

## Seroprevalence of SARS-CoV-2 Specific Antibodies Among Adults in Washoe County, Nevada on June 9-10, 2020

**Purpose** – Washoe County Health District conducted a seroprevalence surveillance study to better estimate the proportion of persons in the general population who may have been infected with SARS-CoV-2, the virus that causes the illness COVID-19. Seroprevalence studies utilize antibody tests to estimate the proportion of a population that has a detectable immune response to a particular disease, in this case COVID-19. Data obtained by this type of study can be used to guide the public health response to the ongoing community transmission of COVID-19 and determine future shifts in utilization of healthcare and social systems, which are being heavily relied on during this phase in the pandemic response. Additionally, population-based seroprevalence data can be used to more accurately assess a case fatality rate, which is likely to be lower than current reports show, and if seroprevalence data are collected multiple times, this can help illustrate the rate at which SARS-CoV-2 is spreading in the community.

**Methods** – There were 1,270 randomly selected households from 128 unique census blocks in Washoe County that were mailed an invitation letter. If the household had more than one adult 18 years or older, the adult with the most recent birthday was eligible to participate in the seroprevalence study. A total of 234 adult Washoe County residents responded and arrived on the test dates to provide a blood sample to be tested for antibodies to SARS-CoV-2.

**Results** – The adjusted (population-weighted) prevalence according to the study sample was 2.30% [95%CI 0.40-4.19%], indicating an estimated 2.30% of adult Washoe County residents has had an infection or exposure resulting in an immune response to SARS-CoV-2. Based on this estimate, as of June 10, 2020, approximately 8,230 adult infections may have occurred among Washoe County residents. However by June 10, 2020 only 1,838 confirmed cases of COVID-19 in adults were reported to Washoe County Health District – which accounts for only 22.33% of expected infections based on the seroprevalence estimates. This implies that the total number of COVID-19 infections among Washoe County residents is underestimated. The study also highlights the underestimation of the case fatality ratio (CFR) in the community. As of June 10, the actual reported deaths due to COVID-19 was 3.66% compared to the CFR estimates from seroprevalence rate which may be closer to 0.81%.

**Conclusions** – Researchers conclude that the number of infections that have occurred in Washoe County is at least four and a half (4.5) to five (5) times higher than the number of reported cases. However, the estimated CFR is actually lower than currently reported. A positive SARS-CoV-2 antibody test indicates someone's body has built an immune response to the virus; however, the scientific community is still learning how long this immune response will last. Additionally, it is yet to be determined if someone can be infected again at a later point in time, if immunity wanes.

Washoe County Health District is urging all persons to continue implementing best practices to mitigate COVID-19 infections by wearing a mask in public, practice six feet social distancing, avoid non-essential gatherings, wash hands frequently and minimize touching of the face.