

Supplementary Materials: The Combined Effects of Hourly Multi-Pollutant on the Risk of Ambulance Emergency Calls: A Seven-Year Time Series Study

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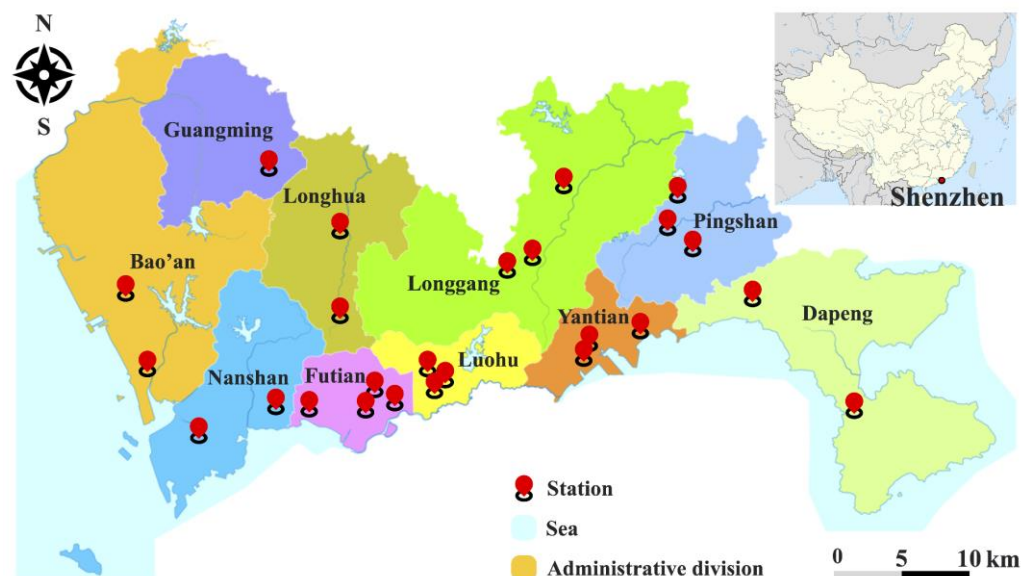


Figure S1. Distribution of environmental monitors in Shenzhen city, China.

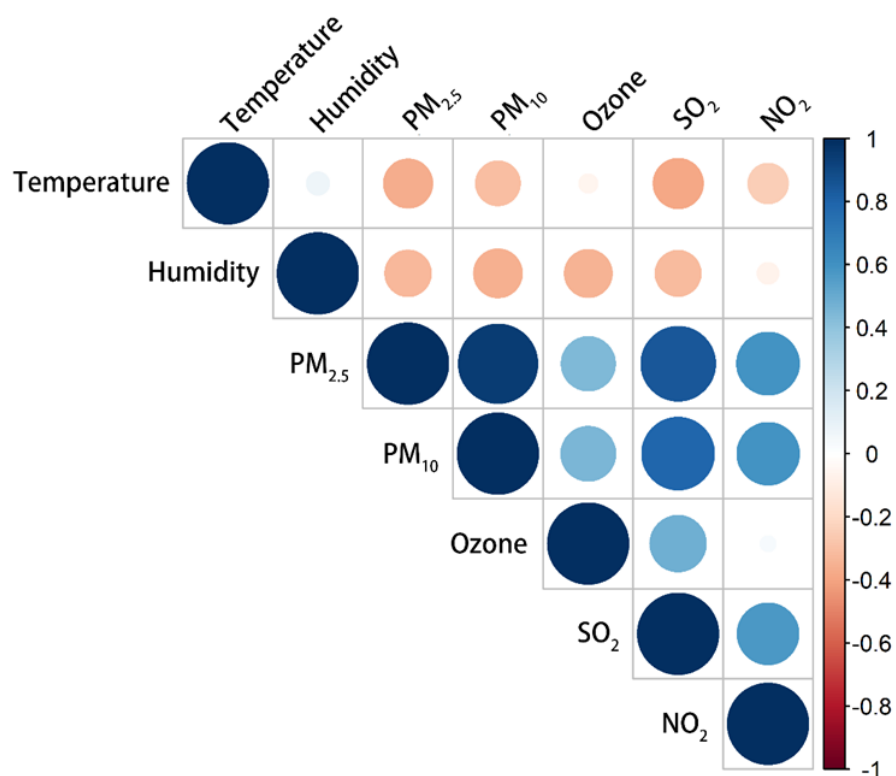


Figure S2. Spearman correlations among air pollutants and meteorological factors. Abbreviations: PM_{2.5}, PM₁₀, particulate matter less than 2.5,10 μm in diameter; NO₂, nitrogen dioxide; SO₂, sulfur dioxide.

