

# Associations between wildfire smoke exposure and hospitalizations among people who are incarcerated in California (2010-2019)

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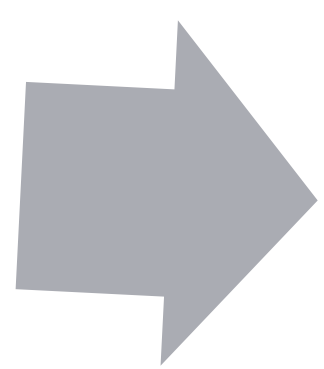
## BACKGROUND

- Short-term exposure to wildfire smoke has been shown to adversely impact population health.
- Individuals who are incarcerated lack agency to protect themselves from exposure and/or to relocate during a wildfire.
- The objective of this study was to (1) estimate associations between extent of wildfire smoke exposure and hospitalizations among incarcerated people for all-cause, cardiovascular, injury and respiratory-related causes & (2) estimate associations between wildfire smoke exposure and hospitalizations for emergent conditions that require immediate care

## METHODS

### Data Source & Population:

Electronic health record data on all hospitalizations at CA hospitals 2010-2019



Incarcerated patients:  
[ICD-9/10 codes for incarceration (V62.5)/ICD-10 code (Z65.1)] OR  
[source of admission from law enforcement & residing in a Zip-code with a prison or jail]

- Data on wildfire-specific PM<sub>2.5</sub> modeled at the daily Zip-code level & daily temperature at the 4-km grid cells was linked to all hospitalizations by the Zip-code of residence.

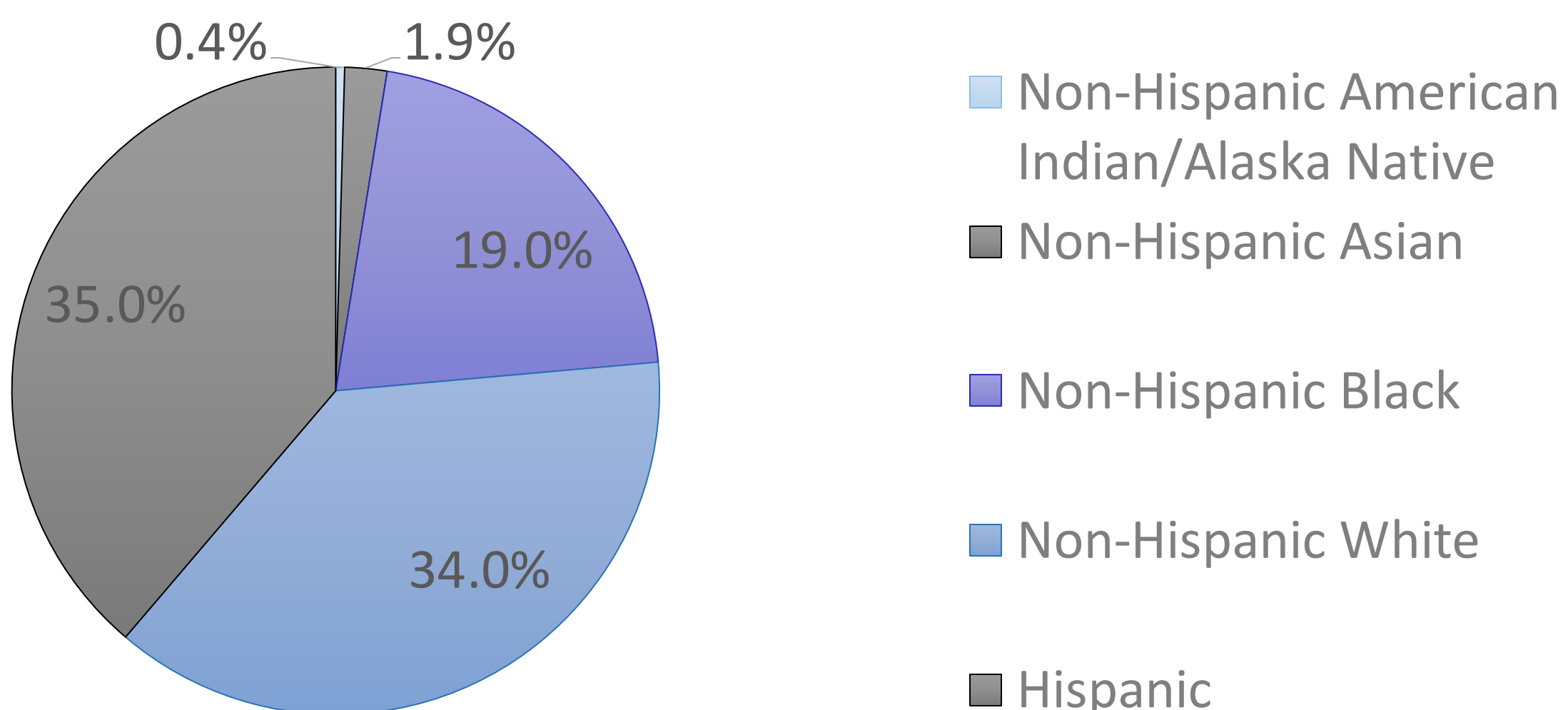
- A case-crossover study design with conditional logistic regression was used to estimate the association between daily wildfire smoke PM<sub>2.5</sub> and hospitalization for all-cause and respiratory, cardiovascular and injury-related hospitalizations. Associations were also estimated for emergent conditions that fall within these categories (acute respiratory failure, cardiac arrest, myocardial infarction, overdose & stroke) to assess associations that may not be impacted by longer lag time between symptom onset and hospitalization during incarceration.

