To: CAHAN San Diego Participants
Date: April 30, 2020
From: Epidemiology and Immunizations Services Branch, Public Health Services

Health Advisory Update #14: Coronavirus Disease 2019 (COVID-19) – Antibody Testing

Key Messages

- Antibody or serologic blood-based testing, while increasingly available, is not recommended for diagnosis or exclusion of coronavirus disease 2019 (COVID-19) and may not infer immunity in all individuals; hence, caution should be used when interpreting antibody testing results. Molecular or polymerase chain reaction (PCR) testing utilizing nasal or throat swabs to detect COVID 19 viral material during infection is still recommended for diagnosis of COVID-19.
- All positive rapid serology tests and all symptomatic negative serology tests should be confirmed for potential active COVID-19 with molecular diagnostic testing per California COVID-19 Task Force recommendations.
- Providers conducting antibody testing should use laboratory-validated tests that have received Food and Drug Administration (FDA) Emergency Use Authorization (EUA). While it is strongly encouraged that antibody tests used have FDA EUA, providers using non-FDA EUA tests should confirm, prior to use, that the test has been validated by the manufacturer.
- When using antibody testing, patients must be notified about limitations of the test.
- All antibody test results should be reported to the County of San Diego Public Health Services with test type, test result, antibody level, and patient demographics.
- The sale of fraudulent COVID-19 products should be reported for suspected fraud to the FDA's Health Fraud Program or the Office of Criminal Investigations or email FDA-COVID-19-Fraudulent-Products@fda.hhs.gov. Suspected fraud may also be reported to the San Diego District Attorney consumer fraud line at 619-531-3507.

Situation

- Current coronavirus disease 2019 (COVID-19) serology tests are either rapid serology (qualitative positive or negative lateral flow assays - similar to home pregnancy tests - to detect IgM or IgG antibodies) or laboratory requiring Enzyme Linked Immunosorbent Assays (ELISA) capable of detecting IgM, IgG, or IgA depending on the test type. Caution should be used when interpreting such tests as the potential exists for false negatives (individual is infected with COVID-19, but the test is negative) or false positives (individual is not infected with COVID-19, but the test is positive, which may occur if antibody to the "common cold" coronavirus is present). Antibody testing should not be used to diagnose acute infection.
- Per California COVID-19 Task Force, all positive rapid serology tests should be followed with molecular diagnostic testing, such as polymerase chain reaction (PCR) or an ELISA sent to a Clinical Laboratory Improvement Amendments (CLIA) certified high complexity clinical laboratory. All negative rapid serology tests ***in symptomatic individuals*** should also be confirmed with molecular diagnostic testing or ELISA for

potential active COVID-19 infection. For ELISA tests, if only IgM is present, consider repeating serology testing in three weeks to determine if IgG is present and perform molecular diagnostic testing for potential active COVID-19 infection.

- The Food and Drug Administration (FDA) continues to provide Emergency Use Authorization (EUA) for antibody or serologic testing through clinical laboratories. A list of COVID-19 tests that have EUA is located here. Note that none of these tests are authorized for home use or self-collection.
- All laboratories with FDA EUA have validated their test within their own laboratories; however, FDA is not validating their tests independently. Antibody tests without FDA EUA have not been reviewed or authorized by the FDA; hence, providers should verify that the test has been validated by the manufacturer prior to use.
- Antibody testing has several limitations that providers need to be aware of and clearly communicate to patients. A useful list of FAQs on serologic tests from the FDA may be found here. Antibody tests that have not received FDA EUA should have the following information provided to the patients when they are given their results:
  - This test has not been reviewed by the FDA.
  - Negative results do not rule out SARS-CoV-2 infection, particularly in those who have been in contact with the virus. Follow-up testing with a molecular diagnostic should be considered to rule out infection in these individuals.
  - Results from antibody testing should not be used as the sole basis to diagnose or exclude SARS-CoV-2 infection or to inform infection status.
  - Positive results may be due to past or present infection with non-SARS-CoV-2 coronavirus strains, such as coronavirus HKU1, NL63, OC43, or 229E.
- Providers should report all antibody test results to the County of San Diego Public Health Services (PHS) with test type, test result, antibody level, and patient name and demographics.
- The sale of fraudulent COVID-19 products is a threat to the public health. Report suspected fraud to the FDA's Health Fraud Program or the Office of Criminal Investigations or email FDA-COVID-19-Fraudulent-Products@fda.hhs.gov. Suspected fraud may also be reported to the San Diego District Attorney consumer fraud line at 619-531-3507.

Actions Requested

1. ***Providers should only use laboratory-validated antibody tests.***
   Laboratory-validated antibody tests include tests that have received FDA EUA. As per the FDA, antibody testing which has not received FDA EUA has not been reviewed by the FDA; hence providers should ascertain whether the test has been validated by the testing company prior to use.

2. ***Providers should continue to use molecular diagnostic testing for diagnosis of COVID-19***.
   While antibody testing may be indicative of past COVID-19 infection, presence of an antibody does not infer immunity and protection from future COVID-19 infection; hence, caution should be used when interpreting antibody testing. Serology can be falsely negative or positive as described above.
   - Per California COVID-19 Task Force, all positive rapid serology tests should be followed with molecular diagnostic testing, such as PCR or an ELISA sent to a CLIA certified high complexity clinical laboratory.
   - All negative rapid serology tests in symptomatic individuals should also be confirmed with molecular diagnostic testing or ELISA for potential active COVID-19 infection.
   - For negative rapid tests in asymptomatic individuals, no further evaluation is necessary; for negative ELISA in asymptomatic individual, consider repeating serology in one to two weeks.
   - For ELISA tests, if only IgM is present, consider repeating serology testing in three weeks to determine if IgG can be detected and perform molecular diagnostic testing for potential active COVID-19 infection.

3. ***Providers implementing antibody testing need to communicate limitations of testing clearly to patients including:***
   - Lack of clarity on whether antibody presence indicates full, partial, or no immunity to COVID-19 and for how long (extent and length of neutralizing ability of antibodies).
   - Lack of understanding of how prior exposure to other types of coronaviruses (not COVID-19) may contribute to false positive results (cross-reactivity with other coronaviruses).
   - Inability to rule out rule in or out active COVID-19 infection, molecular testing should be used to diagnose COVID-19.
   - EUA is not the same as FDA approval under normal circumstances.

4. ***Providers should report all antibody test results to PHS with test type, test result, antibody level, and patient name and demographics.***
   - Providers are required to report the positive antibody test results to PHS within 24 hours.
   - All positive and negative SARS-CoV-2 test results (including serology tests that have an FDA EUA) must be reported by laboratories.
   - Laboratories should report only the results from serologic tests that have received FDA EUA.
   - For more information on local disease reporting requirements, please see here.

5. ***Providers* should notify the appropriate authorities to the sale of fraudulent COVID-19 products.**
   - The sale of fraudulent COVID-19 products should be reported for suspected fraud to the FDA's Health Fraud Program or the Office of Criminal Investigations or email FDA-COVID-19-Fraudulent-Products@fda.hhs.gov. Suspected fraud may also be reported to the San Diego District Attorney consumer fraud line at 619-531-3507.

Resources and Requests

- Enroll in the Medical Reserve Corps and the California Health Corps to be notified about volunteer opportunities.
- General public inquiries about COVID-19 should be directed to 2-1-1 San Diego or to the County COVID-19 website.
- Additional COVID-19 related information and resources can be found on the Health Professionals Sector Page on the County COVID-19 website.

Thank you for your participation.

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