Q&A: COVID-19 (SARS-Cov-2) Serological Testing

June 18, 2021

What is the COVID-19 serological test?

The COVID-19 serological test (or COVID-19 serology or COVID-19 antibody test) is a test that looks for COVID-19 antibodies in the blood. If antibodies are found, that means there might have been a previous COVID-19 infection.

When should the COVID-19 serological test be used?

COVID-19 antibodies can be found in the blood starting about 1-2 weeks after the start of COVID-19 symptoms. Therefore, this test is not helpful in the early days of COVID-19 disease. It should only be used after 1-2 weeks of symptoms if the diagnosis of COVID- 19 remains in doubt. Antibodies can appear as early as 5-7 days after the start of symptoms, but they can take up to 2 weeks to appear, so the test is most sensitive after 2 weeks from onset of symptoms.

Does a positive COVID-19 serological test indicate immunity?

In the future, COVID-19 serology testing could be used to identify who has developed immunity against COVID-19 and is protected against the disease. Unfortunately, at the current state of scientific knowledge, there isn't yet evidence about whether antibodies in the blood are protective, and if so, how long the protection would last. Therefore, this test cannot determine if a patient has developed protective immunity, either from natural infection or from vaccination. Thus, the results of this test should not be used to guide PPE use or adherence to physical distancing practices.

Why use COVID-19 serological test when COVID-19 PCR testing is available?

PCR testing is the best test for diagnosing COVID-19 in the early stage of the disease. However, sometimes the SARS-CoV-2 virus (the cause of COVID-19) cannot be detected by PCR after 7-10 days of illness.

Serological testing is useful to:

- Help diagnose patients who have symptoms that could be due to COVID-19 but who have negative PCR testing, and who had onset of symptoms more than 1-2 weeks before.
- Assess for COVID-19 vaccine response in rare situations in which the response could be suboptimal (i.e. extremely immunocompromised populations such as transplant recipients). Note: as outlined above, presence of antibodies to spike protein does not necessarily indicate protective immunity but can help assess for a humoral response to vaccine.

Is COVID-19 serology accurate?

Many serological assays for COVID-19 are now commercially available. The serological tests offered at UI Hospitals & Clinics was chosen for its accuracy and its performance was verified in-house.

On May 4, 2021, UI Hospitals & Clinics switched to using a panel of two serological tests, one aimed at the spike (S) protein (target of all vaccines currently on the market) and one aimed at the nucleocapsid (N). A person who has had actual infection with COVID-19 would most likely be positive for both serological tests (spike and nucleocapsid). Someone who has been vaccinated but has *not* had a prior COVID-19 infection will most likely be positive for spike only.

This test is sensitive, if it is done at least 2 weeks after the start of COVID-19 infection symptoms (i.e. very good at detecting past COVID-19 infection in symptomatic individuals). After vaccination, antibodies to the spike protein will likely be detectable after 2-3 weeks.

If a patient who tested positive by COVID-19 serology is coming to UI Hospitals & Clinics for medical care, what precautions should be taken?

Follow current guidelines for symptom assessment and admission test protocols.

If an outside provider wants a patient to get a COVID-19 serological test at UI Hospitals & Clinics, who should be contacted?

COVID-19 serological testing is now available to any provider in the United States, via multiple different reference laboratories. Therefore, patients do not need to be referred to our system solely for the COVID-19 serological test.

If patients are referred into our system and require COVID-19 serological testing, the test can be ordered by any UI Hospitals & Clinics provider, including in UI Health Care–Iowa River Landing and offsite clinics.

How much will a patient be charged for COVID-19 serological testing?

The charge for this test is $125. We cannot yet determine whether (or when) third party payers will cover COVID-19 serologic testing.

What is value of testing for IgM antibodies to SARS-CoV-2?

We do not recommend using the SARS-CoV-2 IgM antibody test to diagnose COVID-19. There was a period where this testing was offered at UI Hospitals & Clinics to assist with pre-travel COVID-19 testing for departures to China. However, changing requirements for that testing led to discontinuing that test. UI Hospitals & Clinics thus does not currently offer IgM testing.

See *The Loop* for additional information on COVID-19 isolation precautions.