Early antibody testing suggests COVID-19 infections in L.A. County greatly exceed documented cases

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Based on the results of the first round of testing, the research team estimates that approximately 4.1% of the county's adult population has an antibody to the virus. Credit: Kit Karzen

USC and the Los Angeles County Department of Public Health on Monday 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 county 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 the results of the first round of testing, the research team estimates that approximately 4.1% of the county's adult population has an antibody to the virus. Adjusting this estimate for the statistical margin of error implies about 2.8% to 5.6% of the county's adult population has an antibody to the virus—which translates to approximately 221,000 to 442,000 adults in the county who have been infected. That estimate is 28 to 55 times higher than the 7,994 confirmed cases of COVID-19 reported to the county at 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, professor of public policy at the USC Price School for Public Policy and senior fellow at the 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."

What do the antibody testing results mean for controlling COVID-19?

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 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 a 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 Paul Simon, chief science officer at the 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 the coming months to gauge the pandemic's trajectory in the region.

With help from medical students from the Keck School of Medicine of USC, USC researchers and public health officials conducted drive-thru antibody testing on April 10 and 11 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.

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