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USC-LA County Study: Early Results of Antibody Testing Suggest Number of COVID-19 Infections Far Exceeds Number of Confirmed Cases in Los Angeles County

Los Angeles (April 20, 2020) - USC and the Los Angeles County Department of Public Health (Public Health) today released preliminary results from a collaborative scientific study that suggests infections from the new coronavirus are far more widespread - and the fatality rate much lower - in L.A. County than previously thought.

The results are from the first round of an ongoing study by USC researchers and Public Health officials. They will be conducting antibody testing over time on a series of representative samples of adults to determine the scope and spread of the pandemic across the county.

Based on results of the first round of testing, the research team estimates that approximately 4.1% of the county's adult population has antibody to the virus. Adjusting this estimate for statistical margin of error implies about 2.8% to 5.6% of the county's adult population has antibody to the virus- which translates to approximately 221,000 to 442,000 adults in the county who have had the infection. That estimate is 28 to 55 times higher than the 7,994 confirmed cases of COVID-19 reported to the county by the time of the study in early April. The number of COVID-related deaths in the county has now surpassed 600.

"We haven't known the true extent of COVID-19 infections in our community because we have only tested people with symptoms, and the availability of tests has been limited," said lead investigator Neeraj Sood, a USC professor of public policy at USC Price School for Public Policy and senior fellow at USC Schaeffer Center for Health Policy and Economics. "The estimates also suggest that we might have to recalibrate disease prediction models and rethink public health strategies."

The results have important implications for public health efforts to control the local epidemic.

"These results indicate that many persons may have been unknowingly infected and at risk of transmitting the virus to others," said Dr. Barbara Ferrer, director of the L.A. County Department of Public Health. "These findings underscore the importance of expanded polymerase chain reaction (PCR) testing to diagnose those with infection so they can be isolated and quarantined, while also maintaining the broad social distancing interventions."

The antibody test is helpful for identifying past infection, but a PCR test is required to diagnose current infection.

"Though the results indicate a lower risk of death among those with infection than was previously thought, the number of COVID-related deaths each day continues to mount, highlighting the need for continued vigorous prevention and control efforts," said Dr. Paul Simon, chief science officer at L.A. County Department of Public Health and co-lead on the study.

The study's results have not yet been peer reviewed by other scientists. The researchers plan to test new groups of participants every few weeks in coming months to gauge the pandemic's trajectory in the region.

About the study With help from medical students from the Keck School of Medicine of USC, USC researchers and Public Health officials conducted drive-through antibody testing April 10th and 11th at six sites. Participants were recruited via a proprietary database that is representative of the county population. The database is maintained by LRW Group, a market research firm.

The researchers used a rapid antibody test for the study. The FDA allows such tests for public health surveillance to gain greater clarity on actual infection rates. The test's accuracy was further assessed at a lab at Stanford University, using blood samples that were positive and negative for COVID-19.

In addition to Sood and Simon, other authors and institutions contributing to the study include Peggy Ebner of the Keck School; Daniel Eichner of the Sports Medicine Research & Testing Laboratory; Jeffrey Reynolds of LRW Group; Eran Bendavid and Jay Bhattacharya of Stanford University School of Medicine.

The study was supported with funding from USC Schwarzenegger Institute, USC Lusk Center, USC President's Office, Jedel Foundation, LRW Group, Soap Box Sample, and several individual donors.

More information

- A recent Q&A with Neeraj Sood on antibody testing can be found [here](#).
- See the Los Angeles County's April 16, 2020, [Health Advisory SARS-CoV2 Serology Advisory](#) for clarification on antibody testing.
- B-roll and photos from the April 10-11, 2020 antibody testing conducted in Los Angeles can be found [here](#).

To learn more about the L.A. County Department of Public Health and the work they do, visit the following sites and pages:

- L.A. County Channel: <http://bit.ly/CountyChannel>
- Online: <http://publichealth.lacounty.gov/>
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