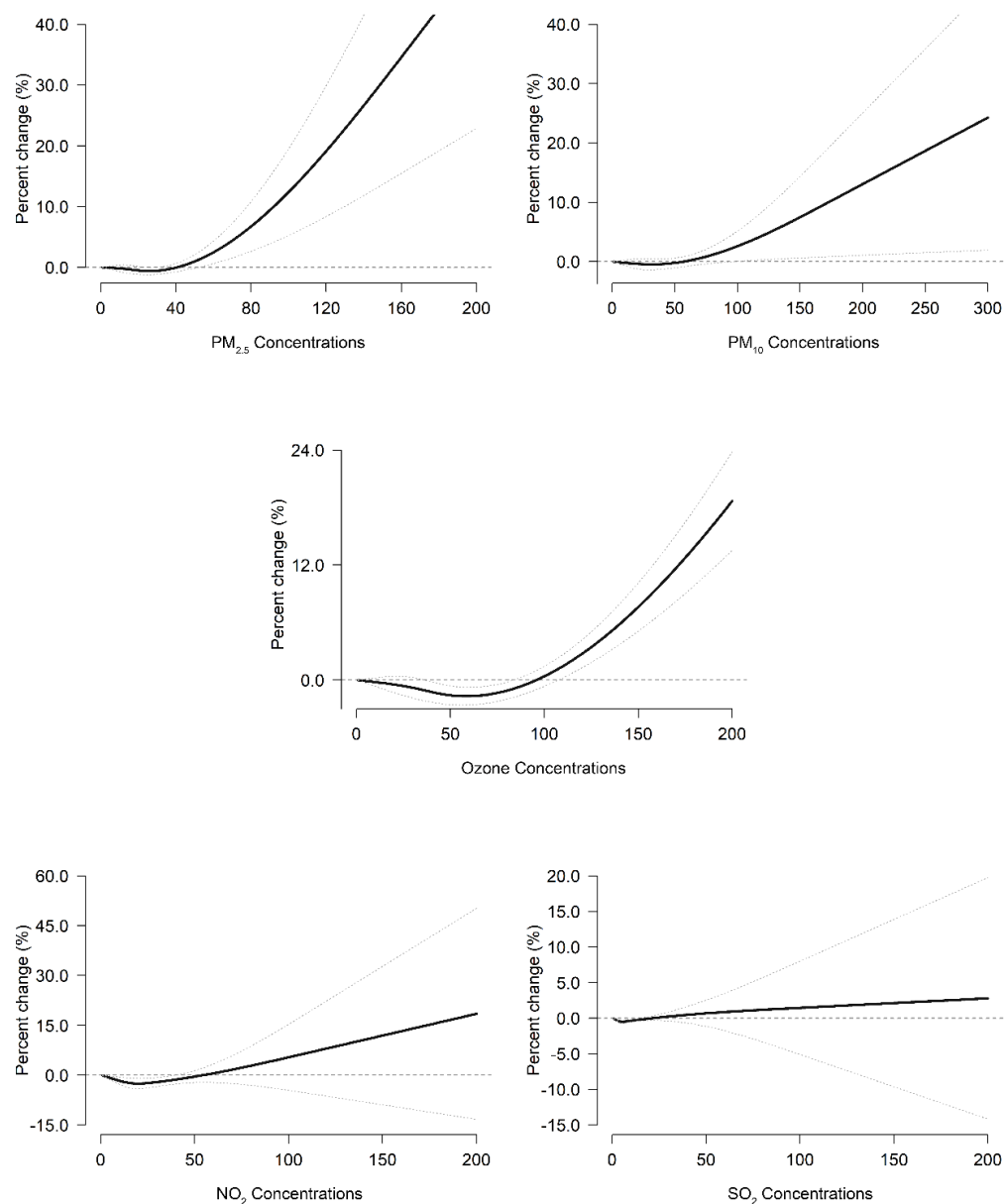


Figure S3. Cumulative concentration-response curves for the association of all-cause ambulance emergency calls with PM_{2.5}, PM₁₀, Ozone, NO₂, and SO₂ over lags 0-48h in Shenzhen from 2013-19. The cumulative exposure-response curves are calculated using a natural B-spline with two knots to model the exposure-response association. The black solid lines are the average percentage change in the risk of all-cause ambulance emergency calls, and the dotted lines are the 95% confidence intervals. Abbreviations: PM_{2.5}, PM₁₀, particulate matter less than 2.5, 10 µm in diameter; NO₂, nitrogen dioxide; SO₂, sulfur dioxide.

