

Prevalence of current and past COVID-19 in Ohio adults



Partners:

Ohio Department of Health
The Ohio State University

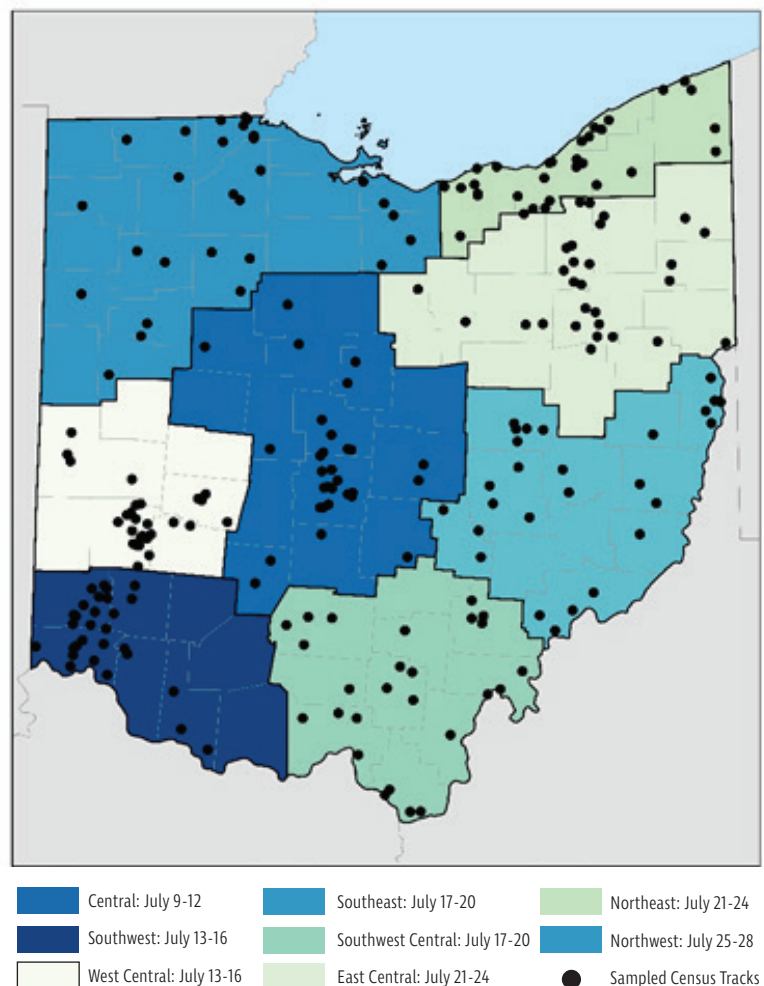
Summary:

During 20 days in July 2020, we measured the prevalence of current and past COVID-19 in a representative sample of 727 Ohio adults. Participants provided a nasopharyngeal swab for PCR detection of current COVID-19, and a blood sample for detection of antibodies indicative of past COVID-19. Using a Bayesian latent class model with multilevel regression and poststratification, the statewide prevalence of current COVID-19 was 0.9% (95% credible interval, 0.1% to 2.0%). The statewide prevalence of past COVID-19 was 1.5% (95% credible interval, 0.3% to 2.9%). While hundreds of thousands of Ohio adults have had COVID-19 since March 2020, community spread is ongoing and many millions remain susceptible.

Sample:

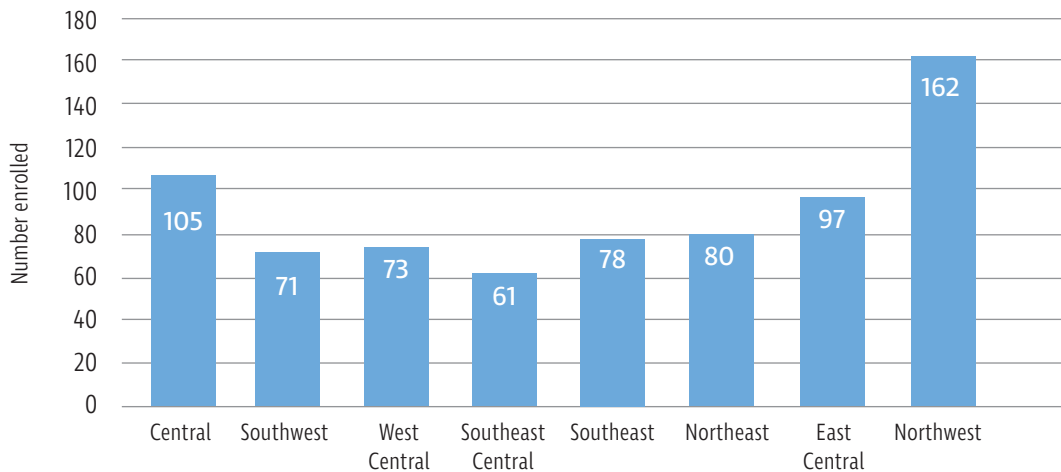
Within each of eight administrative regions in Ohio, we selected 30 census tracts using probability-proportionate-to-size cluster sampling, and recruited randomly-sampled households within each of the 240 selected census tracts (Figure 1). Overall, 727 individuals enrolled in the study (Figure 2). Participants

Figure 1. Sampled census tracts and dates of data collection across Ohio's eight administrative regions



were demographically similar across the eight geographic regions. The sample skewed female (weighted percent: 58.0% female vs. 40.8% male), and the mean age was 55.8 years. A majority (88.4%) reported white race, while 5.5% were Black, 1.7% Asian, 0.3% Native American, and less than 1% from other races. Similar to Ohio overall, 3.2% of the sample was Hispanic. Twenty-nine percent of respondents reported their highest level of education to be high school graduation, whereas 49.1% had attended some college or received an Associates or Bachelor's degree. The mean number of adults living in enrolled households was 1.9, and the mean number of children living in enrolled households was 0.6.

