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Supplemental information

Association of short-term exposure to air pollution with emergency visits for respiratory diseases in children

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Table S1. Estimated percentage increase [ER (95%CI)] in emergency department visits for total respiratory disease of children associated with 10μg/m^3 increases in SO_2, NO_2, O_3, PM_{10} and $PM_{2.5}$ concentrations in Guangzhou, China, related to Figure 2.

	SO_2	NO_2	O_3	PM_{10}	$PM_{2.5}$
	ER %(95%CI)	ER% (95%CI)	ER% (95%CI)	ER% (95%CI)	ER% (95%CI)
lag0	3.61**	2.71**	0.27	1.95**	2.23**
	(2.07, 5.17)	(2.03, 3.40)	(-0.08, 0.63)	(1.50, 2.40)	(1.65, 2.81)
lag1	3.70**	2.55**	0.46**	1.81**	2.19**
	(2.22, 5.21)	(1.88, 3.22)	(0.17, 0.76)	(1.37, 2.25)	(1.62, 2.77)
lag2	3.50**	2.21**	0.41**	1.63**	1.86**
	(2.04, 4.98)	(1.57, 2.86)	(0.13, 0.68)	(1.21 2.06)	(1.30, 2.43)
lag3	2.67**	1.89**	0.25	1.41**	1.49**
	(1.24, 4.11)	(1.27, 2.51)	(-0.02, 0.52)	(1.00, 1.83)	(0.94, 2.04)
lag4	2.00**	1.70**	0.01	1.17**	1.09**
	(0.62, 3.41)	(1.09, 2.31)	(-0.25, 0.28)	(0.76, 1.57)	(0.55, 1.63)
lag5	2.29**	1.56**	-0.11	1.10**	1.07**
	(0.91. 3.68)	(0.95, 2.17)	(-0.37, 0.16)	(0.70, 1.51)	(0.54, 1.61)
lag6	3.54**	1.68**	-0.13	1.25**	1.43**
	(2.17. 4.94)	(1.07, 2.29)	(-0.39, 0.14)	(0.85, 1.65)	(0.91, 1.96)
lag7	3.12**	1.47**	-0.13	1.17**	1.40**
	(1.75, 4.51)	(0.86, 2.08)	(-0.39, 0.14)	(0.77, 1.57)	(0.87, 1.93)
lag01	5.18**	3.49**	0.55**	2.53**	2.96**
	(3.37, 7.03)	(2.71, 4.27)	(0.17, 0.93)	(2.01, 3.05)	(2.29, 3.63)
lag02	6.57**	4.13**	0.70**	3.00**	3.44**
	(4.53, 8.66)	(3.28, 4.98)	(0.29, 1.10)	(2.43 3.57)	(2.71, 4.18)
lag03	7.21**	4.55**	0.73**	3.29**	3.70**
	(4.97, 9.49)	(3.64, 5.47)	(0.31, 1.15)	(2.69, 3.90)	(2.90, 4.49)
lag04	7.59**	4.86**	0.65**	3.48**	3.82**
	(5.19, 10.03)	(3.89, 5.83)	(0.22, 1.09)	(2.84, 4.12)	(2.97, 4.67)
lag05	8.18**	5.16**	0.53*	3.72**	4.02**
	(5.64, 10.78)	(4.15, 6.19)	(0.08, 0.99)	(3.04, 4.40)	(3.12, 4.93)
lag06	9.53**	5.61**	0.44	4.10**	4.48**
	(6.84, 12.29)	(4.54, 6.68)	(-0.04, 0.92)	(3.39, 4.82)	(3.53, 5.44)
lag07	10.58**	5.96**	0.37	4.44**	4.88**
	(7.76, 13.48)	(4.85, 7.09)	(-0.14, 0.87)	(3.69, 5.19)	(3.88, 5.88)

* Significant difference ($p < 0.05$); **Significant difference ($p < 0.01$)

Table S2. Estimated percentage increase [ER (95%CI)] in emergency department visits for acute upper respiratory infection of children associated with 10μg/m^3 increases in SO_2, NO_2, O_3, PM_{10} and $PM_{2.5}$ concentrations in Guangzhou, China, related to Figure 2.

	SO_2	NO_2	O_3	PM_{10}	$PM_{2.5}$
	ER %(95%CI)	ER% (95%CI)	ER% (95%CI)	ER% (95%CI)	ER% (95%CI)
lag0	4.59**	2.82**	0.30	2.27**	2.44**
	(2.77, 6.43)	(2.00, 3.65)	(-0.12, 0.73)	(1.74, 2.80)	(1.76, 3.13)
lag1	4.50**	2.58**	0.43*	2.11**	2.34**
	(2.75, 6.28)	(1.78, 3.39)	(0.08, 0.79)	(1.58, 2.64)	(1.66, 3.02)
lag2	3.94**	2.09**	0.34*	1.73**	1.94**
	(2.23, 5.68)	(1.32, 2.87)	(0.01, 0.67)	(1.23, 2.24)	(1.28, 2.61)
lag3	2.32**	1.58**	0.15	1.44**	1.63**
	(0.66, 4.02)	(0.83, 2.33)	(-0.17, 0.48)	(0.95, 1.93)	(0.99, 2.28)
lag4	2.22**	1.29**	-0.12	1.13**	1.14**
	(0.60, 3.87)	(0.55, 2.03)	(-0.44, 0.20)	(0.65, 1.61)	(0.50, 1.78)
lag5	1.89*	1.01**	-0.26	0.95**	0.90**
	(0.29, 3.52)	(0.28, 1.74)	(-0.58, 0.05)	(0.47, 1.43)	(0.27, 1.53)
lag6	3.09**	1.26**	-0.26	1.14**	1.36**
	(1.49, 4.72)	(0.53, 1.99)	(-0.57, 0.05)	(0.67, 1.61)	(0.74, 1.98)
lag7	2.94**	1.26**	-0.23	1.10**	1.44**
	(1.34, 4.57)	(0.54, 1.99)	(-0.54, 0.09)	(0.62, 1.57)	(0.82, 2.06)
lag01	6.48**	3.60**	0.54*	2.95**	3.22**
	(4.32, 8.67)	(2.65, 4.54)	(0.08, 1.01)	(2.34, 3.57)	(2.42, 4.02)
lag02	7.96**	4.16**	0.65**	3.40**	3.70**
	(5.53, 10.45)	(3.13, 5.21)	(0.17, 1.13)	(2.73, 4.08)	(2.82, 4.58)
lag03	8.14**	4.39**	0.64*	3.63**	3.96**
	(5.50, 10.85)	(3.29, 5.51)	(0.14, 1.14)	(2.91, 4.35)	(3.02, 4.92)
lag04	8.55**	4.51**	0.50	3.77**	4.10**
	(5.72, 11.46)	(3.34, 5.70)	(-0.02, 1.03)	(3.00, 4.54)	(3.08, 4.92)
lag05	8.77**	4.56**	0.31	3.89**	4.17**
	(5.78, 11.85)	(3.33, 5.81)	(-0.23, 0.86)	(3.08, 4.71)	(3.09, 5.27)
lag06	9.81**	4.84**	0.17	4.23**	4.61**
	(6.65, 13.07)	(3.55, 6.15)	(-0.41, 0.74)	(3.36, 5.09)	(3.46, 5.76)
lag07	10.79**	5.16**	0.06	4.57**	5.07**
	(7.46, 14.21)	(3.80, 6.54)	(-0.54, 0.66)	(3.66, 5.48)	(3.87, 6.29)

* Significant difference ($p < 0.05$); **Significant difference ($p < 0.01$)

Table S3. Estimated percentage increase [ER (95%CI)] in emergency department visits for bronchitis of children associated with 10μg/m^3 increases in SO_2, NO_2, O_3, PM_{10} and $PM_{2.5}$ concentrations in Guangzhou, China, related to Figure 2.

