Supplemental Information for "Associations between wildfire-related $PM_{2.5}$ and Intensive Care Unit Admissions in the United States, 2006-2015."

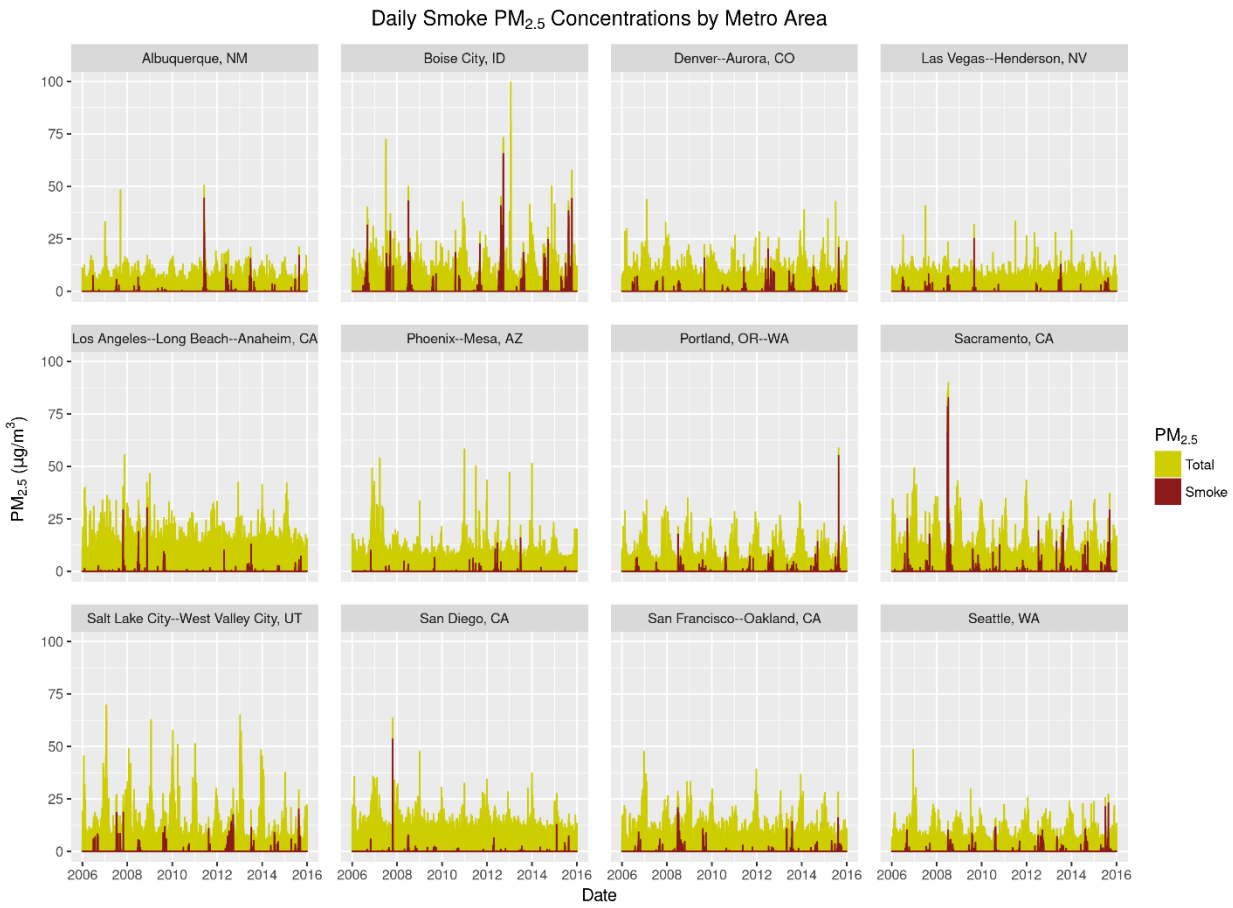
Cecilia Sorensen[1], John A. House[2], Katelyn O'Dell[3], Steven J. Brey[3], Bonne Ford[3], Jeffrey R. Pierce[3], Emily V. Fischer[3], Jay Lemery[1], James L. Crooks[4,5,*]

