

SYNOPSIS

05/23/2020

Review of “Seroprevalence of SARS-CoV-2-specific antibodies among adults in Los Angeles County, California, on April 10-11, 2020”

Article citation: Sood N, Simon P, Ebner P, Eichner D, Reynolds J, Bendavid E, et al. Seroprevalence of SARS-CoV-2-specific antibodies among adults in Los Angeles County, California, on April 10-11, 2020. JAMA. 2020 May 18 [Epub ahead of print]. Available from: <https://doi.org/10.1001/jama.2020.8279>

One-Minute Summary

- This study uses antibody (Ab) testing to determine the **point seroprevalence of Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2)-specific Ab in Los Angeles (LA) County, California** from April 10-14, 2020.
- Participants were recruited through a market research firm and were randomly invited to participate based on age, sex, race/ethnicity, and income quota sampling.
- **Of 1952 LA County residents invited, 863 agreed to participate:**
 - Age ≥18 years; 514 (59.6%) female
 - Race/ethnicity: 190/863 (22.0%) Hispanic, 497/863 (57.6%) White (non-Hispanic), 72/863 (8.3%) Black (non-Hispanic), 104/863 (12.1%) Other
 - 247/863 (28.6%) reported symptoms (fever, cough, shortness of breath, loss of smell or taste) in the previous 2 months
- 35/863 (4.1%; 95% confidence interval (CI), 2.8%-5.6%) tested positive for SARS-CoV-2 antibodies. After weighting for population demographics, the seroprevalence was 4.3% (bootstrap CI, 2.6%-6.2%).
- After adjusting for test sensitivity and specificity, the unweighted seroprevalence was 4.3% (bootstrap CI, 2.8%-6.1%) and the **weighted seroprevalence was 4.7% (bootstrap CI, 2.5%-7.1%)**.
- The authors suggest that although there were 8,430 confirmed cases in the county at the time, the estimate implies that approximately 367,000 adults may have antibodies to SARS-CoV-2.

Additional Information

- The Ab test used in this study is a lateral flow immunoassay (point-of-care test) that detects IgM and IgG Ab. Detection of either isotype was considered a positive. This assay was previously reported to have a sensitivity of 82.7% (95% CI, 76.0%-88.4%) and a specificity of 99.5% (95% CI, 99.2%-99.7%).
- Study limitations include selection bias, small sample size within a single county, and accuracy of the test.

PHO Reviewer's Comments

- The Ab test used in this study (Premier Biotech) is not approved by the FDA and is under [investigation by a United States House subcommittee](#) over concerns of false claims of accuracy. This assay has been shown to detect false positives.
- The [study](#) cited in the article reporting the details of test validation has not been peer-reviewed. The sensitivity and specificity estimates presented in that study (that are the same as in this article) were

derived by pooling manufacturer's data with data collected independently of the manufacturer. There may be bias associated with this data pooling.

- The individuals tested in this study may not be representative of the population. Notably, the pediatric population (<18 years) was not included in this study. In addition, it is possible that individuals who had experienced symptoms compatible with COVID-19 would be more willing to be tested. Conversely, individuals who are symptomatic may not have been able to participate.
- The proportion of participants that had previous COVID-19 PCR testing was not reported so it is unclear whether or not there is a bias for probable cases.
- The ability of an assay to differentiate between a true and false positive relies heavily on the prevalence of disease. This becomes more difficult when the prevalence is low. For example, if the true prevalence of COVID-19 is 2% (half of that reported in this study), the assay used in this study would give a false positive result ~25% of the time and if the true prevalence was 1%, this assay would give a false positive result ~40% of the time.

Citation

Ontario Agency for Health Protection and Promotion (Public Health Ontario). Review of "Seroprevalence of SARS-CoV-2-specific antibodies among adults in Los Angeles County, California, on April 10-11, 2020". Toronto, ON: Queen's Printer for Ontario; 2020.

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