

COVID-19 Serology Testing: Indications

While serological tests are becoming more widely available, there are important considerations for how serological tests should, and should not, be used. A clear understanding of the limitations of current serological tests is critical for appropriate interpretation of test results. No serologic tests are currently approved by the FDA for diagnosis of COVID-19. Detection of viral RNA remains the preferred test for diagnosis of active COVID-19 in individual patients. Given our current understanding of COVID-19 serology:

What should COVID-19 serology testing ¹ be used for?		
Determine prevalence	Yes	Surveillance studies to determine population-level estimates of exposure to SARS-CoV-2 (i.e., prevalence) in a community, typically through a serologic survey. A positive serology test cannot distinguish between ongoing (active) or past COVID-19 infection.
Identify Convalescent Plasma Donors	Possible	Individuals who have recovered from COVID-19 infection (viral RNA negative) and are COVID-19 serology positive can potentially donate plasma.
Identify false negative PCR	Possible	As an indicator of SARS-CoV-2 infection when viral RNA test is negative. If there is high clinical suspicion for COVID-19 and SARS CoV-2 viral RNA test is negative, a positive serology test would provide support for COVID-19 infection. However, a negative serology result does not exclude COVID-19 infection since it can take 2-3 weeks after symptom onset for antibodies to develop.
Indicator of prior COVID-19 infection	Possible	Given the limited availability of COVID-19 viral RNA testing, many individuals who had symptoms suggestive of COVID-19 could not be tested at the time. A positive serology test would provide support for a prior COVID-19 infection.

¹It is important to select a serology test that has been fully validated using plasma or serum from confirmed COVID-19 infected individuals or well-characterized reference samples. For a list of FDA EUA approved tests, see this link: <https://www.fda.gov/medical-devices/emergency-situations-medical-devices/eua-authorized-serology-test-performance>

What should COVID-19 serology NOT be used for?

	COVID-19 TEST		COVID-19 serology <i>should not</i> be used for the following:
	Viral RNA	Serology	
Diagnose COVID	Yes	NO	<u>As the sole basis to diagnose or exclude SARS CoV-2.</u> COVID-19 viral RNA testing is the gold standard for diagnosing COVID-19 infection.
Identify asymptomatic shedders	Yes	NO	<u>To screen for asymptomatic shedders.</u> COVID-19 viral RNA testing is the best method for screening asymptomatic individuals for an unsuspected active COVID-19 infection.
Prior to hospital admission	Yes	NO	<u>To determine if an individual is protected against future COVID-19 infections.</u> It is not known at this time if the antibodies are protective against future COVID-19 infection or how long the antibodies will last.
Prior to high-infectivity risk procedure**	Yes	NO	<u>To guide PPE use or infection control measures.</u> COVID-19 serology testing should not be used to make decisions about the use of personal protective equipment (PPE) or infection control measures. It is not known at this time if the antibodies are protective against future COVID-19 infection or how long the antibodies will last.
Return to congregant setting	Yes	NO	<u>To determine return to congregant setting.</u> COVID-19 viral RNA testing should be used to determine if the individual has an active COVID-19 infection.
Return-to-Work	Yes	NO	<p><u>To make decisions about employment.</u> COVID-19 serology testing should not be used to make decisions about return-to-work, hiring, duty assignment, etc.</p> <ul style="list-style-type: none"> • Unknown if antibodies are protective against future COVID-19 infection • Unknown how long antibodies will last • Cross-reactivity can lead to false positive results, meaning the individual may not have COVID-19 antibodies even though the serology test is positive • The likelihood that the individual has COVID-19 antibodies depends on the serology test used and the prevalence of COVID-19 in their community, e.g. in a population with a 5% prevalence of SARS CoV-2 infection, a serologic test with 95% sensitivity and 95% specificity will have 50% positive predictive value (i.e. only 50% of individuals who test positive will actually have or have had COVID-19).

COVID-19 Serology Testing *Guidelines for Use*

Yes

- ✓ Epidemiologic studies to determine prevalence of COVID-19 in a community (serologic survey)

Maybe

- ✓ Identify potential convalescent plasma donors
- ✓ Identify false negative COVID-19 viral RNA results
- ✓ Evaluate individuals with prior COVID-19 symptoms who could not be tested at the time they were ill

DO NOT USE COVID-19 SEROLOGY

No

- Sole basis to diagnose or exclude COVID-19
- Screen for asymptomatic shedders
- Determine COVID-19 immunity
- Guide PPE use or infection control measures
- Return to congregant setting
- Make decisions about employment, i.e. return-to-work, hiring, duty assignment, etc.