

COVID-19 adds to burden of pollution, poverty in King County

King County neighborhoods with high levels of air pollution also have the highest rates of COVID-19, research from the University of Washington shows. These neighborhoods – mostly clustered in South King County – are also poorer, have more people of color and non-English speakers, and have lower testing rates than the county average.

Researchers don't think that air pollution causes COVID-19, but rather, that the higher exposure to air pollution in low-income communities of color is replicated in the pattern of COVID-19 infections. **"The data confirm what many of us in public health suspected as this began to roll out – that this virus is exacerbating other inequities,"** says lead researcher Stephanie Farquhar, professor in the UW School of Public Health.

Similar patterns have been seen elsewhere in the U.S., but this is the first study to examine the overlapping risks at the neighborhood level (by census tract) in King County, Washington.

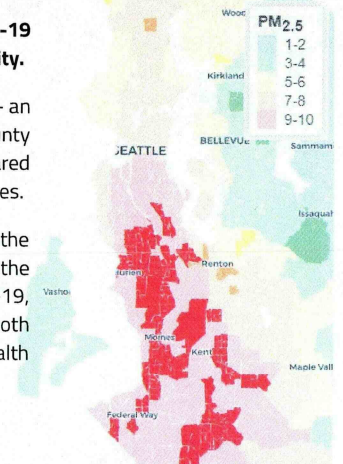
COVID-19 and Environmental Health Disparities

Researchers found that **83% of neighborhoods with the highest COVID-19 rates were also the most highly impacted by poor environmental quality.**

The team used the Washington State Health Disparities Map – an environmental health tracking system – to identify the King County neighborhoods with the greatest cumulative health impacts and compared those with Public Health–Seattle & King County's data on COVID-19 cases.

The greatest overlap was seen in high rates of COVID-19 in areas with the county's highest concentrations of PM 2.5 – fine particulate matter in the air that can trigger asthma and contribute to heart disease. Like COVID-19, PM 2.5 can cause respiratory health problems, so being exposed to both high PM 2.5 and COVID-19 can pose even greater risks of serious health problems for those infected with the virus.

In addition, 92% of the census tracts with the highest COVID-19 rates (more than 10% of residents) had more people living within 2x of the federal poverty level and most were in predominantly Black and Latinx neighborhoods.



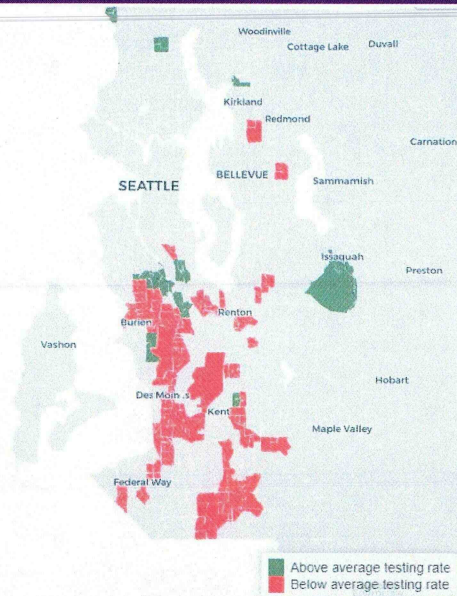
PM_{2.5} concentration rankings from highest (9-10) to lowest (1-2). Census tracts in dark red had over 10% COVID positivity as of 7-12-20

COVID-19 Testing Access

Further complicating the combined impact of high air pollution and COVID-19 rates is that the areas with the highest rates of COVID-19 also had lower than average testing rates for the virus.

Fortunately, since the study began, King County has been locating more free and mobile testing centers in the areas with high COVID-19 rates, and the rates appear to be coming down.

Testing rates in census tracts with over 10% positivity as of 7-12-20. Average testing rate was 94.8 tests/1000 residents.



Next Steps

- The team plans future research to examine some of the root causes of these findings. "The disparities are very clear, and there are many possible explanations, including working in high-risk/low-paid jobs, living in crowded housing, or not having access to good quality health care," says Farquhar.
- These findings
 - may inform ongoing efforts to reduce the spread of COVID-19 in the region
 - highlight the ongoing need for more testing and disease control resources in southwestern King County
- Culturally appropriate multilingual outreach and community engagement may be important factors in slowing the spread.
- Environmental health disparities should be considered alongside other vulnerabilities and stressors that affect risk and health equity in low-income communities of color both during the pandemic and in post-COVID recovery efforts.

Thank you to our many community and agency partners for their valuable review and input on this summary.

Study Team: Esther Min, Stephanie Farquhar, Edmund Seto, BJ Cummings, Carolyn Ingram
Interdisciplinary Center for Exposures, Diseases, Genomics and Environment (EDGE Center) – NIEHS # P30ES007033
Department of Environmental and Occupational Health, School of Public Health, University of Washington
Funded by NIEHS & UW Population Health Initiative – Covid-19 Rapid Response Grant. **Questions?** contact: bjcumngs@uw.edu

