

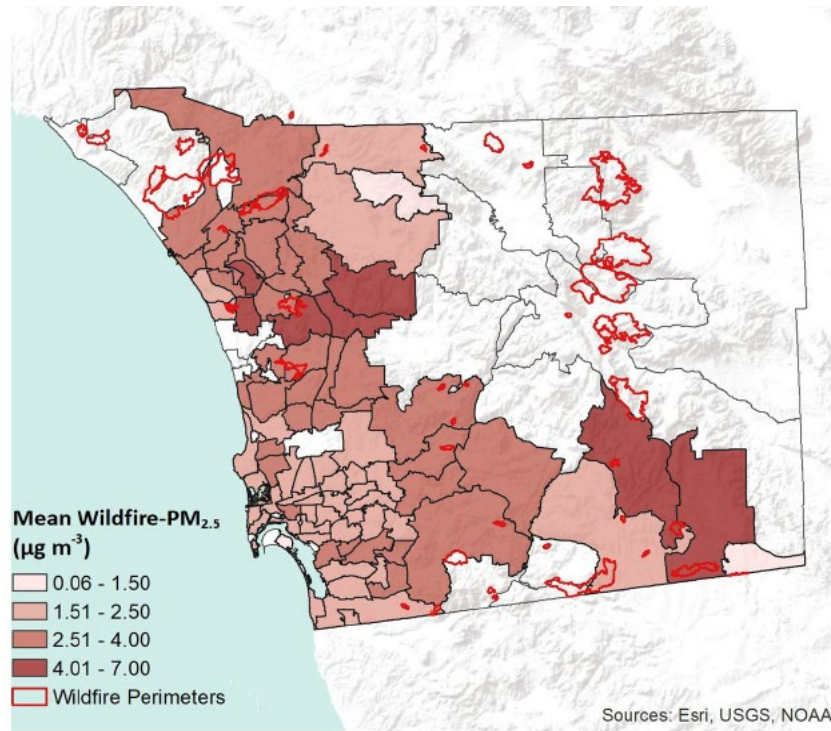
Clear evidence of an association between wildfire smoke and respiratory health

- Asthma exacerbations significantly associated with higher wildfire smoke in nearly every study
- Exacerbations of chronic obstructive pulmonary disease (COPD) significantly associated with higher wildfire smoke in most studies
- Growing evidence of a link between wildfire smoke and respiratory infections (pneumonia, bronchitis)



Fine Particles in Wildfire Smoke and Pediatric Respiratory Health in California

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- Examined the associations between wildfire-specific PM_{2.5} and pediatric respiratory health during 2011–2017 in San Diego County and compared the results with other sources of PM_{2.5}.
- A 10 µg/m³ increase in PM_{2.5} (from non-smoke sources) was associated with a 3.7% increase in ED and urgent care visits (95% CI: 1.2%-6.1%) while PM_{2.5} from wildfire smoke was associated with a 30% (26.6%-33.4%) increase in visits.

CORONAVIRUS

Excess of COVID-19 cases and deaths due to fine particulate matter exposure during the 2020 wildfires in the United States

