COVID-19 rapid tests: How to make sense of the results

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As fall temperatures set in, cold and flu season gets into full swing and holiday travel picks up, people will undoubtedly have questions about COVID-19 testing. Is this the year people can finally return to large

gatherings for traditional celebrations? What role does testing play when deciding whether to go out or stay home?

Adding to the confusion are personal accounts of people who are experiencing confusing or seemingly contradictory test results.

[We are](#) [part of a team](#) that has [developed and tested SARS-CoV-2 tests since the early days](#) of the pandemic. Additionally, some of us are [infectious disease specialists](#) with [decades of experience](#).

Our insights from both the cutting edge of rapid testing research as well as our clinical perspectives from working directly with patients can help people figure out how to make the best use of [rapid tests](#).

Multiple negative tests, then a positive. Why?

SARS-CoV-2, the virus that causes COVID-19, takes time to build up in the body, like many other viruses and bacteria that cause respiratory illness. Typically it takes two to three days to test positive after exposure. Our research group [has demonstrated this](#), [as have others](#).

Rapid tests detect parts of the virus that are present in the sample collected from your nose or mouth. If the virus has not replicated to a high enough level in that part of your body, a test will be negative. Only when the amount of virus is high enough will a person's test become positive. For most omicron variants in circulation today, this is one to three days, depending on the initial amount of virus you get exposed to.

Why do some people test positive for extended periods of time?

It's important to clarify which type of test we're talking about in this situation. Studies [have shown that](#) some people can [test positive for a](#)

month or more with a PCR test. The reason for this is twofold: PCR tests are capable of detecting extremely small amounts of genetic material, and fragments of the virus can remain in the respiratory system for a long time before being cleared.

When it comes to rapid tests, there are reports that some people test positive for an extended period of time with the current strains of the omicron variant compared with earlier variants. Several studies show that most people no longer test positive after five to seven days from their first positive test, but between 10% to 20% of people continue to test positive for 10 to 14 days.

But why it takes longer for some people to clear the virus than others is still unknown. Possible explanations include a person's vaccination status or the ability of one's immune system to clear the virus.

In addition, a small number of people who have been treated with the oral antiviral drug Paxlovid have tested negative on rapid antigen tests, with no symptoms, only to "rebound" seven to 14 days after their initial positive test. In these cases, people sometimes experience recurring or even occasionally worse symptoms than they had before, along with positive rapid test results. People who experience this should isolate again, as it has been shown that people with rebound cases can transmit the virus to others.

Why do I have COVID-19 symptoms but still test negative?

There are several possible explanations for why you might get negative rapid tests even when you have COVID-like symptoms. The most likely is that you have an infection of something other than SARS-CoV-2.

Many different viruses and bacteria can make us sick. Since mask

mandates have been lifted in most settings, many viruses that didn't circulate widely during the pandemic, like influenza and [Respiratory Syncytial Virus, or RSV](link), are becoming common once again and making people sick.

Second, [a mild COVID-19 infection](link) in a person that's been vaccinated and boosted may result in a viral level that's high enough to cause symptoms but too low to result in a positive rapid test.

Finally, the use of poor technique when sampling your nose or mouth may result in too little virus to yield a positive test. Many tests with nasal swabbing require you to swab for at least 15 seconds in each nostril. A failure to swab according to package instructions could result in a negative test.

[Our previous studies](link) show that if you are symptomatic and do two rapid antigen tests 48 hours apart rather than just one, you are more highly likely to test positive if you are infected with SARS-CoV-2.

Do rapid tests work against the current strains of SARS-CoV-2?

[Multiple studies](link) have examined the [performance of rapid tests](link) against the omicron variant.

Fortunately, these studies show that all the rapid tests that have been authorized for emergency use by the U.S. Food and Drug Administration [detect the current omicron variants](link) just as well as previous variants such as alpha and delta. If a symptomatic person tests positive on a rapid test, they likely have COVID-19. If you are exposed to someone who has COVID-19, or have symptoms but receive a negative test, you should take another test in 48 hours. If you then test positive or if your symptoms get worse, contact your health care provider.

What's the best way to use and interpret rapid tests before gatherings?

Testing remains an important tool to identify infected people and limit the spread of the virus. It's still a good idea to take a rapid test before visiting people, especially [older people](#) and those with weakened immune systems.

If you believe you may be infected, the FDA [recently updated their testing guidance](#) largely based on [data our lab collected](#). The testing regimen most likely to identify if you're infected is to take two tests 48 hours apart if you have symptoms. If you don't have symptoms, take three tests, one every 48 hours.

Does a positive test mean you can spread COVID to others?

The Centers for Disease Control and Prevention recommends that if you test positive for COVID-19, you should stay home for at least [five days from the date of your positive test and isolate from others](#). People are likely to be most infectious during these first five days. After you end isolation and feel better, consider taking a rapid test again.

If you have two negative tests 48 hours apart, you are most likely no longer infectious. If your rapid tests are positive, you may still be infectious, even if you are past day 10 after your positive test. If possible, you should wear a mask. [Multiple studies have shown](#) a correlation between [the time an individual tests positive](#) on a rapid test and when live [virus](#) can be collected from a person, which is a common way to determine if someone is infectious.

Testing is still an important tool to keep people safe from COVID-19

and to avoid spreading it to others. Knowing your status and deciding to test is a decision that individuals make based on their own tolerance for risk around contracting COVID-19.

People who are older or at higher risk of severe disease may want to test frequently after an exposure or if they have symptoms. Some people may also be worried about having COVID-19 and transmitting it to others who may be at higher risk for hospitalization. When combined with other measures such as vaccination and staying home when you're sick, testing can reduce the impact of COVID-19 on all of our lives in the coming months.

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