

## **Association between SARS-CoV-2 Disease Rates and Social Vulnerability Index Themes in Hawai'i**

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### **Abstract**

**Background** Resources needed to avoid infection and to recover from the effects of disease are unevenly distributed in the population. The Centers for Disease Control and Prevention's Social Vulnerability Index (SVI) has been proposed as a tool to identify subareas likely to be disproportionately affected by COVID-19 in Hawai'i.

**Objectives** Measure the association between COVID-19 incidence and the four component SVI themes and devise a novel COVID-19 Inequity Index (CII) to guide pandemic response and recovery efforts.

**Methods** Geocode case surveillance data from the MAVEN Disease Surveillance System, calculate the cumulative COVID-19 incidence rate for each census tract, use a multivariate regression analysis for the four themes, and construct a new index in Tableau combining demographic and disease burden data to measure inequities.

**Results** Pacific Islanders (25%), Filipinos (20%), and Native Hawaiians (19%) were the most prevalent races in the sample population. Minority status and language was the strongest predictor of COVID-19 disease risk ( $R^2=0.2394$ ) followed by housing type and transportation ( $R^2=0.1534$ ), socioeconomic status ( $R^2=0.0543$ ), and household composition and disability ( $R^2=0.0004$ ). Combining the SVI scores with cumulative disease incidence rates using equal weights created a more robust geographic measure of inequity that identified high priority communities for response and recovery interventions.

**Conclusion** While the SVI alone is insufficient to predict disease burden, the rich demographic information about social determinants of health contained in this disaster response metric can be leveraged to construct a new disease-specific index to guide health equity efforts.