

Supplementary Material

Statistical model

We used generalized additive models with quasi-Poisson regression to analyze the associations between ozone concentrations and respiratory outpatient visits. Several covariates were added into the models, including: (1) natural cubic spline regression to control time trend with 7 degrees of freedom (dfs) per year; (2) an indicator variable for day of the week; (3) a binary dummy variable for holidays; and (4) natural cubic spline regression to control ambient temperature and relative humidity with 3 dfs for both.

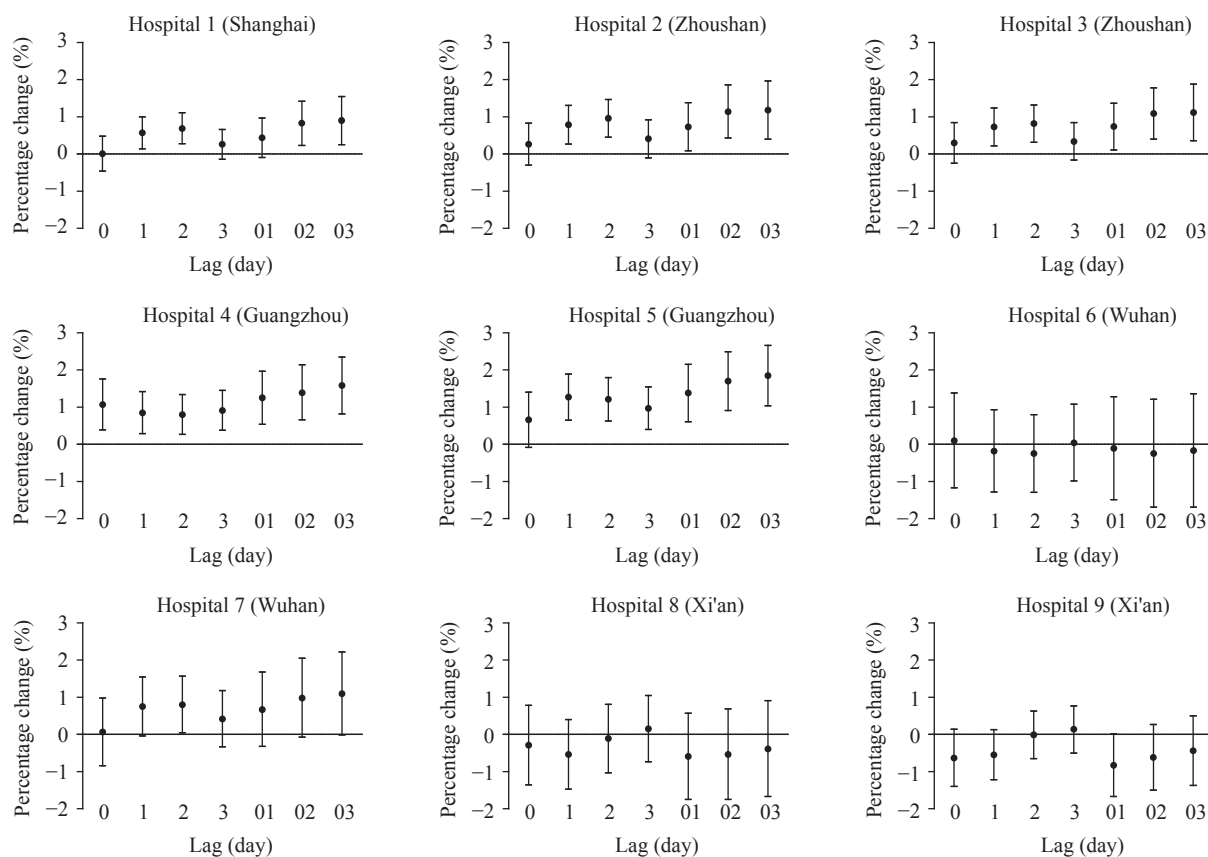
Sensitivity analyses

To examine the robustness of the main model, we performed 2 sensitivity analyses. First, we adjusted fine particulate matter, sulfur dioxide, nitrogen dioxide, and carbon monoxide individually in the main model. Second, we assessed alternative dfs of the smooth functions for time trend (dfs=6 or 8), ambient temperature (dfs=6), and relative humidity (dfs=6).

We applied a Z-test to examine the difference between the adjusted models and the main model.

$$Z = \frac{(\beta_1 - \beta_2)}{\sqrt{Se_1^2 + Se_2^2}} \quad (1)$$

where β_1 and β_2 refer to the coefficient of outpatient visits associated with one unit change in ozone concentration in the main model and adjusted model, respectively; Se_1 and Se_2 refer to their standard errors, respectively; Z refer to Z test score for pairwise comparison. A p -value <0.05 was considered statistically significant.



SUPPLEMENTARY FIGURE S1. Hospital-specific percentage changes in the count of outpatient visits for respiratory diseases per 10- $\mu\text{g}/\text{m}^3$ increase in ozone concentration over different single-day and multiple-day lag periods.

SUPPLEMENTARY TABLE S1. Summary estimates of sensitivity analyses for the associations between ozone concentrations (lag 03 days) and outpatient visits for respiratory diseases

Item	Percentage Change (95% CI)	p-value*
Main Model		
Single-pollutant, df _{time} =7, df _{temp} =3, df _{rh} =3	0.91% (0.34%–1.47%)	–
Two-pollutant Model		
Main Model + PM _{2.5}	0.67% (0.27%–1.07%)	0.502
Main Model + SO ₂	0.80% (0.40%–1.21%)	0.776
Main Model + NO ₂	0.72% (0.38%–1.06%)	0.574
Main Model + CO	0.80% (0.37%–1.22%)	0.763
Alternative Degrees of Freedom		
Single-pollutant, df _{time} =6, df _{temp} =3, df _{rh} =3	0.70% (0.15%–1.26%)	0.615
Single-pollutant, df _{time} =8, df _{temp} =3, df _{rh} =3	0.77% (0.37%–1.18%)	0.706
Single-pollutant, df _{time} =7, df _{temp} =6, df _{rh} =3	0.77% (0.24%–1.29%)	0.723
Single-pollutant, df _{time} =7, df _{temp} =3, df _{rh} =6	0.89% (0.41%–1.37%)	0.967
Single-pollutant, df _{time} =7, df _{temp} =6, df _{rh} =6	0.81% (0.29%–1.33%)	0.805

* p values for difference between estimates from the adjusted models and the main model.

Abbreviations: CI=confidence interval; PM_{2.5}=fine particulate matter; SO₂=sulfur dioxide; NO₂=nitrogen dioxide; CO=carbon monoxide; df_{time}=degree of freedom for time trend; df_{temp}=degree of freedom for ambient temperature; df_{rh}=degree of freedom for ambient relative humidity.