	SO_2	NO_2	O_3	PM_{10}	$PM_{2.5}$
	ER %(95%CI)	ER% (95%CI)	ER% (95%CI)	ER% (95%CI)	ER% (95%CI)
lag0	1.39 (-0.55, 3.36)	2.63** (1.78, 3.48)	0.36 (-0.08, 0.81)	1.41** (0.84, 1.97)	1.79** (1.07, 2.52)
lag1	2.63** (0.75, 4.55)	2.67** (1.84, 3.50)	0.57** (0.20, 0.94)	1.64** (1.09, 2.19)	2.05** (1.34, 2.77)
lag2	2.53** (0.68, 4.41)	2.36** (1.56, 3.16)	0.71** (0.36, 1.06)	1.67** (1.14, 2.20)	1.95** (1.25, 2.65)
lag3	2.02* (0.20, 3.88)	2.23** (1.45, 3.01)	0.55* (0.21, 0.89)	1.55** (1.03, 2.06)	1.65** (0.96, 2.34)
lag4	1.80* (0.03, 3.61)	2.43** (1.67, 3.20)	0.34* (0.00, 0.68)	1.47** (0.97, 7.99)	1.30** (0.62, 1.98)
lag5	3.04** (1.27, 4.84)	2.23** (1.47, 3.00)	0.18 (-0.16, 0.52)	1.53** (1.02, 2.04)	1.41** (0.74, 2.09)
lag6	4.09** (2.32, 5.90)	2.31** (1.55, 3.07)	0.51 (-0.13, 0.54)	1.43** (0.93, 1.93)	1.66** (1.00, 2.32)
lag7	3.66** (1.90, 5.45)	1.97** (1.21, 2.73)	0.12 (-0.22, 0.46)	1.37** (0.88, 1.87)	1.56** (0.90, 2.23)
lag01	2.85* (0.58, 5.18)	3.50** (2.54, 4.47)	0.68** (0.21, 1.16)	2.06** (1.41, 2.71)	2.58** (1.74, 3.42)
lag02	3.97** (1.40, 6.60)	4.21** (3.15, 5.27)	0.99** (0.49, 1.49)	2.64** (1.93, 3.36)	3.19** (2.27, 4.12)
lag03	4.60** (1.78, 7.49)	4.82** (3.68, 5.98)	1.14** (0.62, 1.67)	3.10** (2.34, 3.87)	3.61** (2.61, 4.62)
lag04	5.02** (2.02, 8.11)	5.45** (4.25, 6.67)	1.18** (0.64, 1.73)	3.45** (2.64, 4.26)	3.82** (2.75, 4.90)
lag05	6.20** (3.00, 9.50)	6.05** (4.78, 7.33)	1.16** (0.59, 1.73)	3.91** (3.05, 4.77)	4.20** (3.07, 5.35)
lag06	7.88** (4.48, 11.39)	6.71** (5.37, 8.07)	1.17** (0.58, 1.78)	4.35** (3.45, 5.26)	4.73** (3.53, 5.94)
lag07	9.21** (5.64, 12.90)	7.22** (5.83, 8.64)	1.18** (0.56, 1.81)	4.75** (3.80, 5.70)	5.15** (3.90, 6.42)

* Significant difference ($p < 0.05$); **Significant difference ($p < 0.01$)

Table S4. Estimated percentage increase [ER (95%CI)] in emergency department visits for pneumonia of children associated with 10μg/m^3 increases in SO_2, NO_2, O_3, PM_{10} and $PM_{2.5}$ concentrations in Guangzhou, China, related to Figure 2.

	SO_2	NO_2	O_3	PM_{10}	$PM_{2.5}$
	ER %(95%CI)	ER% (95%CI)	ER% (95%CI)	ER% (95%CI)	ER% (95%CI)
lag0	4.06*	3.98**	1.08**	1.91**	2.65**
	(1.09, 7.12)	(2.75, 5.23)	(0.46, 1.72)	(1.09, 2.73)	(1.59, 3.71)
lag1	5.46**	4.13**	1.05**	2.27**	3.17**
	(2.71, 8.28)	(2.93, 5.34)	(0.52, 1.59)	(1.47, 3.07)	(2.14, 4.22)
lag2	4.38**	4.17**	0.91**	2.28**	2.75**
	(1.69, 7.15)	(3.02, 5.32)	(0.42, 1.40)	(1.52, 3.05)	(1.74, 3.77)
lag3	4.24**	3.59**	1.06**	2.08**	2.26**
	(1.57, 6.98)	(2.46, 4.73)	(0.57, 1.54)	(1.33, 2.83)	(1.26, 3.26)
lag4	2.89*	3.32**	0.80**	1.82**	2.05**
	(0.29, 5.55)	(2.21, 4.45)	(0.32, 1.29)	(1.08, 2.57)	(1.07, 3.05)
lag5	3.49**	3.30**	0.79**	1.98**	2.24**
	(0.91, 6.14)	(2.19, 4.42)	(0.31, 1.28)	(1.24, 2.72)	(1.26, 3.23)
lag6	3.47**	3.26**	0.58*	2.18**	2.57**
	(0.89, 6.11)	(2.16, 4.38)	(0.09, 1.06)	(1.46, 2.92)	(1.60, 3.54)
lag7	3.84**	3.06**	0.30	2.04**	2.85**
	(1.27, 6.49)	(1.95, 4.17)	(-0.19, 0.79)	(1.31, 2.77)	(1.88, 3.82)
lag01	5.95**	5.39**	1.52**	2.84**	3.97**
	(2.61, 9.41)	(3.99, 6.82)	(0.84, 2.21)	(1.90, 3.79)	(2.74, 5.21)
lag02	7.81**	6.79**	1.75**	3.67**	4.85**
	(4.01, 11.76)	(5.25, 8.36)	(1.04, 2.47)	(2.63, 4.72)	(3.49, 6.23)
lag03	9.53**	7.84**	2.07**	4.34**	5.49**
	(5.31, 13.92)	(6.17, 9.54)	(1.32, 2.82)	(3.22, 5.48)	(4.01, 7.00)
lag04	10.30**	8.64**	2.26**	4.80**	6.02**
	(5.75, 15.04)	(6.86, 10.45)	(1.47, 3.05)	(3.60, 6.02)	(4.42, 7.64)
lag05	11.55**	9.54**	2.47**	5.49**	6.81**
	(6.69, 16.63)	(7.65, 11.46)	(1.64, 3.30)	(4.21, 6.79)	(5.10, 8.55)
lag06	12.74**	10.45**	2.60**	6.31**	7.78**
	(7.58, 18.13)	(8.46, 12.47)	(1.73, 3.48)	(4.95, 7.68)	(5.96, 9.64)
lag07	14.13**	11.28**	2.66**	7.07**	8.85**
	(8.69, 19.85)	(9.18, 13.41)	(1.74, 3.58)	(5.63, 8.52)	(6.93, 10.81)

* Significant difference ($p < 0.05$); **Significant difference ($p < 0.01$)

Table S5. Estimated percentage increase [ER (95%CI)] in emergency department visits for asthma of children associated with 10μg/m^3 increases in SO_2, NO_2, O_3, PM_{10} and $PM_{2.5}$ concentrations in Guangzhou, China, related to Figure 2.

	SO_2	NO_2	O_3	PM_{10}	$PM_{2.5}$
	ER %(95%CI)	ER% (95%CI)	ER% (95%CI)	ER% (95%CI)	ER% (95%CI)
lag0	2.76 (-0.97， 6.62)	2.14* (0.51, 3.79)	0.33 (-0.50, 1.17)	1.20* (0.09, 2.33)	1.78* (0.34, 3.24)
lag1	1.09 (-2.49, 4.80)	1.39 (-0.21, 3.01)	0.29 (-0.42, 1.00)	1.00 (-0.08, 2.10)	0.99 (-0.43, 2.42)
lag2	2.78 (-0.78, 6.47)	2.14** (0.60, 3.71)	0.38 (-0.28, 1.05)	1.38** (0.33, 2.44)	0.96 (-0.42, 2.36)
lag3	3.00 (-0.52, 6.65)	2.96** (1.45, 4.49)	0.38 (-0.28, 1.03)	1.64** (0.61, 2.67)	1.59* (0.23, 2.96)
lag4	3.20 (-0.29, 6.81)	2.41** (0.91, 3.93)	0.54 (-0.11, 1.19)	1.29* (0.26, 2.32)	0.89 (-0.46, 2.26)
lag5	0.22 (-.020, 3.75)	1.32 (-0.18, 2.84)	0.47 (-0.18, 1.12)	0.50 (-0.53, 1.54)	0.05 (-1.30, 1.41)
lag6	-0.43 (-3.82, 3.09)	0.77 (-0.72, 2.29)	0.47 (-0.18, 1.12)	0.89 (-0.13, 1.92)	0.62 (-0.72, 1.97)
lag7	1.25 (-2.16, 4.79)	0.76 (-0.73, 2.27)	0.29 (-0.36, 0.94)	1.09* (0.07, 2.11)	1.07 (-0.26, 2.43)
lag01	2.66 (-1.67, 7.17)	2.31* (0.45, 4.21)	0.43 (-0.47, 1.35)	1.48* (0.20, 2.77)	1.83* (0.19, 3.51)
lag02	3.91 (-0.95, 9.01)	3.11** (1.06, 5.20)	0.58 (-0.37, 1.53)	1.98** (0.58, 3.40)	2.00* (0.20, 3.84)
lag03	5.21 (-0.12, 10.82)	4.28** (2.06, 6.54)	0.69 (-0.30, 1.70)	2.58** (1.08, 4.11)	2.56** (0.62, 4.55)
lag04	6.53* (0.77, 12.61)	5.03** (2.67, 7.46)	0.90 (-0.15, 1.96)	2.94** (1.35, 4.56)	2.75** (0.68, 4.87)
lag05	6.18* (0.09, 12.65)	5.25** (2.74, 7.82)	1.05 (-0.06, 2.16)	2.95** (1.26, 4.67)	2.57* (0.37, 4.82)
lag06	5.64 (-0.75, 12.45)	5.28** (2.64, 7.99)	1.20* (0.04, 2.37)	3.16** (1.38, 4.98)	2.68* (0.36, 5.05)
lag07	5.71 (-0.98, 12.85)	5.28** (2.53, 8.11)	1.28* (0.06, 2.51)	3.38** (1.51, 5.28)	2.86* (0.44, 5.34)