[1]University of Colorado School of Medicine, Department of Emergency Medicine, Aurora, Colorado, USA
[2]Premier, Inc., Charlotte, NC, USA
[3]Department of Atmospheric Science, Colorado State University, Ft. Collins, Colorado, USA
[4]Department of Biomedical Research and Division of Biostatistics and Bioinformatics, National Jewish Health, Denver, Colorado, USA
[5]Department of Epidemiology, Colorado School of Public Health, Aurora, Colorado, USA

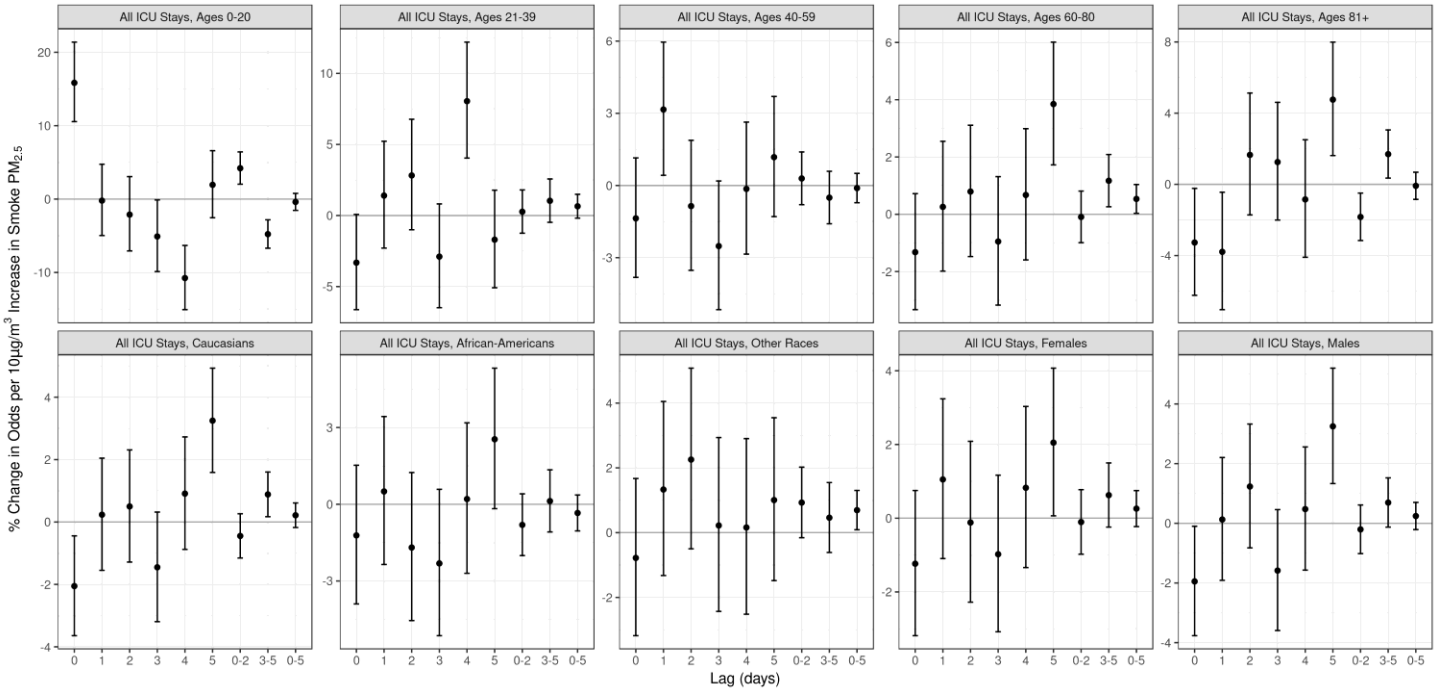
[*]Corresponding author
James L. Crooks (CrooksJ@NJHealth.org)
1400 Jackson Street, Denver CO 80206
303-398-1543

	Smoke $PM_{2.5}$	Non-Smoke $PM_{2.5}$	PM_{10}	O_3	Mean Temperature	Dew Point Temperature
Smoke $PM_{2.5}$	1.000	-0.033	0.421	0.272	0.170	0.087
Non-Smoke $PM_{2.5}$	-0.033	1.000	0.422	0.374	0.284	0.277
PM_{10}	0.421	0.422	1.000	0.390	0.271	0.011
O_3	0.272	0.374	0.390	1.000	0.332	0.041
Mean Temperature	0.170	0.284	0.271	0.332	1.000	0.766
Dew Point Temperature	0.087	0.277	0.011	0.041	0.766	1.000

