**Serology (Antibody) Testing for COVID**

For providers:

There has been considerable interest in the development of COVID antibody testing from both a public health and patient perspective. Public health authorities would use antibody testing to assess overall population exposure to SARS-CoV-2 (the virus that causes COVID), which would, among other things, permit authorities to better model a safe “reopening” strategy. From a clinical perspective, among other things, antibody testing gives us a different way of determining whether a patient has previously had COVID especially in cases where patients were not tested by PCR testing (performed as a nasopharyngeal swab as CHA) or whose test was negative. For patients, of course, there is understandable interest in knowing whether they have been previously exposed to the virus. However, we are being cautious about deploying this test for our patients because there are nuances in interpreting the results right now.

At this time, several serologic tests are available and different developers have used different methodologies to develop these tests. There are benefits and drawbacks to each type of test. The Labcorp test used by CHA is a qualitative test, meaning that it does not provide information about quantity of antibody, which is relevant to predicting the robustness of any immune response.

There are some other current limitations to interpretation of serologic tests.

1. Immunity: We do not know the clinical meaning of antibody testing in COVID. We can extrapolate from the available data about other types of infections and other coronaviruses.
	1. Development of protective immunity: Based on information about other non-SARS coronaviruses that humans do develop protective immunity, and that in the case of SARS and MERS they have developed antigen-specific immune memory, though there have not been definitive data demonstrating a protective immunity in the setting of SARS and MERS. There has been one animal study demonstrating that previous exposure to Sars-COV-2 predicts apparent immunity to re-infection at 28 days.
	2. Duration of immunity: Presuming that antibodies do represent protective immunity, we do not know the duration of this immunity. There are data suggesting that immunity likely wanes; how quickly it wanes may additionally depend on individual patient characteristics and severity of disease.
2. Test characteristics: As these tests are new, our understanding of exactly how accurate they are is limited. We do not have precise information on sensitivity and specificity, and particularly not in vivo. Results are also affected amongst other things by the time at which serologic testing is performed, as patients further out from disease onset are more likely to have developed antibodies.

We expect to rapidly learn more about serologic testing as our understanding of COVID expands. At this time, antibody testing is not recommended to guide patient care and should not be ordered by primary care providers. We anticipate that this guidance will change in the near future.

The reasons this test might be ordered by specialists are:

* Providing data on seroprevalence- this is being done by the Broad Study, and is done entirely outside of CHA
* Identifying possible exposure to coronavirus in a patient who did not have the PCR test and looking for evidence of exposure due to a late manifestation of disease, such as late dermatologic findings.
* Testing of convalescent plasma for antibodies used in clinical trial treatments for COVID-19(we may need this for potential donors). This is coordinated through the Red Cross for patients who have recovered from known illness and is done outside of CHA.

For occupational health, this test does not at this point convey evidence of immunity to return to work. Very few people need to order this test.

Script for patients:

“We know that many patients are excited about the possibility of getting tested to see if they have been exposed to the coronavirus, or to see if the symptoms they have or had are signs that they had coronavirus. We are also excited about the possibility of these new tests and how they can help patients and public health in the future.

Antibody testing can tell us if a person has been previously exposed to a disease. Right now, though, there are many things we don’t know about previous exposure to coronavirus. Most importantly, we don’t know whether evidence of exposure means you’re immune -- this means we don’t know whether having had coronavirus means you won’t have it again. Even if it makes you immune, we don’t know how long that immunity lasts. Finally, we don’t know when the best time is to test patients for antibodies, as testing early after disease might miss antibodies even though a patient was exposed.

Right now, we do not know enough about the test or its results to recommend this test to patients. We think that this is likely to change when we know more information about these tests, but at this time we do not recommend antibody testing for patients. Like other health care institutions, CHA is following the data carefully to make sure that our recommendations to patients are up to date.”