* Significant difference ($p < 0.05$); **Significant difference ($p < 0.01$)

Table S6. Estimated percentage increase [ER (95%CI)] in emergency department visits for total respiratory disease in boys and girls associated with 10μg/m^3 increases in SO_2, NO_2, O_3, PM_{10} and $PM_{2.5}$ concentrations in Guangzhou, China, related to Figure 3.

	SO_2 ER %(95%CI)	NO_2 ER% (95%CI)	O_3 ER% (95%CI)	PM_{10} ER% (95%CI)	$PM_{2.5}$ ER% (95%CI)
Boy					
lag0	3.75** (2.21, 5.30)	2.72** (2.04, 3.40)	0.28 (-0.07, 0.63)	1.97** (1.52, 2.42)	2.19** (1.62, 2.77)
lag1	3.80** (2.31, 5.30)	2.52** (1.85, 3.18)	0.48** (0.18, 0.77)	1.81** (1.37, 2.25)	2.20** (1.63, 2.77)
lag2	3.41** (1.95, 4.88)	2.07** (1.43, 2.72)	0.44** (0.16, 0.71)	1.59** (1.17 2.02)	1.80** (1.24, 2.36)
lag3	2.51** (1.08, 3.95)	1.73** (1.11 2.36)	0.24 (-0.03, 0.51)	1.35** (0.94, 1.76)	1.43** (0.88, 1.98)
lag4	1.84** (0.46, 3.25)	1.57** (0.96, 2.18)	0.01 (-0.25, 0.28)	1.06** (0.65, 1.47)	0.98** (0.44, 1.52)
lag5	2.21** (0.84. 3.60)	1.46** (0.84, 2.07)	-0.14 (-0.41, 0.12)	1.01** (0.60, 1.41)	0.96** (0.42, 1.50)
lag6	3.48** (2.10. 4.87)	1.60** (1.00, 2.21)	-0.16 (-0.42, 0.11)	1.22** (0.82, 1.61)	1.36** (0.83, 1.88)
lag7	3.05** (1.68, 4.43)	1.41** (0.81, 2.02)	-0.14 (-0.40, 0.13)	1.13** (0.73, 1.53)	1.34** (0.82, 1.87)
lag01	5.35** (3.54, 7.19)	3.47** (2.70, 4.25)	0.56** (0.18, 0.95)	2.54** (2.03, 3.06)	2.94** (2.28, 3.61)
lag02	6.65** (4.61, 8.73)	4.03** (3.18, 4.88)	0.73** (0.33, 1.13)	2.98** (2.42, 3.55)	3.39** (2.66, 4.13)
lag03	7.21** (4.98, 9.49)	4.38** (3.47, 5.30)	0.75** (0.34, 1.17)	3.25** (2.65, 3.86)	3.63** (2.83, 4.42)
lag04	7.50** (5.11, 9.94)	4.64** (3.68, 5.61)	0.67** (0.24, 1.11)	3.39** (2.75, 4.03)	3.70** (2.85, 4.55)
lag05	8.07** (5.54, 10.67)	4.92** (3.91, 5.95)	0.53* (0.08, 0.99)	3.59** (2.91, 4.28)	3.86** (2.96, 4.77)
lag06	9.39** (6.70, 12.15)	5.34** (4.27, 6.42)	0.43 (-0.05, 0.90)	3.96** (3.24, 4.68)	4.29** (3.33, 5.25)
lag07	10.40** (7.60, 13.30)	5.68** (4.57, 6.81)	0.35 (-0.15, 0.85)	4.29** (3.53, 5.04)	4.67** (3.67, 5.67)
Girl					
lag0	3.41** (1.79, 5.05)	2.70** (1.98, 3.42)	0.26 (-0.11, 0.63)	1.92** (1.45, 2.39)	2.28** (1.68, 2.89)
lag1	3.57** (2.01, 5.16)	2.59** (1.89, 3.30)	0.45** (0.13, 0.76)	1.81** (1.35, 2.28)	2.18** (1.57, 2.78)
lag2	3.63** (2.10, 5.19)	2.41** (1.74, 3.09)	0.36* (0.07, 0.65)	1.69** (1.24, 2.14)	1.95** (1.36, 2.54)

lag3	2.89**	2.11**	0.27	1.50**	1.57**
	(1.39, 4.41)	(1.46, 2.77)	(-0.02, 0.55)	(1.07, 1.93)	(1.00, 2.15)
lag4	2.23**	1.88**	0.01	1.32**	1.24**
	(0.77, 3.70)	(1.24, 2.53)	(-0.27, 0.30)	(0.89, 1.74)	(0.68, 1.81)
lag5	2.39**	1.71**	-0.06	1.24**	1.23**
	(0.95, 3.85)	(1.07, 2.35)	(-0.34, 0.22)	(0.82, 1.67)	(0.67, 1.79)
lag6	3.64**	1.79**	-0.09	1.30**	1.54**
	(2.19, 5.10)	(1.15, 2.43)	(-0.37, 0.20)	(0.89, 1.72)	(0.99, 2.09)
lag7	3.23**	1.54**	-0.11	1.22**	1.48**
	(1.79, 4.69)	(0.91, 2.18)	(-0.39, 0.17)	(0.80, 1.64)	(0.93, 2.03)
lag01	4.95**	3.51**	0.53*	2.51**	2.99**
	(3.04, 6.89)	(2.70, 4.34)	(0.12, 0.93)	(1.97, 3.06)	(2.28, 3.69)
lag02	6.46**	4.27**	0.65**	3.02**	3.52**
	(4.31, 8.66)	(3.37, 5.17)	(0.22, 1.07)	(2.42, 3.62)	(2.72, 4.30)
lag03	7.21**	4.78**	0.70**	3.35**	3.79**
	(4.86, 9.61)	(3.82, 5.75)	(0.26, 1.14)	(2.71, 3.99)	(2.96, 4.63)
lag04	7.71**	5.16**	0.63**	3.60**	3.98**
	(5.19, 10.29)	(4.14, 6.18)	(0.16, 1.09)	(2.93, 4.28)	(3.09, 4.88)
lag05	8.33**	5.51**	0.53*	3.89**	4.24**
	(5.66, 11.07)	(4.44, 6.59)	(0.05, 1.02)	(3.18, 4.61)	(3.29, 5.19)
lag06	9.74**	5.98**	0.46	4.30**	4.75**
	(6.91, 12.64)	(4.86, 7.12)	(-0.05, 0.96)	(3.55, 5.06)	(3.75, 5.76)
lag07	10.82**	6.35**	0.39	4.65**	5.17**
	(7.85, 13.87)	(5.18, 7.54)	(-0.14, 0.92)	(3.86, 5.45)	(4.12, 6.23)

* Significant difference ($p < 0.05$); **Significant difference ($p < 0.01$)

Table S7. Estimated percentage increase [ER (95%CI)] in emergency department visits for acute upper respiratory infection in boys and girls associated with 10μg/m^3 increases in SO_2, NO_2, O_3, PM_{10} and $PM_{2.5}$ concentrations in Guangzhou, China, related to Figure 3.