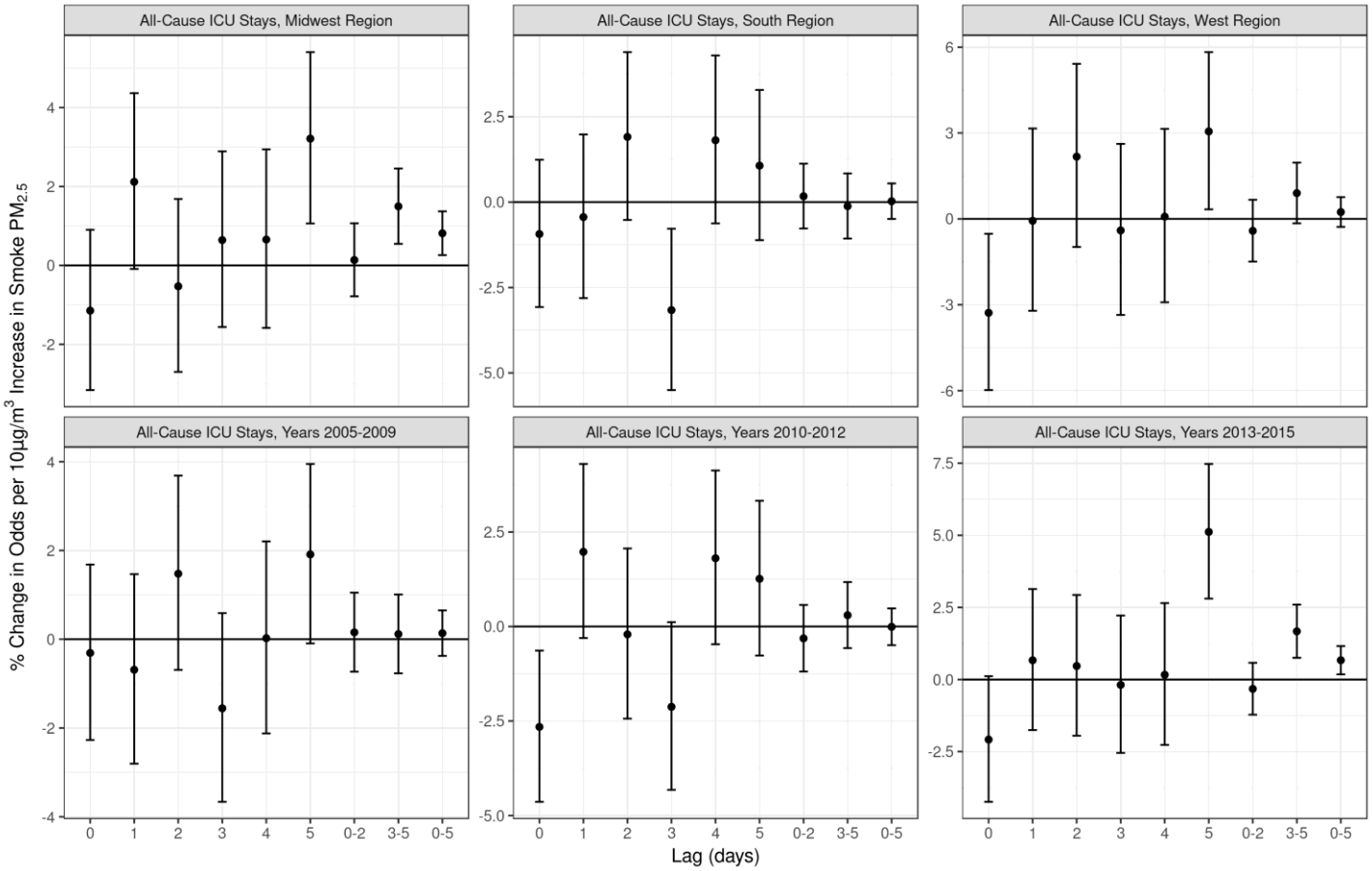
Supplemental Table 1: Pearson correlations between meteorological and air pollution variables. Ozone has been mean-centered. All two-sided pairwise Pearson correlation test p-values are $<10^{-10}$ with the exception of the correlation between PM_{10} and Dew Point Temperature (indicated in blue), which has an unadjusted p-value of 0.0031.



