Table 1a: Results from daily wildfire PM2.5 analyses. We included fixed effects for wildfire PM2.5 lags 0-7 days, controlled for temperature, non-wildfire PM2.5, and time effects. We added a fixed effect to account for fewer visits on weekend days, and an offset to account for exposed population. We also included fixed effects for a comprehensive set of socioeconomic variables to account for correlation between ZCTA groupings, including median household income, home ownership (% homes occupied by owner), poverty (percent households below threshold income), age structure (percent of population under 5, 5-19, 20-64, and 65+ years), and racial/ethnic composition (percent Hispanic, percent non-Hispanic white, percent non-Hispanic Black).

| **Risk ratios for 10increase in wildfire PM2.5** | **lag 0 days** | **lag 1 day** | **lag 2 days** | **lag 3 days** | **lag 4 days** | **lag 5 days** | **lag 6 days** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| All-cause outpatient | 0.98 [0.96, 1.01] | 0.96 [0.94, 0.99] | 1.03 [1, 1.06] | 1.08 [1.05, 1.11] | 0.98 [0.95, 1.02] | 1.07 [1.04, 1.1] | 1.12 [1.09, 1.16] |
| All-cause inpatient | 0.94 [0.84, 1.04] | 1.01 [0.93, 1.1] | 0.95 [0.84, 1.08] | 0.87 [0.76, 1] | 0.98 [0.87, 1.12] | 0.93 [0.81, 1.06] | 1.02 [0.89, 1.16] |
| All-cause ED | 0.97 [0.91, 1.04] | 1.02 [0.96, 1.08] | 0.98 [0.89, 1.07] | 0.96 [0.88, 1.06] | 0.95 [0.86, 1.04] | 1.03 [0.93, 1.13] | 0.92 [0.82, 1.02] |
| Inpatient: cardiorespiratory concerns | 0.91 [0.81, 1.02] | 1.03 [0.95, 1.12] | 0.93 [0.82, 1.07] | 0.91 [0.79, 1.05] | 0.97 [0.85, 1.1] | 0.91 [0.79, 1.05] | 0.99 [0.86, 1.14] |
| ED: cardiorespiratory concerns | 0.99 [0.92, 1.07] | 0.99 [0.91, 1.08] | 0.96 [0.87, 1.07] | 0.99 [0.89, 1.1] | 0.92 [0.83, 1.03] | 1.01 [0.91, 1.13] | 0.89 [0.79, 1.01] |

Table 1b: Results from weekly wildfire PM2.5 analyses. We included fixed effects for weekly mean wildfire PM2.5 lags 0-2 week, controlled for temperature, non-wildfire PM2.5, and time effects, and added an offset to account for exposed population. We also included fixed effects for a comprehensive set of socioeconomic variables to account for correlation between ZCTA groupings, including median household income, home ownership (% homes occupied by owner), poverty (percent households below threshold income), age structure (percent of population under 5, 5-19, 20-64, and 65+ years), and racial/ethnic composition (percent Hispanic, percent non-Hispanic white, percent non-Hispanic Black).

| **Risk ratios for 10increase in wildfire PM2.5** | **lag 0 weeks** | **lag 1 week** | **lag 2 weeks** |
| --- | --- | --- | --- |
| All-cause outpatient | 1.10 [1.04, 1.17] | 1.04 [1.00, 1.09] | 1.05 [1.02, 1.09] |
| All-cause inpatient | 1.01 [0.84, 1.20] | 1.08 [0.94, 1.23] | 0.99 [0.85, 1.15] |
| All-cause ED | 1.03 [0.90, 1.19] | 0.99 [0.88, 1.11] | 1.02 [0.92, 1.14] |
| Inpatient: cardiorespiratory concerns | 0.94 [0.78, 1.12] | 1.10 [0.96, 1.27] | 0.98 [0.85, 1.15] |
| ED: cardiorespiratory concerns | 1.07 [0.92, 1.26] | 0.96 [0.84, 1.10] | 1.02 [0.91, 1.15] |