	SO_2	NO_2	O_3	PM_{10}	$PM_{2.5}$
	ER %(95%CI)	ER% (95%CI)	ER% (95%CI)	ER% (95%CI)	ER% (95%CI)
Boy					
lag0	5.03** (3.19, 6.90)	2.89** (2.06, 3.73)	0.33 (-0.09, 0.76)	2.38** (1.84, 2.92)	2.51** (1.82, 3.21)
lag1	4.78** (3.00, 6.58)	2.60** (1.78, 3.42)	0.49** (0.13, 0.85)	2.23** (1.70, 2.76)	2.52** (1.83, 3.21)
lag2	3.93** (2.20, 5.68)	1.94** (1.16, 2.73)	0.38* (0.05, 0.71)	1.72** (1.21, 2.24)	1.93** (1.26, 2.61)
lag3	2.25** (0.56, 3.96)	1.50** (0.75, 2.26)	0.14 (-0.18, 0.46)	1.44** (0.95, 1.94)	1.62** (0.96, 2.27)
lag4	2.22** (0.57, 3.89)	1.20** (0.45, 1.94)	-0.08 (-0.40, 0.24)	1.12** (0.64, 1.61)	1.12** (0.48, 1.77)
lag5	2.02* (0.39, 3.67)	0.88* (0.14, 1.62)	-0.28 (-0.60, 0.04)	0.89** (0.40, 1.38)	0.80* (0.16, 1.44)
lag6	2.97** (1.35, 4.63)	1.12** (0.38, 1.86)	-0.30 (-0.62, 0.02)	1.09** (0.62, 1.57)	1.27** (0.64, 1.90)
lag7	2.85** (1.22, 4.50)	1.23** (0.50, 1.97)	-0.24 (-0.56, 0.08)	1.06** (0.58, 1.54)	1.35** (0.72, 1.98)
lag01	6.99** (4.81, 9.21)	3.65** (2.70, 4.61)	0.61* (0.15, 1.08)	3.11** (2.49, 3.73)	3.39** (2.58, 4.19)
lag02	8.39** (5.93, 10.90)	4.12** (3.08, 5.17）	0.73** (0.24, 1.21)	3.52** (2.84, 4.21)	3.93** (2.94, 4.72)
lag03	8.50** (5.83, 11.24)	4.32** (3.20, 5.45)	0.69** (0.19, 1.20)	3.74** (3.02, 4.48)	4.08** (3.12, 5.05)
lag04	8.88** (6.01, 11.83)	4.40** (3.21, 5.59)	0.57* (0.04, 1.10)	3.87** (3.09, 4.65)	4.20** (3.17, 5.23)
lag05	9.20** (6.16, 12.32)	4.41** (3.16, 5.67)	0.37 (-0.19, 0.92)	3.98** (3.15, 4.81)	4.24** (3.14, 5.35)
lag06	10.16** (6.95, 13.47)	4.63** (3.32, 5.96)	0.20 (-0.38, 0.78)	4.28** (3.41, 5.16)	4.62** (3.46, 5.80)
lag07	11.08** (7.71, 14.57)	4.95** (3.57, 6.34)	0.08 (-0.52, 0.69)	4.61** (3.69, 5.54)	5.06** (3.83, 6.29)
Girl					
lag0	4.00** (2.07, 5.96)	2.73** (1.86, 3.62)	0.26 (-0.19, 0.72)	2.12** (1.56, 2.69)	2.35** (1.62, 3.08)
lag1	4.13** (2.27, 6.03)	2.57** (1.71, 3.43)	0.36 (-0.02, 0.74)	1.94** (1.39, 2.51)	2.10** (1.38, 2.83)
lag2	3.97** (2.15, 5.82)	2.29** (1.47, 3.12)	0.28 (-0.07, 0.63)	1.75** (1.21, 2.28)	1.95** (1.24, 2.66)

lag3	2.43**	1.68**	0.17	1.43**	1.66**
	(0.66, 4.23)	(0.89, 2.48)	(-0.17, 0.52)	(0.92, 1.95)	(0.97, 2.35)
lag4	2.23*	1.41**	-0.17	1.14**	1.15**
	(0.50, 3.99)	(0.63, 2.20)	(-0.51, 0.17)	(0.62, 1.65)	(0.48, 1.83)
lag5	1.71*	1.18**	-0.23	1.03**	1.04**
	(0.03, 3.46)	(0.41, 1.96)	(-0.57, 0.11)	(0.52, 1.54)	(0.38, 1.71)
lag6	3.25**	1.44**	-0.21	1.21**	1.48**
	(1.54, 4.99)	(0.67, 2.22)	(0.54, 0.13)	(0.71, 1.71)	(0.82, 2.14)
lag7	3.08**	1.30**	-0.21	1.14**	1.55**
	(1.37, 4.81)	(0.53, 2.08)	(-0.55, 0.13)	(0.64, 1.64)	(0.90, 2.22)
lag01	5.79**	3.53**	0.46	2.74**	2.99**
	(3.51, 8.12)	(2.53, 4.54)	(-0.03, 0.95)	(2.09, 3.40)	(2.15, 3.84)
lag02	7.40**	4.23**	0.54*	3.24**	3.53**
	(4.82, 10.05)	(3.13, 5.34)	(0.03, 1.06)	(2.52, 3.97)	(2.59, 4.47)
lag03	7.66**	4.50**	0.56*	3.47**	3.81**
	(4.85, 10.05)	(3.32, 5.69)	(0.03, 1.10)	(2.70, 4.25)	(2.80, 4.83)
lag04	8.11**	4.67**	0.41	3.63**	3.96**
	(5.10, 11.21)	(3.42, 5.93)	(-0.15, 0.97)	(2.81, 4.46)	(2.88, 5.06)
lag05	8.21**	4.77**	0.24	3.78**	4.09**
	(5.04, 11.48)	(3.46, 6.09)	(-0.35, 0.82)	(2.91, 4.66)	(2.94, 5.25)
lag06	9.36**	5.12**	0.12	4.15**	4.59**
	(6.01, 12.83)	(3.74, 6.52)	(-0.49, 0.74)	(3.23, 5.08)	(3.37, 5.82)
lag07	10.40**	5.44**	0.02	4.51**	5.10**
	(6.87, 14.04)	(4.00, 6.91)	(-0.62, 0.66)	(3.54, 5.49)	(3.81, 6.40)

* Significant difference ($p < 0.05$); **Significant difference ($p < 0.01$)

Table S8. Estimated percentage increase [ER (95%CI)] in emergency department visits for bronchitis in boys and girls associated with 10μg/m^3 increases in SO_2, NO_2, O_3, PM_{10} and $PM_{2.5}$ concentrations in Guangzhou, China, related to Figure 3.

	SO_2 ER %(95%CI)	NO_2 ER% (95%CI)	O_3 ER% (95%CI)	PM_{10} ER% (95%CI)	$PM_{2.5}$ ER% (95%CI)
Boy					
lag0	1.95 (-0.03, 3.97)	2.81** (1.95, 3.68)	0.40 (-0.05, 0.85)	1.53** (0.96, 2.11)	1.86** (1.12, 2.60)
lag1	3.02** (1.10, 4.98)	2.74** (1.90, 3.59)	0.61** (0.24, 0.99)	1.69** (1.13, 2.25)	2.09** (1.36, 2.82)
lag2	2.53** (0.65, 4.45)	2.22** (1.41, 3.04)	0.81** (0.46, 1.17)	1.63** (1.09, 2.17)	1.87** (1.16, 2.58)
lag3	2.12* (0.26, 4.01)	2.08** (1.29, 2.88)	0.58** (0.23, 0.93)	1.42** (0.90, 1.95)	1.50** (0.80, 2.20)
lag4	1.87* (0.06, 3.72)	2.31** (1.53, 3.10)	0.35* (0.00, 0.69)	1.33** (0.81, 1.85)	1.14** (0.45, 1.84)
lag5	3.40** (1.58, 5.24)	2.20** (1.42, 2.99)	0.18 (-0.17, 0.52)	1.40** (0.88, 1.92)	1.32** (0.64, 2.01)
lag6	4.26** (2.44, 6.11)	2.18** (1.40, 2.96)	0.21 (-0.13, 0.56)	1.31** (0.80, 1.82)	1.47** (0.79, 2.15)
lag7	3.74** (1.94, 5.57)	1.78** (1.01, 2.56)	0.13 (-0.22, 0.47)	1.33** (0.82, 1.84)	1.49** (0.81, 2.17)
lag01	3.52** (1.20, 5.90)	3.67** (2.69, 4.66)	0.74** (0.25, 1.23)	2.17** (1.51, 2.84)	2.65** (1.79, 3.50)
lag02	4.53** (1.91, 7.22)	4.26** (3.18, 5.35)	1.11** (0.60, 1.62)	2.71** (1.99, 3.44)	3.20** (2.26, 4.15)
lag03	5.15** (2.27, 8.11)	4.79** (3.62, 5.96)	1.25** (0.72, 1.79)	3.09** (2.31, 3.87)	3.53** (2.51, 4.56)
lag04	5.62** (2.54, 8.79)	5.38** (4.15, 6.63)	1.28** (0.73, 1.85)	3.38** (2.55, 4.21)	3.70** (2.61, 4.80)
lag05	6.98** (3.69, 10.37)	5.97** (4.67, 7.29)	1.25** (0.67, 1.84)	3.79** (2.91, 4.67)	4.05** (2.89, 5.22)
lag06	8.68** (5.19, 12.29)	6.58** (5.21, 7.97)	1.26** (0.65, 1.88)	4.17** (3.25, 5.10)	4.48** (3.26, 5.72)
lag07	10.04** (6.37, 13.83)	7.02** (5.59, 8.47)	1.27** (0.63, 1.91)	4.55** (3.58, 5.52)	4.89** (3.61, 6.18)
Girl					
lag0	0.49 (-1.73, 2.77)	2.34** (1.36, 3.33)	0.30 (-0.21, 0.82)	1.21** (0.56, 1.87)	1.68** (0.84, 2.53)
lag1	2.03 (-0.14, 4.24)	2.56** (1.60, 3.52)	0.50* (0.07, 0.93)	1.57** (0.93, 2.21)	2.00** (1.17, 2.83)
lag2	2.53* (0.40, 4.72)	2.58** (1.66, 3.50)	0.54** (0.14, 0.94)	1.74** (1.13, 2.36)	2.08** (1.27, 2.89)