Figure 2. Participants enrolled by region



Prevalence of COVID-19:

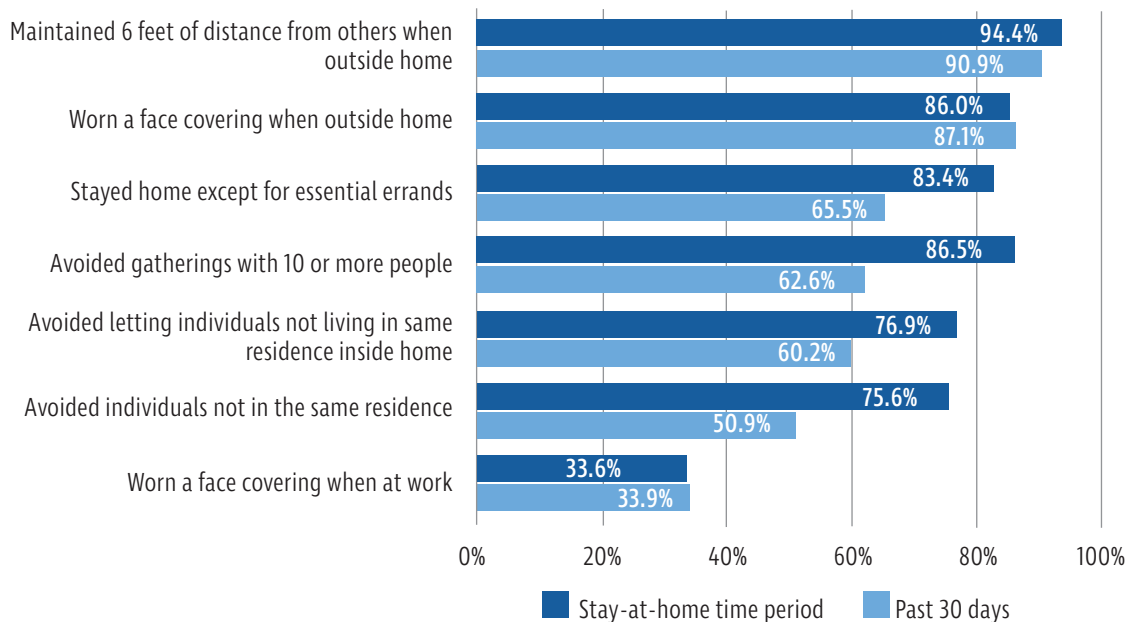
Nearly all (n=716, 98%) participants had valid nasopharyngeal swab PCR test results. From the Bayesian latent class model with multilevel regression and poststratification, the statewide prevalence of current COVID-19 was 0.9% (95% credible interval, 0.1% to 2.0%). Given the size of the adult population of Ohio, this prevalence corresponds to approximately 80,000 COVID-19 cases among Ohio adults during that time period. Meanwhile, approximately 23,000 Ohio adults were diagnosed with COVID-19 during the same 20 days, suggesting that total cases in the state were approximately 3.5 times as high as diagnosed cases.

A smaller proportion (n=592, 81%) of participants had valid antibody results for all three assays. Again using a Bayesian latent class model, the statewide prevalence of past COVID-19 was 1.5% (95% credible interval, 0.3% to 2.9%), corresponding to approximately 133,000 Ohio adults with evidence of past COVID-19. Importantly, the antibodies measured in this analysis remain detectable for an uncertain period of time; current data suggest that most people will no longer have detectable antibodies three months after infection.

COVID-19 prevention behaviors:

Participants answered questions about seven prevention behaviors that they practiced “all or most of the time,” during the stay-at-home period from (March 15 through May 25, 2020), and the last 30 days (Figure 3). During the stay-at-home period, between 75.6% and 94.4% of respondents (depending on the question) reported practicing each behavior all or most of the time. The only exception to this pattern was wearing a face covering at work outside the home (33.6%). We observed a similar pattern in prevention behaviors for the last 30 days, although the proportion endorsing each behavior was attenuated compared to the stay-at-home period: 50.9% to 90.9% of participants (depending on the question) reported practicing each behavior all or most of the time. Once again, the exception to this pattern was the proportion reporting wearing a mask at work outside the home (33.9%), which was unchanged compared to the stay-at-home period.

Figure 3. COVID-19 prevention behaviors practiced “all or most of the time” by Ohio adults during the stay-at-home time period (March 15-May 25, 2020) and in the past 30 days



Conclusion:

The findings of this project are in agreement with expectations for prevalence of current and past COVID-19 in Ohio, and is similar to what has been reported in nearby states. Whereas 0.9% of Ohio adults with current infection and 1.5% with past infection reflect relatively low prevalences, these figures correspond to hundreds of thousands of Ohioans who have experienced COVID-19 during 2020. Yet, a large majority of Ohio adults remain susceptible to infection. The continued embrace of prevention measures is essential to keeping Ohioans safe.