

## COVID-19 Antibody Tests

### Medical Team Position Statement on Serology Testing as of 6/1/2020

Testing for COVID-19 has become a hot topic as institutions of higher education look to re-open this fall. In particular, antibody testing is being marketed through direct-to-consumer emails as a way to determine if an individual has previously been infected with COVID-19, has antibodies present, and therefore no longer at risk of being newly infected. But it is not yet known whether the presence of antibodies to COVID-19 indicate that an individual is immune to the virus. Additional data is needed before antibody testing can be used to determine the individual's risk of becoming re-infected with COVID-19.

Currently, viral direct detection methods such as nucleic acid amplification or PCR are the primary tool for diagnosing an active infection with COVID-19. These tests use a nasal swab for obtaining samples.

Since COVID-19 is a new virus, it is yet to be determined whether antibodies will give us the information we need regarding immunity. Currently available antibody tests for COVID-19 include IgG, IgM, IgA, and total antibody. It has been observed that IgM and IgG antibodies rise nearly simultaneously within 2-3 weeks after illness onset but how long these antibodies remain detectable following infection is not known. Neutralizing antibodies are receiving a lot of attention as they inhibit viral replication and their presence correlates with immunity to future infection, at least temporarily. But definitive data is lacking regarding whether individuals with antibodies to COVID-19 are protected against reinfection and if so, what concentration of neutralizing or total antibodies is needed to give this type of protection.

There are also other cautions regarding the use of antibody testing. If there is a low prevalence of infection in a given population (which would be expected due to mitigation measures such as shelter in place orders, social distancing and mask wearing), there is expected to be a high number of false positives. Antibody tests can also exhibit cross-reactivity with other coronaviruses, e.g. those that cause the common cold.

In contrast, there are important applications for the COVID-2 antibody tests. They are a valuable tool for public health research as demographic and geographic patterns of antibody test results can help determine which communities may have experienced a higher infection rate. The test can also be used to identify those who may qualify to donate blood that is used to manufacture convalescent plasma for treatment of those who are seriously ill. In certain circumstances, antibodies can help diagnose a recent COVID-19 infection in ill patients who have a negative PCR or nucleic amplification test.

In summary, since more data is needed regarding whether antibody tests indicate immunity, these tests should not be used to make decisions about grouping persons residing in congregate settings such as schools or residence halls. They should also not be used to make decisions about returning workers to the workplace or whether individual first responders need to use PPE. We need to wait for more information that will guide appropriate uses of antibody testing.