lag3	1.88 (-0.23, 4.03)	2.46** (1.57, 3.37)	0.50* (0.11, 0.90)	1.75** (1.15, 2.34)	1.89** (1.10, 2.69)
lag4	1.69 (-0.35, 3.78)	2.62** (1.74, 3.50)	0.33 (-0.06, 0.72)	1.71** (1.12, 2.30)	1.56** (0.78, 2.34)
lag5	2.47* (0.43, 4.55)	2.28** (1.40, 3.17)	0.19 (-0.20, 0.58)	1.74** (1.16, 2.33)	1.56** (0.78, 2.34)
lag6	3.83** (1.78, 5.92)	2.50** (1.62, 3.39)	0.20 (-0.20, 0.59)	1.62** (1.05, 2.20)	1.96** (1.19, 2.73)
lag7	3.52** (1.49, 5.60)	2.27** (1.40, 3.15)	0.12 (-0.27, 0.51)	1.44** (0.86, 2.02)	1.67** (0.90, 2.44)
lag01	1.80 (-0.80, 4.48)	3.24** (2.12, 4.37)	0.59* (0.04, 1.15)	1.88** (1.12, 2.63)	2.47** (1.50, 3.45)
lag02	3.08* (0.13, 6.12)	4.13** (2.90, 5.37)	0.81** (0.23, 1.39)	2.54** (1.71, 3.37)	3.18** (2.11, 4.27)
lag03	3.72* (0.49, 7.07)	4.89** (3.56, 6.23)	0.96** (0.36, 1.58)	3.13** (2.24, 4.02)	3.74** (2.57, 4.92)
lag04	4.08* (0.64, 7.63)	5.56** (4.17, 6.98)	1.02** (0.38, 1.65)	3.55** (2.61, 4.50)	4.02** (2.78, 5.27)
lag05	4.99** (1.34, 8.78)	6.17** (4.69, 7.66)	1.01** (0.35, 1.67)	4.10** (3.11, 5.10)	4.44** (3.13, 5.78)
lag06	6.61** (2.72, 10.65)	6.92** (5.36, 8.50)	1.03** (0.34, 1.73)	4.65** (3.60, 5.71)	5.13** (3.74, 6.54)
lag07	7.91** (3.82, 12.16)	7.55** (5.93, 9.20)	1.04** (0.32, 1.77)	5.06** (3.96, 6.17)	5.58** (4.13, 7.06)

* Significant difference ($p < 0.05$); **Significant difference ($p < 0.01$)

Table S9. Estimated percentage increase [ER (95%CI)] in emergency department visits for pneumonia in boys and girls associated with 10μg/m^3 increases in SO_2, NO_2, O_3, PM_{10} and $PM_{2.5}$ concentrations in Guangzhou, China, related to Figure 3.

	SO_2	NO_2	O_3	PM_{10}	$PM_{2.5}$
	ER %(95%CI)	ER% (95%CI)	ER% (95%CI)	ER% (95%CI)	ER% (95%CI)
Boy					
lag0	3.54* (0.25, 6.94)	4.42** (2.97, 5.88)	1.02** (0.28, 1.76)	1.75** (0.79, 2.71)	2.38** (1.15, 3.63)
lag1	5.18** (1.97, 8.50)	4.01** (2.60, 5.43)	0.95** (0.33, 1.57)	1.77** (0.84, 2.71)	2.45** (1.23, 3.68)
lag2	3.88* (0.74, 7.12)	4.21** (2.86, 5.57)	1.15** (0.58, 1.72)	2.00** (1.10, 2.91)	2.15** (0.96, 3.35)
lag3	3.40* (0.30, 6.60)	3.09** (1.76, 4.43)	0.98** (0.42, 1.55)	1.74** (0.87, 2.62)	1.91** (0.75, 3.10)
lag4	1.39 (-1.62, 4.49)	2.97** (1.67, 4.30)	0.72* (0.16, 1.29)	1.28** (0.41, 2.16)	1.45* (0.29, 2.62)
lag5	[a]1.50 (-1.49, 4.57)	2.93** (1.63, 4.25)	0.67* (0.11, 1.23)	[a]1.42** (0.55, 2.29)	1.67** (0.52, 2.84)
lag6	2.57 (-0.43, 5.66)	2.82** (1.52, 4.13)	0.44 (-0.12, 1.01)	1.78** (0.93, 2.64)	2.23** (1.09, 3.37)
lag7	3.21* (0.21, 6.30)	2.86** (1.56, 4.17)	0.22 (-0.35, 0.79)	1.70** (0.85, 2.56)	2.28** (1.15, 3.43)
lag01	6.23** (2.31, 10.27)	5.58** (3.93, 7.26)	1.39** (0.59, 2.20)	2.38** (1.27, 3.49)	3.27** (1.83, 4.73)
lag02	7.72** (3.28, 12.35)	6.97** (5.16, 8.82)	1.83** (0.99, 2.67)	3.13** (1.91, 4.36)	3.93** (2.33, 5.56)
lag03	8.90** (3.99, 14.04)	7.72** (5.75, 9.73)	2.09** (1.21, 2.97)	3.67** (2.35, 5.00)	4.47** (2.73, 6.25)
lag04	8.78** (3.53, 14.29)	8.33** (6.24, 10.47)	2.23** (1.31, 3.15)	3.88** (2.48, 5.31)	[a]4.73** (2.86, 6.63)
lag05	8.93** (3.38, 14.79)	9.06** (6.84, 11.33)	2.37** (1.40, 3.34)	[a]4.31** (2.81, 5.83)	[a]5.25** (3.25, 7.30)
lag06	9.73** (3.85, 15.94)	9.78** (7.44, 12.18)	2.44** (1.43, 3.47)	[a]4.96** (3.36, 6.57)	[a]6.10** (3.96, 8.27)
lag07	10.94** (4.73, 17.52)	10.58** (8.11, 13.10)	2.47** (1.39, 3.55)	[a]5.62** (3.94, 7.34)	[a]6.99** (4.74, 9.30)
Girl					
lag0	1.86 (-1.94, 5.80)	3.36** (1.67, 5.09)	1.18** (0.32, 2.05)	2.13** (1.00, 3.27)	3.02** (1.57, 4.49)
lag1	5.79** (2.03, 9.69)	4.30** (2.65, 5.97)	1.20** (0.47, 1.93)	2.96** (1.86, 4.06)	4.18** (2.76, 5.62)
lag2	5.05** (1.36, 8.86)	4.10** (2.52, 5.70)	0.56 (-0.12, 1.25)	2.66** (1.61, 3.73)	3.58** (2.19, 4.98)