Table 2a: Difference-in-differences estimates of associations between Woolsey Fire proximity and evacuation exposure and healthcare visits among KPSC DME users. We used negative binomial regression to evaluate the effect of wildfire evacuation or proximity during an active fire. The DID estimators subtracted the change in visit frequency during a fire among ZCTAs far from the fire or evacuation zone (difference 1) from the change in visit frequency during a fire among ZCTAs exposed to the fire or evacuation zone (difference 2). We controlled for time effects, temperature, and non-wildfire PM2.5, and added an offset for the size of the exposed population.

|  |  |  |
| --- | --- | --- |
| Woolsey Fire | **Risk ratio for proximity exposure during fire:**  **(DID estimator), [95% confidence interval]** | **Risk ratio for exposure to evacuation during fire:**  **DID estimator, [95% confidence interval]** |
| All-cause outpatient | 0.89 [0.79, 1.00] | 0.87 [0.73, 1.04] |
| All-cause inpatient | 1.38 [0.95, 2.01] | 1.57 [0.92, 2.70] |
| All-cause ED | 1.14 [0.86, 1.51] | 1.18 [0.78, 1.80] |
| Inpatient: cardiorespiratory concerns | 1.48 [1.01, 2.17] | 1.76 [1.02, 3.05] |
| ED: cardiorespiratory concerns | 1.07 [0.79, 1.46] | 1.13 [0.71, 1.78] |

Table 2b: Difference-in-differences estimates of associations between Getty Fire proximity and evacuation exposure and healthcare visits among KPSC DME users. We used negative binomial regression to evaluate the effect of wildfire evacuation or proximity during an active fire. The DID estimators subtracted the change in visit frequency during a fire among ZCTAs far from the fire or evacuation zone (difference 1) from the change in visit frequency during a fire among ZCTAs exposed to the fire or evacuation zone (difference 2). We controlled for time effects, temperature, and non-wildfire PM2.5, and added an offset for the size of the exposed population.

|  |  |  |
| --- | --- | --- |
| Getty Fire | **Risk ratio for exposure to fire during fire: DID estimator, [95% confidence interval]** | **Risk ratio for exposure to evacuation during fire:**  **DID estimator, [95% confidence interval]** |
| All-cause outpatient | 1.02 [0.92, 1.13] | 0.88 [0.69, 1.12] |
| All-cause inpatient | 0.95 [0.61, 1.48] | 0.20 [0.02, 1.63] |
| All-cause ED | 0.98 [0.75, 1.30] | 0.67 [0.31, 1.44] |
| Inpatient: cardiorespiratory concerns | 0.98 [0.62, 1.53] | 0.21 [0.03, 1.77] |
| ED: cardiorespiratory concerns | 0.94 [0.68, 1.28] | 0.67 [0.28, 1.64] |

*Diagram

Description automatically generatedFigure 1*

*Figure 2a: Daily mean non-wildfire PM2.5 concentrations by study area county from January 2016 – March 2020.*

*Measurements are in . Dotted lines represent the USEPA recommended 35 daily limit. Coloured time*

*periods represent measurements made while a wildfire was burning.*



*Figure 2b: Daily mean wildfire PM2.5 concentrations by study area county from January 2016 – March 2020.*

*Measurements are in . Dotted lines represent the USEPA recommended 35 daily limit. Coloured time periods represent measurements made while a wildfire was burning.*

Figure 3: Results from Getty Fire and Woolsey Fire wildfire proximity and evacuation difference in differences analyses.

We used negative binomial regression to evaluate the effect of wildfire evacuation or proximity during an active fire. The DID estimators subtracted the change in visit frequency during a fire among ZCTAs far from the fire or evacuation zone (difference 1) from the change in visit frequency during a fire among ZCTAs exposed to the fire or evacuation zone (difference 2). We controlled for time effects, temperature, and non-wildfire PM2.5, and added an offset for the size of the exposed population.

Getty Fire­­­­­

Woolsey Fire ­



Shape

Description automatically generated with medium confidenceA picture containing cosmetic

Description automatically generated

Evacuation exposure

Fire proximity

|  |
| --- |
| Cardiorespiratory emergency |
| Cardiorespiratory inpatient |
| All-cause emergency |
| All-cause inpatient |
| All-cause outpatient |