and throat early in the course of the infection. But after more than five days of symptoms, the virus tends to be more concentrated in the lower respiratory system.

In addition to the COVID-19 diagnostic test, your doctor may also test for other respiratory conditions, such as influenza, that have similar symptoms and could explain your illness.

Certain FDA-authorized COVID-19 test kits allow you to collect the sample at home and then send it to a lab to be tested, though a sample collected by a trained professional and sent to a certified lab is considered more reliable.





Supporting Your Child During COVID-19 Nasal Swab Testing

The purpose of this video is to prepare children for a COVID-19 nasal swab test, to help ease some of their potential fear and anxiety. When children are prepared to take a medical test, they become more cooperative and compliant, which creates a positive coping experience for them. This video has been made to be watched by children as young as 4 years old.

[Show transcript](#) 

Results

Some facilities have rapid tests for COVID-19 diagnostic testing. In that case, you may get your results in less than an hour or on the same day that you're tested. Other facilities may have to send the test sample to an outside lab for analysis. If they need to send out the sample, your results may not be available until a few days later.

Your COVID-19 diagnostic test result could be positive or negative.

- **Positive result.** This means you currently have an active infection with the virus that causes COVID-19. Take appropriate steps to care for yourself and avoid spreading the virus to others. Self-isolate until you meet all three of these conditions: Your symptoms have improved, and it's been three days since you've had a fever, and at least 10 days have passed since your symptoms first appeared. If you have severe symptoms of COVID-19 or a health condition that lowers your ability to fight disease, your doctor may recommend that you stay in isolation longer. If you have a positive result but never developed symptoms, isolate for 10 days after the test.

- **Negative result.** This means that you likely weren't infected with the COVID-19 virus. But a false-negative test result could happen depending on the timing and quality of the test sample. Even if you test negative, you could become infected in the future, so it's important to follow guidelines for social distancing, face mask use and hand-washing to avoid potential spread. Your doctor may recommend repeat testing if you continue to have symptoms.

Contact tracing

If you test positive for the COVID-19 virus — or your doctor suspects that you have the virus but you don't have test results yet — you may be asked to participate in contact tracing. Contact tracing plays a key role in limiting the spread of infectious diseases. The sooner contact tracing starts, the more effective it is in limiting virus spread.

To begin, you provide a list of people you had close contact with during the time you may have been contagious. Public health workers then get in touch with those close contacts to let them know about the exposure and their potential for being infected. Your identity is protected during this exchange of information.

The contact tracing team provides information on what close contacts can do to minimize the risk of spreading the virus. Steps may include getting a COVID-19 test, staying at home in quarantine for 14 days after the exposure, learning about signs and symptoms, and taking other precautions.

Clinical trials

[Explore Mayo Clinic studies](#) testing new treatments, interventions and tests as a means to prevent, detect, treat or manage this disease.

[By Mayo Clinic Staff](#)

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