lag3	5.40**	4.27**	1.16**	2.53**	2.72**
	(1.74, 9.19)	(2.73, 5.84)	(0.49, 1.83)	(1.50, 3.57)	(1.35, 4.11)
lag4	4.94**	3.79**	0.91**	2.56**	2.89**
	(1.36, 8.65)	(2.27, 5.34)	(0.24, 1.58)	(1.55, 3.59)	(1.54, 4.26)
lag5	[a]6.27**	3.80**	0.97**	[a]2.76**	3.03**
	(2.70, 9.96)	(2.28, 5.34)	(0.31, 1.63)	(1.75, 3.79)	(1.69, 4.40)
lag6	4.70**	3.88**	0.77*	2.74**	3.05**
	(1.17, 8.36)	(2.36, 5.41)	(0.10, 1.43)	(1.74, 3.76)	(1.72, 4.39)
lag7	4.73**	3.33**	0.40	2.51**	3.64**
	(1.20, 8.39)	(1.81, 4.86)	(-0.27, 1.08)	(1.51, 3.52)	(2.32, 4.98)
lag01	5.52*	5.11**	1.70**	3.47**	4.93**
	(0.98, 10.27)	(3.17, 7.08)	(0.76, 2.64)	(2.17, 4.79)	(3.24, 6.65)
lag02	7.87**	6.53**	1.64**	4.41**	6.13**
	(2.69, 13.32)	(4.39, 8.71)	(0.66, 2.63)	(2.97, 5.87)	(4.25, 8.04)
lag03	10.34**	8.00**	2.04**	5.26**	6.90**
	(4.56, 16.45)	(5.68, 10.36)	(1.01, 3.08)	(3.70, 6.84)	(4.84, 9.00)
lag04	12.35**	9.04**	2.29**	6.06**	[a]7.81**
	(6.06, 19.01)	(6.58, 11.57)	(1.20, 3.39)	(4.40, 7.75)	(5.59, 10.07)
lag05	15.21**	10.19**	2.59**	[a]7.13**	[a]8.98**
	(8.41, 22.43)	(7.57, 12.87)	(1.45, 3.75)	(5.35, 8.95)	(6.60, 11.42)
lag06	16.98**	11.35**	2.81**	[a]8.19**	[a]10.10**
	(9.74, 24.70)	(8.58, 14.20)	(1.60, 4.03)	(6.30, 10.13)	(7.60, 12.70)
lag07	18.70**	12.24**	2.91**	[a]9.09**	[a]11.46**
	(11.00, 26.80)	(9.33, 15.23)	(1.64, 4.20)	(7.08, 11.14)	(8.78, 14.20)

[a] The difference between the boy and girl subgroup was statistically significant.

* Significant difference ($p < 0.05$); **Significant difference ($p < 0.01$)

Table S10. Estimated percentage increase [ER (95%CI)] in emergency department visits for asthma in boys and girls associated with 10μg/m^3 increases in SO_2, NO_2, O_3, PM_{10} and $PM_{2.5}$ concentrations in Guangzhou, China, related to Figure 3.

	SO_2 ER %(95%CI)	NO_2 ER% (95%CI)	O_3 ER% (95%CI)	PM_{10} ER% (95%CI)	$PM_{2.5}$ ER% (95%CI)
Boy					
lag0	3.01 (-1.30, 7.52)	2.72** (0.83, 4.66)	0.29 (-0.54, 1.13)	1.16 (-0.14, 2.47)	0.74 (-0.93, 2.44)
lag1	2.13 (-2.04, 6.47)	2.69** (0.83, 4.58)	0.14 (-0.68, 0.97)	0.87 (-0.39, 2.15)	0.43 (-1.22, 2.10)
lag2	3.03 (-1.09, 7.32)	2.15* (0.36, 3.98)	0.43 (-0.35, 1.20)	1.10 (-0.12, 2.34)	0.15 (-1.46, 1.78)
lag3	0.54 (-3.46, 4.71)	0.85 (-0.91, 2.64)	0.14 (-0.62, 0.90)	0.52 (-0.68, 1.73)	-0.14 (-1.72, 1.47)
lag4	0.64 (-3.35, 4.79)	0.51 (-1.24, 2.28)	0.31 (-0.45, 1.07)	0.47 (-0.72, 1.69)	0.11 (-1.46, 1.71)
lag5	1.70 (-2.29, 5.87)	0.76 (-0.98, 2.53)	0.38 (-0.37, 1.14)	0.74 (-0.46, 1.95)	0.27 (-1.30, 1.87)
lag6	0.05 (-3.89, 4.17)	1.09 (-0.65, 2.86)	-0.01 (-0.76, 0.74)	0.38 (-0.80, 1.58)	0.09 (-1.47, 1.68)
lag7	-2.56 (-6.39, 1.44)	0.13 (-1.59, 1.88)	-0.39 (-1.14, 0.37)	-0.12 (-1.30, 1.07)	0.51 (-2.05, 1.06)
lag01	3.59 (-1.45, 8.87)	3.58** (1.41, 5.80)	-0.16 (-1.22, 0.90)	1.36 (-0.13, 2.87)	0.78 (-1.13, 2.73)
lag02	4.85 (-0.80, 10.83)	4.14** (1.74, 6.59)	0.17 (-0.93, 1.29)	1.73* (0.10, 3.38)	0.70 (-1.39, 2.83)
lag03	4.69 (-1.43, 11.19)	4.07** (1.49, 6.72)	0.22 (-0.94, 1.39)	1.79* (0.05, 3.57)	0.58 (-1.67, 2.88)
lag04	4.62 (-1.93, 11.61)	3.90** (1.16, 6.72)	0.36 (-0.86, 1.59)	1.82 (-0.03, 3.71)	0.56 (-1.83, 3.01)
lag05	5.15 (-1.84, 12.64)	3.94** (1.04, 6.92)	0.51 (-0.77, 1.81)	2.01* (0.04, 4.01)	0.61 (-1.92, 3.21)
lag06	4.92 (-2.44, 12.84)	4.18** (1.13, 7.32)	0.47 (-0.87, 1.84)	2.05 (-0.01, 4.16)	0.61 (-2.06, 3.35)
lag07	3.03 (-4.51, 11.16)	3.93* (0.77, 7.18)	0.28 (-1.12, 1.70)	1.73 (-0.42, 3.92)	0.13 (-2.63, 2.98)
Girl					
lag0	5.35 (-0.56, 11.61)	1.45 (-1.09, 4.05)	0.42 (-0.88, 1.74)	0.62 (-1.12, 2.40)	1.06 (-1.17, 3.35)
lag1	-0.04 (-5.58, 5.83)	0.63 (-1.85, 3.17)	0.66 (-0.46, 1.79)	0.24 (-1.45, 1.97)	-0.06 (-2.26, 2.19)
lag2	-1.08 (-6.46, 4.60)	1.19 (-1.20, 3.63)	-0.10 (-1.14, 0.96)	0.62 (-1.02, 2.28)	0.08 (-0.06, 2.26)

lag3	0.46 (-4.92, 6.15)	1.87 (-0.49, 4.30)	0.33 (-0.70, 1.37)	1.10 (-0.51, 2.73)	1.46 (-0.66, 3.62)
lag4	3.07 (-2.35, 8.79)	1.69 (-0.66, 4.10)	0.22 (-0.80, 1.25)	0.91 (-0.69, 2.54)	0.87 (-1.23, 3.02)
lag5	1.40 (-3.95, 7.05)	2.83* (0.47, 5.24)	-0.04 (-1.06, 0.99)	0.94 (-0.66, 2.57)	0.39 (-1.71, 2.54)
lag6	-1.95 (-7.16, 3.56)	1.99 (-0.35, 4.38)	-0.03 (-1.04, 0.99)	1.08 (-0.50, 2.70)	1.19 (-0.90, 3.33)
lag7	0.36 (-4.91, 5.92)	1.28 (-1.05, 3.66)	-0.64 (-1.66, 0.39)	0.90 (-0.68, 2.51)	1.12 (-0.96, 3.25)
lag01	3.59 (-3.18, 10.84)	1.35 (-1.52, 4.32)	0.78 (-0.64, 2.22)	0.58 (-1.41, 2.60)	0.66 (-1.89, 3.27)
lag02	2.27 (-5.15, 10.27)	1.77 (-1.38, 5.03)	0.50 (-0.99, 2.01)	0.82 (-1.35, 3.02)	0.56 (-2.21, 3.42)
lag03	2.24 (-5.79, 10.95)	2.51 (-0.91, 6.04)	0.60 (-0.96, 2.19)	1.26 (-1.05, 3.64)	1.21 (-1.78, 4.29)
lag04	3.87 (-4.81, 13.34)	3.15 (-0.49, 6.93)	0.65 (-0.99, 2.33)	1.64 (-0.82, 4.16)	1.60 (-1.58, 4.88)
lag05	4.35 (-4.87, 14.47)	4.19* (0.32, 8.22)	0.58 (-1.14, 2.33)	1.95 (-0.65, 4.63)	1.68 (-1.69, 5.16)
lag06	3.11 (-6.49, 13.68)	4.77* (0.69, 9.02)	0.53 (-1.28, 2.36)	2.27 (-0.47, 5.09)	2.04 (-1.51, 5.72)
lag07	3.22 (-6.82, 14.34)	5.08* (0.80, 9.53)	0.23 (-1.65, 2.16)	2.57 (-0.31, 5.53)	2.43 (-1.29, 6.30)

* Significant difference ($p < 0.05$); **Significant difference ($p < 0.01$)

Table S11. Estimated percentage increase [ER (95%CI)] in emergency department visits for total respiratory diseases in children aged 0-5 and 6-14 associated with 10μg/m^3 increases in SO_2, NO_2, O_3, PM_{10} and $PM_{2.5}$ concentrations in Guangzhou, China, related to Figure 4.

