

Fact Sheet: Types of COVID Testing

Topline messages: Antigen and antibody tests play an essential role in reducing the spread of COVID-19. They are scalable complements to PCR testing, produce actionable results, and are a critical part of minimizing the health and economic impacts of the pandemic. Both tests enhance public health efficiency—antigen tests can screen large numbers of people and produce results quickly, while antibody tests eliminate redundancy in testing, indicate COVID-19 prevalence in the population, and inform healthcare decisions for individuals.

Diagnostic testing and screening: There are 2 kinds of tests being used to detect current infections of COVID-19 (also known as SARS-CoV-2).

PCR (polymerase chain reaction) or molecular nucleic acid amplification tests (NAAT) are primarily used as diagnostic tests for symptomatic patients or those with known or suspected exposure.

- PCR/NAAT tests are even more reliable than antigen tests, particularly in ruling out infection, but are usually processed in a lab rather than on-site. This can lead to longer turnaround times.
- PCR/NAAT tests work by detecting fragments of viral RNA in swabbed cells, usually from the nose or throat.
- They are more expensive than antigen tests.
- What the test can and cannot tell you:
 - A positive PCR/NAAT test means the person is currently infected with COVID-19.
 - A negative PCR/NAAT test means the person was most likely not infected at the time of the test.
 - PCR/NAAT tests do not inform about previous infection or immunity.

Antigen tests are primarily used for screening and can be a reliable first test for patients exhibiting symptoms. They can identify pre-symptomatic and asymptomatic carriers of SARS-CoV-2 who may be contagious.

- Antigen tests work by detecting viral proteins in swabbed cells from the nose or throat.
- The tests are accurate
 - Positive tests on average have a 98.5% accuracy rate.*
 - Negative tests have a 97% accuracy rate on average.*
 - Choosing high-sensitivity tests from reputable suppliers is critical for achieving these low false positive/false negative rates.
- They can be easily scaled
 - They are rapid (15-30 mins).
 - They are more affordable than PCR tests.

- They can alleviate the strain on overburdened laboratories by reducing the number of time-consuming PCR tests needed.
- What the test can and cannot tell you
 - A positive antigen test means the person is currently infected with COVID-19.
 - A negative antigen test means viral proteins were not detected. However, if there are symptoms or suspected exposure, a negative result should be followed by a PCR test.
 - Antigen tests do not inform about previous infections or immunity.

Antibody (serology) tests

Antibody tests look for antibodies against SARS-CoV-2 to determine if there was a previous infection.

- Antibody tests are used for surveillance to detect the prevalence of COVID-19 in a given population.
- The test is usually conducted via blood sample.
- Antibody tests free up congestion in lab processing by prioritizing diagnostic testing for patients who do not have antibodies. In general, serology testing is also less labor-intensive than molecular testing.
- The tests provide important information about a patient's medical history and can inform ongoing care.
- What the test can and cannot tell you
 - A positive antibody test means the person was previously infected with SARS-CoV-2, and their immune system has developed antibodies in response to the infection. Positive antibody tests do not confirm immunity.
 - A negative antibody test means the person probably did not have a recent COVID-19 infection. However, there is evidence that antibodies become less detectable over time. Alternatively, the person being tested could also have a current infection, meaning their immune system hasn't had time to create antibodies yet.

** Information as of October 2020 and subject to change.*

For more information on COVID-19 testing, please visit
<https://www.cdc.gov/coronavirus/2019-ncov/testing/index.html>.