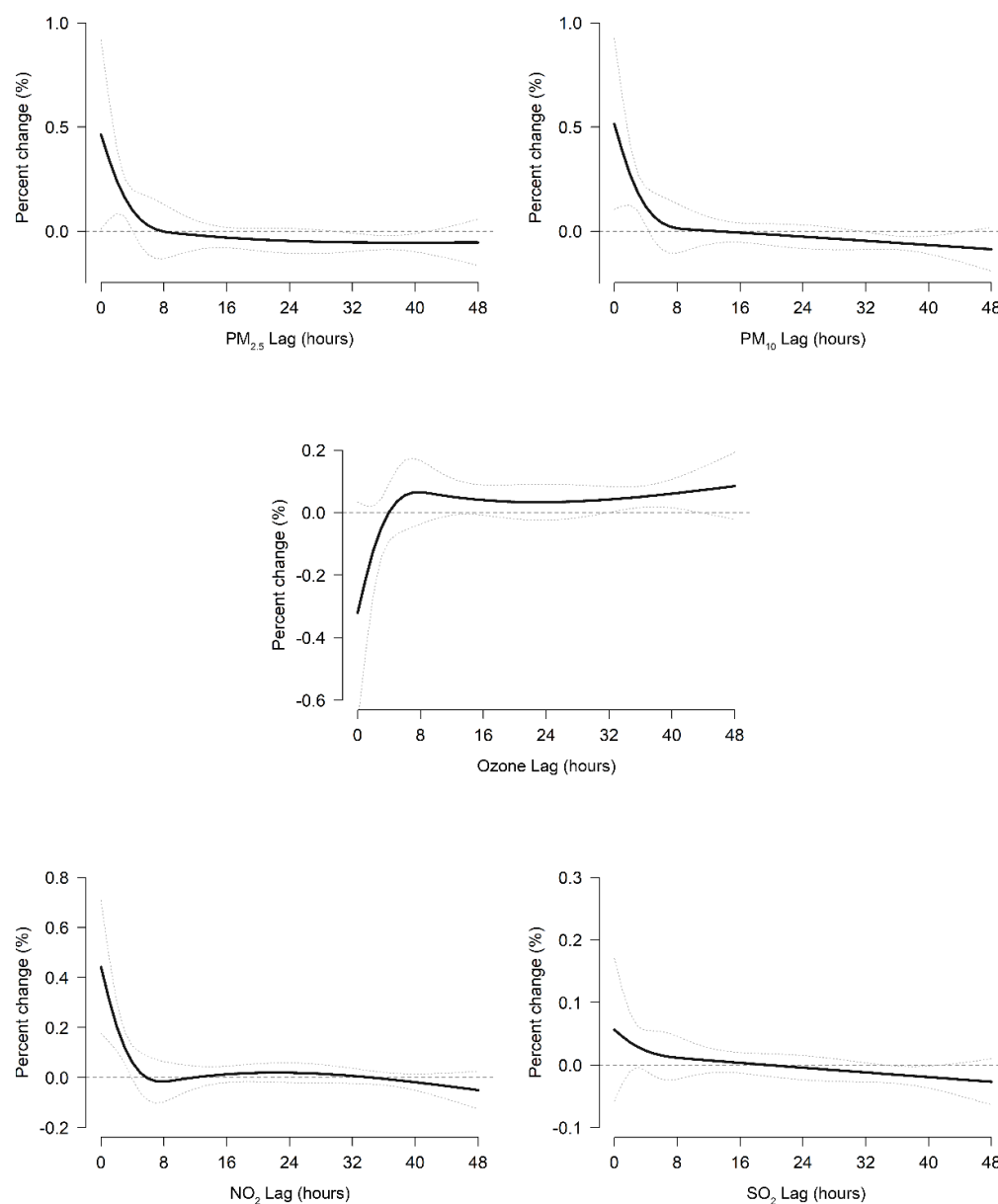


Figure S4. Lag structures for the associations of ambulance emergency calls with each interquartile range increase concentration in PM_{2.5}, PM₁₀, Ozone, NO₂, and SO₂ over lags 0–48h in Shenzhen from 2013–19. The overall lag structure curves are calculated using a linear with two knots placed on the log scale of lags to model the lag-response association. The solid black lines are the average percent change in the risk of all-cause ambulance emergency calls with each IQR increase in