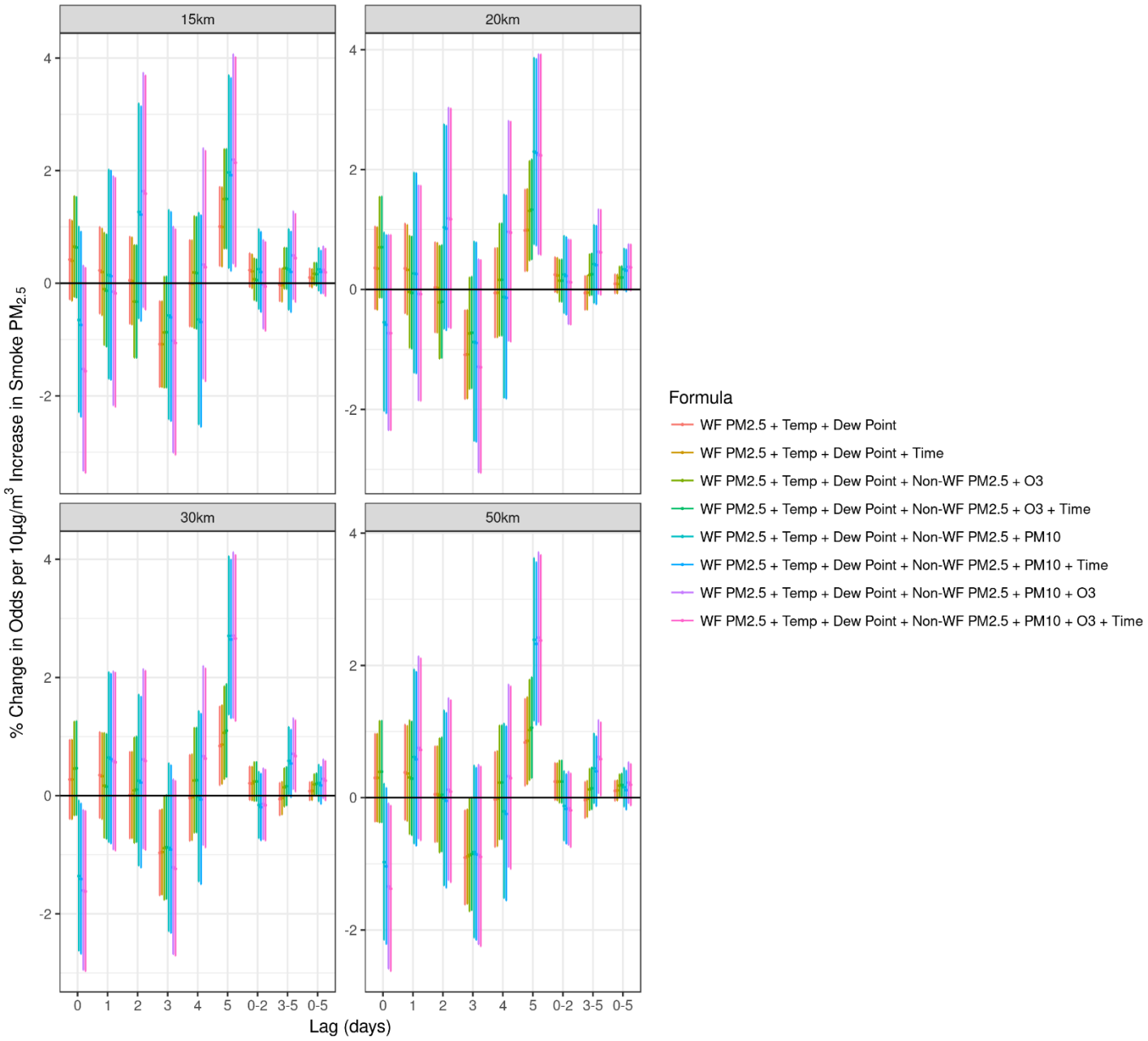
Supplemental Figure 1: Daily total and smoke $PM_{2.5}$ concentrations at twelve metropolitan areas in the U.S. in the years 2006-2015.