	SO_2	NO_2	O_3	PM_{10}	$PM_{2.5}$
	ER %(95%CI)	ER% (95%CI)	ER% (95%CI)	ER% (95%CI)	ER% (95%CI)
0-5 years old					
lag0	3.21**	2.59**	0.34*	[a] 1.68**	2.04**
	(1.73, 4.71)	(1.94, 3.25)	(0.01, 0.68)	(1.24, 2.12)	(1.49, 2.61)
lag1	3.46**	2.51**	0.56**	1.61**	2.01**
	(2.02, 4.91)	(1.88, 3.16)	(0.27, 0.84)	(1.18, 2.04)	(1.45, 2.57)
lag2	3.36**	2.25**	0.48**	1.52**	1.73**
	(1.95, 4.79)	(1.63, 2.87)	(0.22, 0.74)	(1.10, 1.93)	(1.18, 2.27)
lag3	2.76**	1.95**	0.35**	1.40**	1.47**
	(1.37, 4.16)	(1.35, 2.55)	(0.09, 0.60)	(1.01, 1.81)	(0.94, 2.01)
lag4	2.13**	1.85**	0.14	1.24**	1.19**
	(0.78, 3.50)	(1.26, 2.44)	(-0.12, 0.39)	(0.85, 1.64)	(0.66, 1.72)
lag5	2.61**	1.82**	[a] 0.03	1.26**	1.28**
	(1.27, 3.97)	(1.23, 2.42)	(-0.23, 0.28)	(0.87, 1.66)	(0.76, 1.81)
lag6	4.06**	[a] 2.00**	[a] 0.02	1.41**	1.64**
	(2.72, 5.43)	(1.42, 2.60)	(-0.23, 0.28)	(1.02, 1.80)	(1.13, 2.16)
lag7	3.58**	[a] 1.78**	-0.02	1.33**	1.59**
	(2.25, 4.94)	(1.20, 2.37)	(-0.28, 0.24)	(0.94, 1.72)	(1.08, 2.11)
lag01	4.73**	3.38**	0.67**	[a] 2.22**	2.72**
	(2.98, 6.51)	(2.63, 4.12)	(0.30, 1.03)	(1.72, 2.72)	(2.07, 3.37)
lag02	6.12**	4.04**	0.83**	[a] 2.68**	3.18**
	(4.14, 8.13)	(3.23, 4.86)	(0.45, 1.21)	(2.13, 3.23)	(2.47, 3.90)
lag03	6.93**	4.53**	0.89**	3.03**	3.49**
	(4.77, 9.14)	(3.65, 5.40)	(0.50, 1.29)	(2.44, 3.63)	(2.71, 4.26)
lag04	7.47**	4.93**	0.86**	3.31**	3.71**
	(5.15, 9.85)	(4.00, 5.87)	(0.45, 1.28)	(2.69, 3.94)	(2.88, 4.54)
lag05	8.31**	5.38**	[a] 0.80**	3.66**	4.04**
	(5.84, 10.85)	(4.40, 6.37)	(0.36, 1.24)	(3.00, 4.32)	(3.16, 4.92)
lag06	9.97**	5.96**	[a] 0.76**	4.13**	4.61**
	(7.34, 12.67)	(4.93, 7.00)	(0.30, 1.22)	(3.43, 4.83)	(3.68, 5.54)
lag07	11.29**	6.45**	[a] 0.72**	4.54**	5.09**
	(8.52, 14.12)	(5.37, 7.53)	(0.24, 1.20)	(3.81, 5.27)	(4.12, 6.07)
6-14 years old					
lag0	4.45**	2.99**	0.12	2.48**	2.58**
	(2.59, 6.34)	(2.15, 3.83)	(-0.32, 0.56)	(1.94, 3.02)	(1.88, 3.27)
lag1	4.23**	2.63**	0.26	2.20**	2.54**
	(2.44, 6.05)	(1.81, 3.45)	(-0.11, 0.63)	(1.67, 2.74)	(1.85, 3.23)
lag2	3.81**	2.16**	0.25	1.86**	2.13**
	(2.06, 5.58)	(1.38, 2.94)	(-0.09, 0.59)	(1.36, 2.38)	(1.46, 2.80)

lag3	2.49** (0.79, 4.22)	1.76** (1.01, 2.52)	0.05 (-0.29, 0.38)	1.41** (0.92, 1.91)	1.50** (0.85, 2.15)
lag4	1.75* (0.11, 3.43)	1.39** (0.65, 2.13)	-0.25 (-0.58, 0.07)	1.00** (0.52, 1.49)	0.88** (0.24, 1.52)
lag5	1.65* (0.03, 3.31)	1.03** (0.29, 1.77)	-0.40* (-0.72, -0.07)	0.78** (0.29, 1.26)	0.63 (-0.004, 1.27)
lag6	2.47** (0.84, 4.13)	1.01** (0.28, 1.75)	-0.46** (-0.78, -0.13)	0.92** (0.44, 1.40)	0.99** (0.36, 1.62)
lag7	2.15** (0.53, 3.80)	0.82* (0.09, 1.55)	-0.36* (-0.68, -0.03)	0.82** (0.35, 1.30)	0.98** (0.36, 1.61)
lag01	6.14** (3.95, 8.38)	3.74** (2.79, 4.70)	0.29 (-0.18, 0.77)	3.15** (2.53, 3.77)	3.43** (2.63, 4.23)
lag02	7.56** (5.09, 10.09)	4.33** (3.28, 5.38)	0.40 (-0.09, 0.90)	3.63** (2.95, 4.31)	3.95** (3.07, 4.83)
lag03	7.82** (5.14, 10.58)	4.62** (3.50, 5.75)	0.37 (-0.14, 0.89)	3.80** (3.07, 4.53)	4.09** (3.14, 5.04)
lag04	7.88** (5.01, 10.82)	4.72** (3.54, 5.91)	0.19 (-0.35, 0.73)	3.81** (3.04, 4.58)	4.01** (3.00, 5.04)
lag05	7.97** (4.95, 11.08)	4.75** (3.51, 6.00)	-0.04 (-0.60, 0.52)	3.83** (3.01, 4.65)	3.94** (2.96, 5.03)
lag06	8.70** (5.50, 12.00)	4.89** (3.59, 6.21)	-0.26 (-0.84, 0.33)	4.04** (3.17, 4.91)	4.18** (3.03, 5.33)
lag07	9.20** (5.87, 12.65)	4.98** (3.62, 6.35)	-0.41 (-1.02, 0.20)	4.20** (3.30, 5.12)	4.38** (3.18, 5.59)

[a] The difference between the 0-5 and 6-14 years old subgroup was statistically significant.

* Significant difference ($p < 0.05$); **Significant difference ($p < 0.01$)

Table S12. Estimated percentage increase [ER (95%CI)] in emergency department visits for acute upper respiratory infection in children aged 0-5 and 6-14 associated with 10μg/m^3 increases in SO_2, NO_2, O_3, PM_{10} and $PM_{2.5}$ concentrations in Guangzhou, China, related to Figure 4.

