

A Community Case Study on Geographic, Environmental, and Social Health Disparities in COVID-19 in Casey Mace Firebaugh

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Abstract

Yakima County, Washington, a rural county with an urban core suffered disproportionately under the conditions presented by the COVID-19 pandemic.

average (12%) [4], the Central Washington region represents a high degree of geographic and sociodemographic vulnerability to risk factors for the spread of COVID-19. Yakima has been ranked as the worst municipality for short-term particle air pollution in the United States [5], placing this region at additional risk for environmental exposures that may exacerbate vulnerability to COVID-19 disease and respiratory outcomes [6]. The following paper outlines the domains of vulnerability in which the Yakima region finds itself considering the COVID-19 pandemic. Subsequently, a discussion of the intersection of these factors is presented as well as areas of investigation and intervention that should occur to address this phenomenon.

1.1. Geographic Vulnerability

Yakima County is characterized as a large rural county with an urban core. The Centers for Disease Control and Prevention (CDC) released a statement u



Figure 1. Geographic distribution of COVID19 cases in Yakima, county[2].

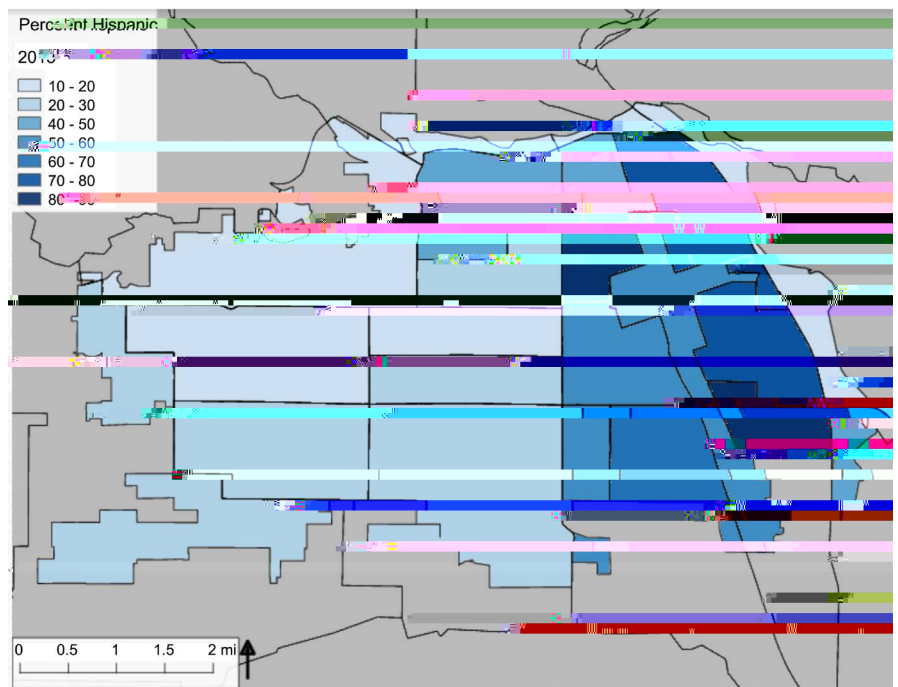


Figure 2. Yakima equity study (2015) Hispanic population geographic distribut[6].

As of early May 2020, Yakima County, WA exhibited the highest COVID infection rate among any county on the West Coast of the United States, with 519 cases per 100,000 population[1]. At peak, the county was seeing an average of 148 cases daily, with a case rate above 700 cases per 100,000 population for a 14-day period[2]. Several factors are thought to be responsible for the surge in cases, including cluster outbreaks among agricultural and food production facilities. Over 600

for transmission of the SARS-CoV2 virus [23] yet at least two weeks of unhealthy air quality in Yakima County during the July-September 2020 period [24] may have motivated many individuals to stay indoors during a time when COVID-19 disease transmission was high. And it has previously been advised by local and state health departments that any outdoor workers be equipped with N95 or N-100 masks or other appropriate PPE [25]. Yakima Health District provided > 8000 N95 masks for agricultural workers, and the Washington Tree Fruit Association reportedly provided 100,000 across the state [2]. Some operations also ceased for several days while smoke was greatest. While data is still emerging on COVID-19 disease transmission trends during the wildfire season of 2020, we suggest systematic investigation of these trends as outdoor air quality events intersect with the pandemic nature of COVID-19.

3. Implications for Practice

A multi-faceted population health strategy should be implemented to 1) address poor air quality, and 2) prevent COVID-19 disease transmission through community mitigation strategies, and 3) reduce health disparities for vulnerable populations. Each of these factors should be understood on their own and in respect to one another.

We recommend a substantial effort to investigate the intersection of these

- [25] State of California Department of Industrial Relations (2020) Protecting Outdoor Workers Exposed to Smoke from Wildfires
<https://www.dir.ca.gov/dosh/wildfire/worker-protection-from-wildfire-smoke.html>