## RESULTS

### Demographic breakdown of the population (n=175,646):

•Median age (IQR):  
43 (31, 54)

•147,546 (84%) were male

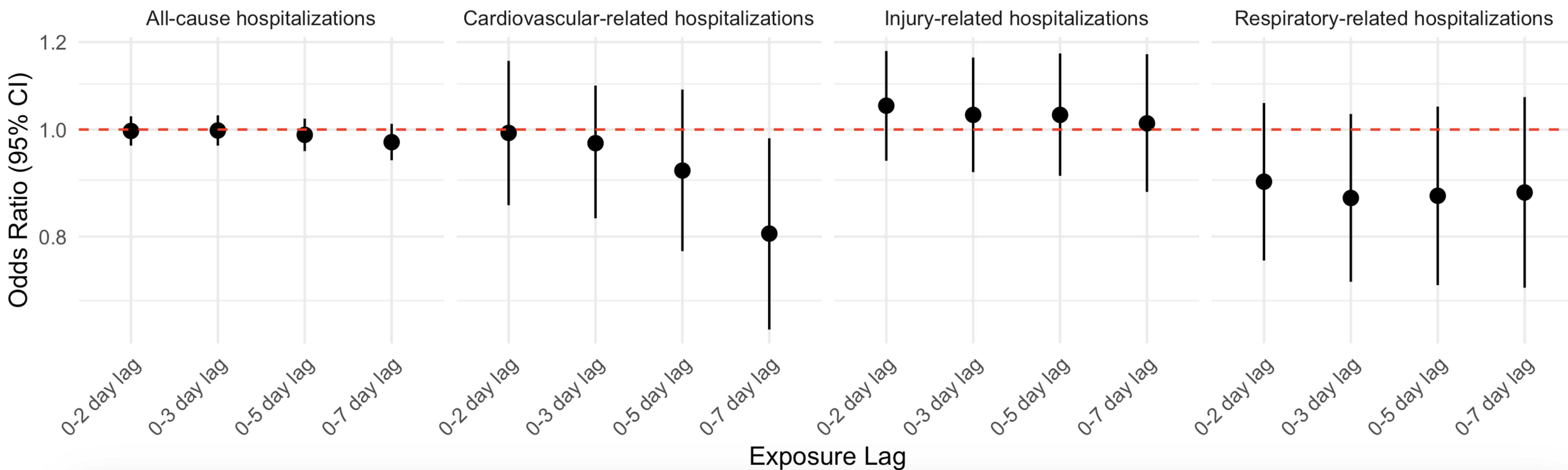


## CONCLUSIONS

- Wildfire smoke exposure was associated with increased odds of hospitalization for acute respiratory failure and overdose among people who are incarcerated in California
- Development of preparedness plans, exposure monitoring, ventilation system improvement and closure of facilities in areas of high wildfire risk are important steps to mitigate the risk of harmful health effects of wildfire smoke exposure in prisons

### ODDS RATIOS & 95% CONFIDENCE INTERVALS FOR 10-UNIT INCREASE IN PM<sub>2.5</sub>

#### All-cause and category-specific hospitalizations



#### Hospitalizations for emergent causes