PM_{2.5}, PM₁₀, Ozone, NO₂, and SO₂ and the dotted lines are the 95% confidence intervals. Abbreviations: IQR, interquartile range; PM_{2.5}, PM₁₀, particulate matter less than 2.5, 10 μm in diameter; NO₂, nitrogen dioxide; SO₂, sulfur dioxide.

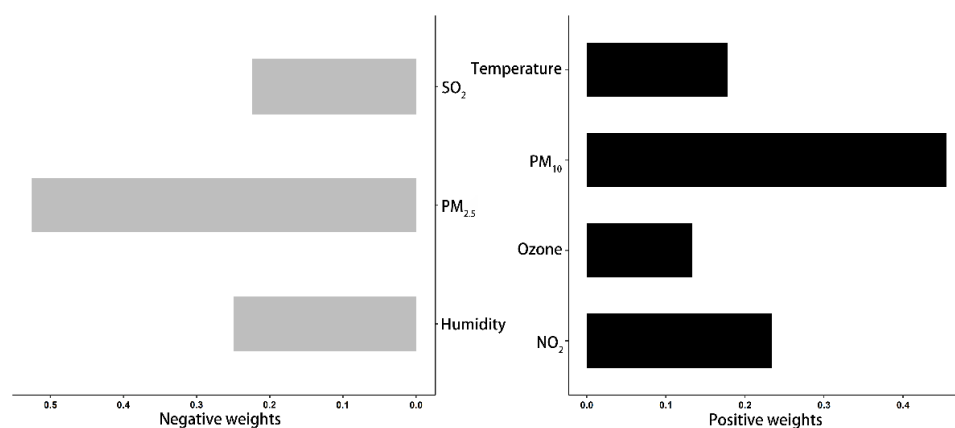


Figure S5. Weights representing the proportion of the positive or negative partial effect of each pollutant in quantile g-computation model. Abbreviations: PM_{2.5}, PM₁₀, particulate matter less than 2.5,10 µm in diameter; NO₂, nitrogen dioxide; SO₂, sulfur dioxide.