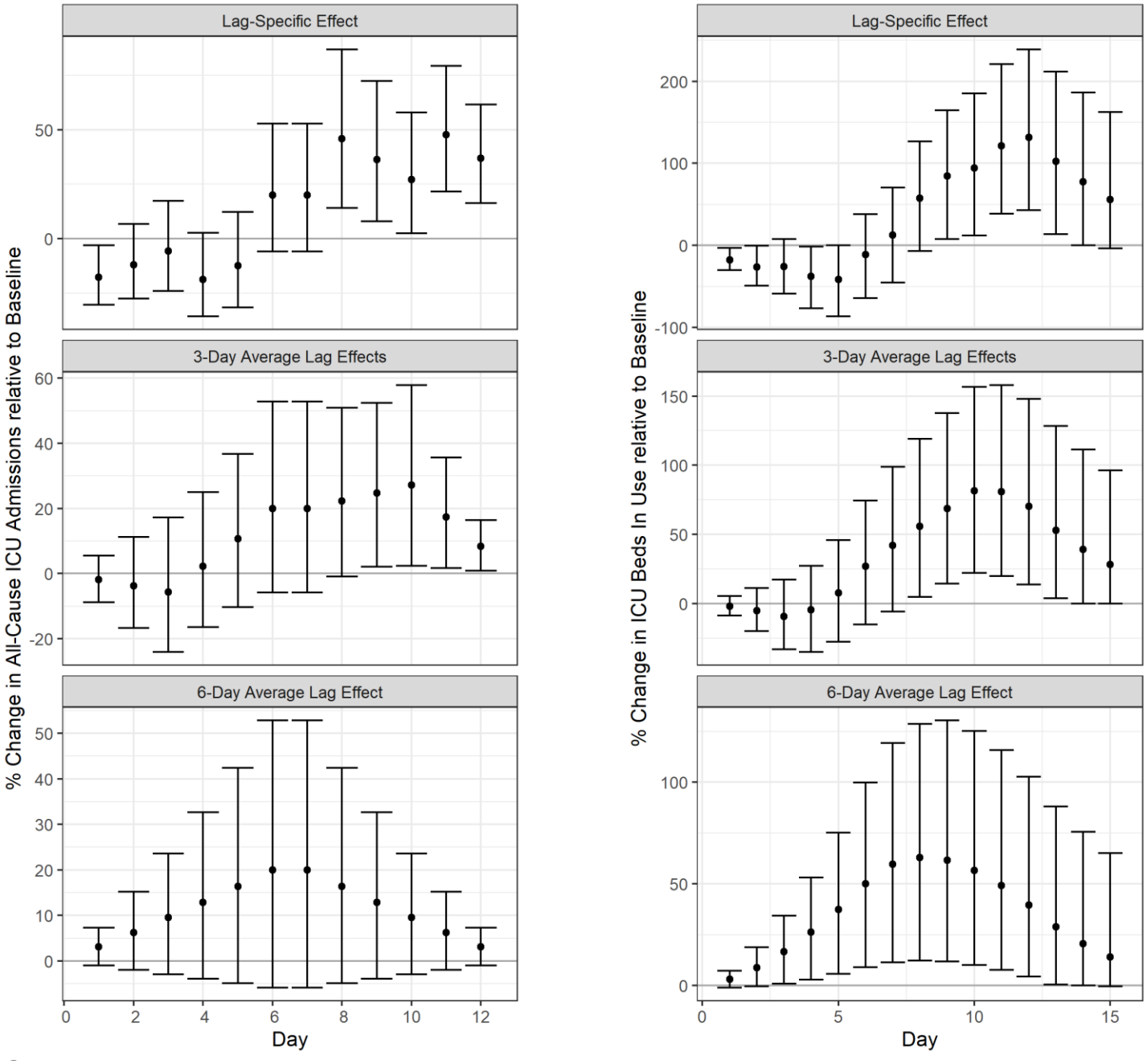
27 *Supplemental Figure 2: Distributed lag model results stratified by patient demographic characteristics*



29 *Supplemental Figure 3: Distributed-lag model results stratified by hospital census region and time period of ICU admission*



Supplemental Figure 4: Results using alternative buffer distances for calculating ambient PM10, ozone, mean temperature, and dew point temperature at the hospital ZIP code. To facilitate comparison, our main model results are shown in magenta in the 30km panel.



Supplemental Figure 5: Percent changes in ICU admissions (left) and simulated ICU bed utilization (right) using the day-specific lagged associations (top), the 3-day average associations over lags 0-2 and 3-5 (middle), and the 6-day average association over lags 0-5 (bottom).