

Previous studies have shown that various social determinants of health, such as housing, access to nutritious food and health care, and education, contribute to disparities in COVID-19 incidence and mortality among minorities and underserved populations. However, the majority of these studies in the United States used aggregated data at the county level, which often lacks the spatial granularity to clearly identify and understand disparities. We analyzed surveillance data of COVID-19 infection at the US census tract level using Bayesian spatial-temporal modeling, to detect local infection trends and hotspots, and investigate social determinants associated with COVID-19 infection from a Mexican American population in Cameron County, Texas. We investigated the impact of local mitigation policy on COVID-19 infection. Results from this study can inform intervention strategies for COVID-19 control, and provide key knowledge to increase COVID-19 testing uptake in underserved populations and the design of targeted vaccination programs.

### WHERE:

Cameron County, Texas



### WHO?

The population of Cameron County, Texas (423,163 residents) on the border of the US and Mexico.



### WHEN?

March 2020 – December 2020



- Over 90% of Cameron County residents are Hispanics of Mexican origin.
- Most are uninsured, live below the poverty line, and have a high prevalence of type 2 diabetes and obesity.

### MEASURES & OBSERVATIONS

- The study used weekly COVID-19 surveillance data from the Cameron County Public Health Department and aggregated by census tracts, to investigate the geographic patterns and social determinants associated with COVID-19 incidence from people living in Cameron County, including unemployment, housing, racial diversity, poverty level, education level, insurance, and transportation.
- The researchers identified the geographical variation of COVID-19, and identified areas with high infection rates.
- The study team created a binary indicator for time periods when a state or local stay-at-home order was in place to evaluate the impact of local policy on COVID-19.
- Researchers performed age-stratified analysis to identify different contributing social determinants and quantify their effects by age groups.



### KEY FINDINGS

- The risk of COVID incidence was higher among areas with higher percentages of single-parent households and limited English-speaking proficiency.
- The risk of COVID incidence was lower among areas with younger populations and lower income.
- Stay at home orders were effective in decreasing the COVID infection rate.



### RECOMMENDATIONS

- Findings from this study should be used to inform both the development of targeted intervention strategies for underserved communities and the deployment of services to these during and after the pandemic.



This summary was performed in June 2022. This summary includes only the results of a single study. Other studies may find different results. The study was supported by in part by the NIH RADx<sup>®</sup> Underserved Populations (RADx-UP) initiative 3UL1TR003167-02S1 and UL1 TR003167-02S6.

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