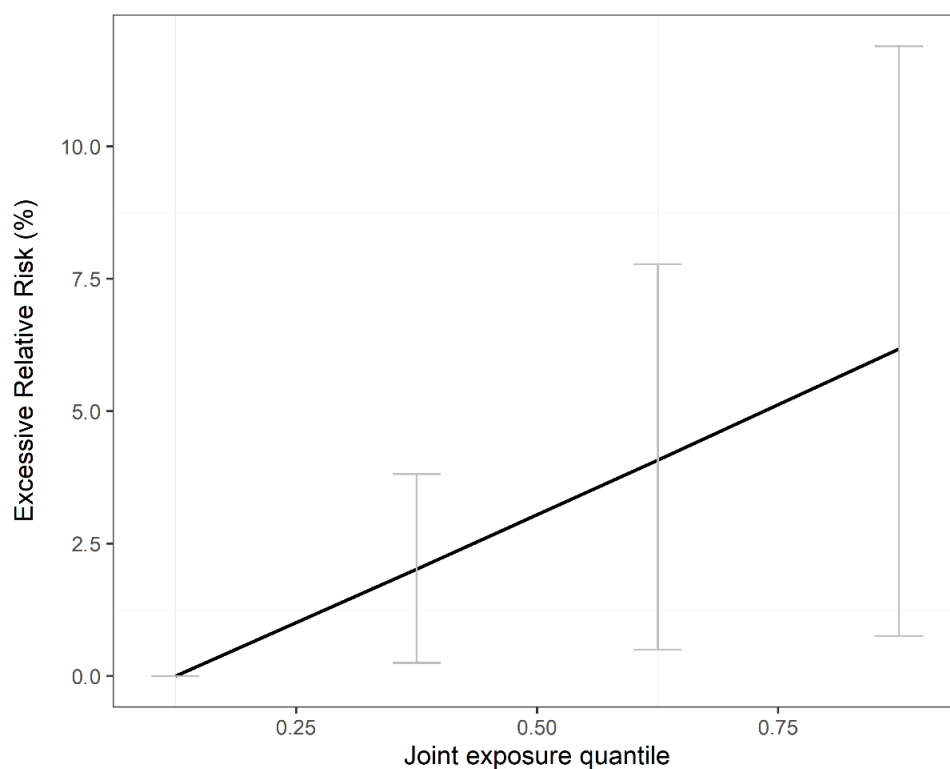


Figure S6. Sensitivity analysis: Exposure-response relationship between air pollutant mixtures and all-cause ambulance emergency calls in Shenzhen from 2013-19. The line is the exposure response curve, and the gray error bar is the confidence interval at each percentile. P-value <0.001 for linear relationship.

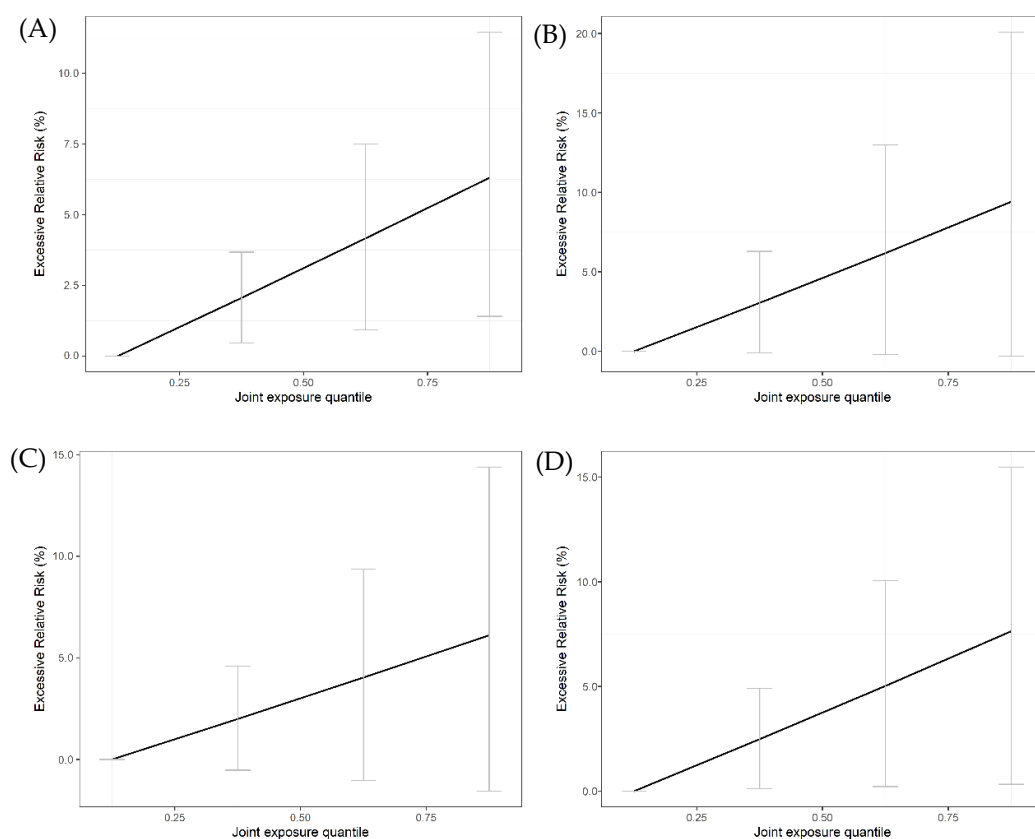


Figure S7. Sensitivity analysis: Exposure-response relationship between air pollutant mixtures and cause-specific ambulance emergency calls in Shenzhen from 2013-19. (A) represents vascular disease; (B) represents respiratory disease; (C) represents reproduction disease; (D) represents injury. The line is the exposure response curve, and the gray error bar is the confidence interval at each percentile. P-value < 0.001 for linear relationship.