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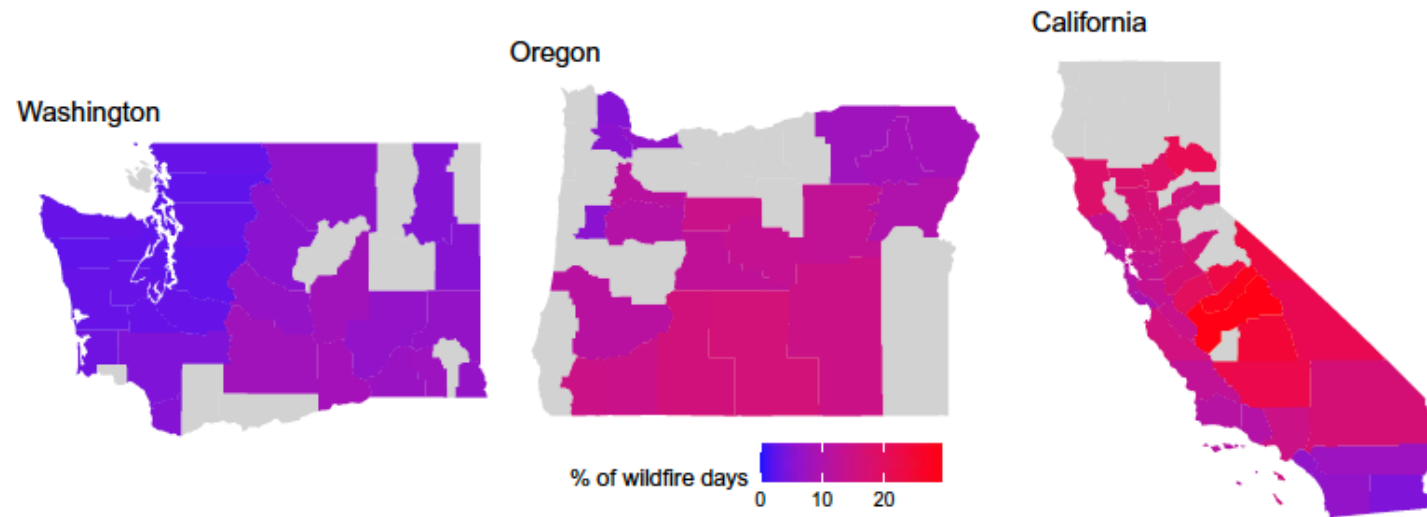
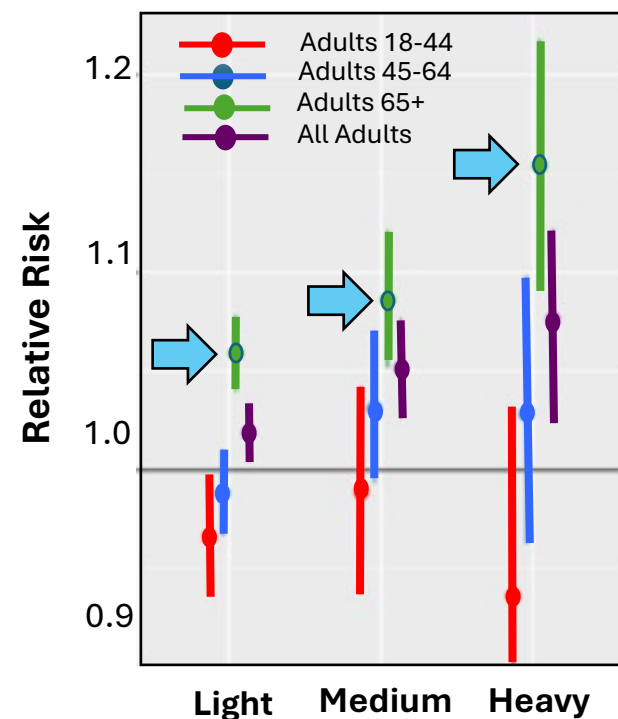


Fig. 1. Maps of the 92 counties included in the analysis. The color code denotes the percentage of wildfire days during the study period (15 March to 16 December 2020). Counties in gray were excluded from the analysis. The percentage of wildfire days ranges from 3 to 29%.

Wildfire-PM_{2.5} Increases Heart Attack & Stroke

- Wildfire-PM_{2.5} associated with heart attacks and strokes for all adults, particularly for those over 65 years old
- Increase in risk the day after exposure:
 - All cardiovascular, 12%
 - Heart attack, 42%
 - Heart failure, 16%
 - Stroke, 22%
 - All respiratory causes, 18%
 - Abnormal heart rhythm, 24% (on the same day as exposure)

All Cardiovascular Causes



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Wildland Firefighter Health Effects

- Cross-shift changes in lung function, urinary biomarkers of exposure, and blood biomarkers of inflammation
- Pre-post season changes in lung function, airway responsiveness, and airway inflammation
- Do the fire season-associated changes persist?





Wildland firefighter smoke exposure and risk of lung cancer and cardiovascular disease mortality

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- Estimated the daily dose of wildfire smoke PM_{2.5}
- The daily dose for firefighters working 98 days per year of PM_{2.5} ranged from 0.30 mg to 1.49 mg
- For career durations (5–25 years), wildland firefighters had an estimated increased risk of lung CA (8 percent to 43 percent) and CVD (16 percent to 30 percent) mortality