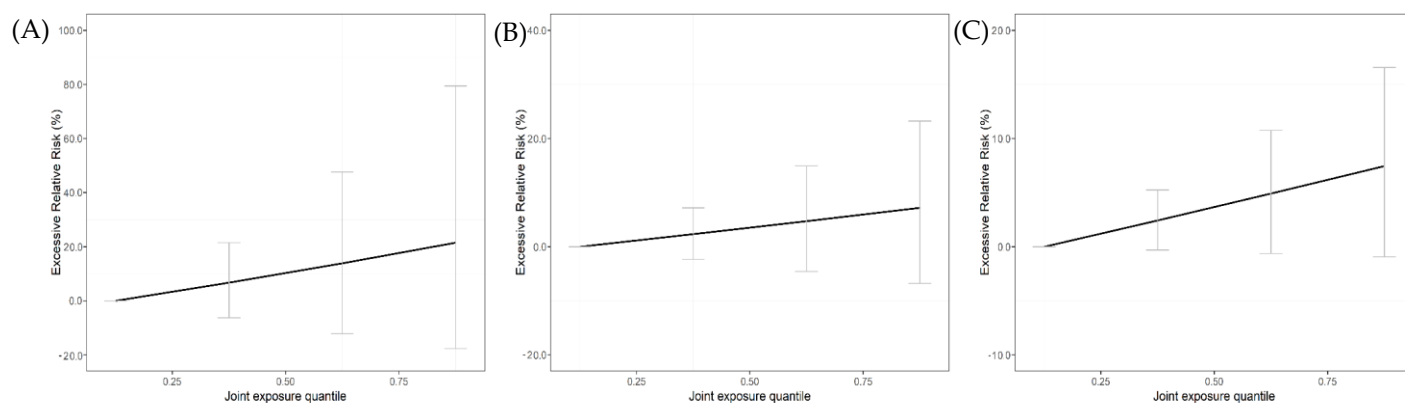


Figure S8. Sensitivity analysis: Exposure-response relationship between air pollutant mixtures and sub-vascular ambulance emergency calls in Shenzhen from 2013-19. (A) represents myocardial infarction (n=2,770); (B) represents acute coronary syndrome (n=30,892); (C) represents stroke (n=92,302). The line is the exposure response curve, and the gray error bar is the confidence interval at each percentile. P-value < 0.001 for linear relationship.

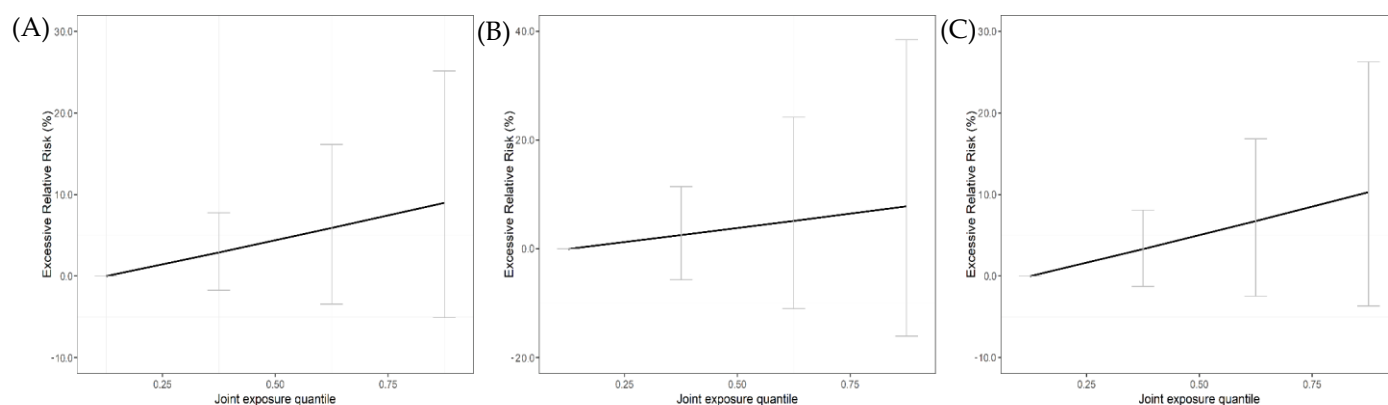


Figure S9. Sensitivity analysis: Exposure-response relationship between air pollutant mixtures and sub-respiratory ambulance emergency calls in Shenzhen from 2013-19. (A) represents pneumonia (n=31,159); (B) represents asthma (n=13,685); (C) represents upper respiratory infection (n=33,305). The line is the exposure response curve, and the gray error bar is the confidence interval at each percentile. P-value < 0.001 for linear relationship.