	SO_2	NO_2	O_3	PM_{10}	$PM_{2.5}$
	ER %(95%CI)	ER% (95%CI)	ER% (95%CI)	ER% (95%CI)	ER% (95%CI)
0-5 years old					
lag0	4.36**	2.63**	0.41*	[a]1.87**	2.14**
	(2.60, 6.15)	(1.84, 3.43)	(0.01, 0.81)	(1.35, 2.40)	(1.47, 2.81)
lag1	4.43**	2.52**	0.59**	[a]1.82**	2.03**
	(2.73, 6.17)	(1.74, 3.30)	(0.26, 0.93)	(1.31, 2.34)	(1.36, 2.70)
lag2	3.68**	1.90**	0.45**	[a]1.42**	1.56**
	(2.01, 5.37)	(1.15, 2.65)	(0.14, 0.77)	(0.92, 1.92)	(0.91, 2.22)
lag3	2.45**	1.56**	0.30	1.41**	1.55**
	(0.81, 4.11)	(0.83, 2.29)	(-0.01, 0.61)	(0.93, 1.89)	(0.92, 2.19)
lag4	2.41**	1.42**	0.05	1.20**	1.21**
	(0.81, 4.13)	(0.70, 2.14)	(-0.26, 0.35)	(0.73, 1.68)	(0.89, 1.85)
lag5	2.15**	1.23**	-0.09	1.07**	1.05**
	(0.56, 3.75)	(0.51, 1.95)	(-0.36, 0.24)	(0.60, 1.55)	(0.43, 1.68)
lag6	3.70**	1.60**	[a]-0.06	1.28**	1.57**
	(2.11, 5.32)	(0.89, 2.32)	(-0.36, 0.24)	(0.82, 1.75)	(0.96, 2.19)
lag7	3.41**	[a]1.70**	-0.11	1.26**	1.64**
	(1.83, 5.03)	(0.99, 2.42)	(-0.42, 0.19)	(0.79, 1.72)	(1.02, 2.26)
lag01	6.28**	3.41**	0.74**	[a]2.50**	2.80**
	(4.19, 8.41)	(2.51, 4.32)	(0.31, 1.18)	(1.90, 3.10)	（2.03, 3.59）
lag02	7.64**	3.88**	0.87**	[a]2.85**	3.17**
	(5.28, 10.06)	(2.88, 4.88)	(0.42, 1.33)	(2.19, 3.52)	（2.31, 4.04）
lag03	8.07**	4.17**	0.91**	[a]3.17**	3.51**
	(5.48, 10.72)	(3.09, 5.25)	(0.43, 1.39)	(2.46, 3.89)	(2.58, 4.45)
lag04	8.67**	4.40**	[a]0.83**	3.42**	3.75**
	(5.89, 11.52)	(3.26, 5.55)	(0.33, 1.34)	(2.66, 4.18)	(2.75, 4.76)
lag05	9.13**	4.60**	[a]0.71**	3.66**	3.97**
	(6.18, 12.17)	(3.40, 5.82)	(0.18, 1.23)	(2.86, 4.47)	(2.90, 5.04)
lag06	10.52**	5.05**	[a]0.63*	4.08**	4.51**
	(7.39, 13.74)	(3.78, 6.33)	(0.08, 1.19)	(3.23, 4.93)	(3.38, 5.65)
lag07	11.76**	5.56**	[a]0.56	4.51**	5.08**
	(8.46, 15.16)	(4.23, 6.91)	(-0.02, 1.14)	(3.61, 5.41)	(3.89, 6.28)
6-14 years old					
lag0	4.99**	3.16**	0.10	[a]2.89**	2.90**
	(2.81, 7.22)	(2.16, 4.18)	(-0.42, 0.63)	(2.26, 3.52)	(2.09, 3.72)
lag1	4.63**	2.71**	0.14	[a]2.56**	2.81**
	(2.53, 6.78)	(1.73, 3.69)	(-0.31, 0.58)	(1.93, 3.19)	(2.00, 3.62)
lag2	4.41**	2.41**	0.12	[a]2.22**	2.52**
	(2.37, 6.49)	(1.48, 3.35)	(-0.29, 0.53)	(1.63, 2.82)	(1.73, 3.31)

lag3	2.15*	1.63**	-0.12	1.47**	1.74**
	(0.18, 4.15)	(0.73, 2.53)	(-0.51, 0.28)	(0.89, 2.04)	(0.98, 2.50)
lag4	1.92*	1.09*	-0.42*	0.99**	0.99**
	(0.01, 3.87)	(0.21, 1.97)	(-0.81, -0.02)	(0.42, 1.56)	(0.24, 1.74)
lag5	1.53	0.65	-0.57**	0.75**	0.65
	(-0.38, 3.42)	(-0.22, 1.53)	(-0.95, -0.18)	(0.18, 1.31)	(-0.09, 1.39)
lag6	2.10*	0.70	[a]-0.63**	0.90**	1.00**
	(0.21, 4.02)	(-0.17, 1.57)	(-1.02, -0.24)	(0.35, 1.46)	(0.28, 1.74)
lag7	2.16*	[a]0.55	-0.43*	0.82**	1.09**
	(0.28, 4.08)	(-0.32, 1.42)	(-0.82, -0.04)	(0.27, 1.38)	(0.36, 1.82)
lag01	6.84**	3.93**	0.18	[a]3.68**	3.84**
	(4.25, 9.49)	(2.78. 5.10)	(-0.39, 0.76)	(2.95, 4.42)	(2.90, 4.80)
lag02	8.54**	4.68**	0.24	[a]4.28**	4.51**
	(5.63, 11.53)	(3.42, 5.95)	(-0.36, 0.84)	(3.49, 5.09)	(3.47, 5.56)
lag03	8.31**	4.81**	0.14	[a]4.35**	4.66**
	(5.16, 11.56)	(3.47, 6.17)	(-0.48, 0.76)	(3.49, 5.21)	(3.53, 5.79)
lag04	8.41**	4.73**	[a]-0.11	4.31**	4.61**
	(5.05, 11.89)	(3.31, 6.17)	(-0.75, 0.54)	(3.39, 5.23)	(3.40, 5.83)
lag05	8.25**	4.53**	[a]-0.41	4.25**	4.46**
	(4.71, 11.91)	(3.04, 6.04)	(-1.08, 0.27)	(3.28, 5.23)	(3.17, 5.76)
lag06	8.72**	4.54**	[a]-0.69	4.44**	4.71**
	(5.00, 12.58)	(2.98, 6.12)	(-1.39, 0.02)	(3.42, 5.48)	(3.34, 6.09)
lag07	9.26**	4.54**	[a]-0.86*	4.64**	4.99**
	(5.36, 13.30)	(2.91, 6.19)	(-1.59, -0.12)	(3.55, 5.74)	(3.55, 6.45)

[a] The difference between the 0-5 and 6-14 years old subgroup was statistically significant.

* Significant difference ($p < 0.05$); **Significant difference ($p < 0.01$)

Table S13. Estimated percentage increase [ER (95%CI)] in emergency department visits for bronchitis in children aged 0-5 and 6-14 associated with 10μg/m^3 increases in SO_2, NO_2, O_3, PM_{10} and $PM_{2.5}$ concentrations in Guangzhou, China, related to Figure 4.

	SO_2	NO_2	O_3	PM_{10}	$PM_{2.5}$
	ER %(95%CI)	ER% (95%CI)	ER% (95%CI)	ER% (95%CI)	ER% (95%CI)
0-5 years old					
lag0	1.20 (-0.76, 3.19)	2.53** (1.68, 3.38)	0.44* (0.00, 0.89)	1.25** (0.68, 1.82)	1.75** (1.02, 2.49)
lag1	2.31* (0.41, 4.25)	2.64** (1.82, 3.48)	0.59** (0.21, 0.96)	1.53** (0.98, 2.09)	1.98** (1.25, 2.71)
lag2	2.50** (0.63, 4.41)	2.45** (1.65, 3.25)	0.73** (0.39, 1.08)	1.67** (1.13, 2.20)	1.99** (1.29, 2.70)
lag3	1.95* (0.10, 3.83)	2.29** (1.51, 3.08)	0.61** (0.27, 0.95)	1.54** (1.02, 2.06)	1.70** (1.01, 2.40)
lag4	1.88* (0.08, 3.72)	2.49** (1.72, 3.26)	0.41* (0.08, 0.75)	1.50** (0.99, 2.02)	1.46** (0.78, 2.15)
lag5	3.41** (1.61, 5.25)	2.44** (1.67, 3.21)	0.24 (-0.10, 0.58)	1.62** (1.11, 2.14)	1.56** (0.88, 2.25)
lag6	4.26** (2.46, 6.10)	2.49** (1.72, 3.26)	0.30 (-0.04, 0.64)	1.53** (1.03, 2.04)	1.82** (1.15, 2.49)
lag7	4.16** (2.37, 5.98)	2.18** (1.42, 2.95)	[a]0.26 (-0.08, 0.60)	[a]1.60** (1.10, 2.10)	[a]1.83** (1.16, 2.50)
lag01	2.49* (0.19, 4.84)	3.42** (2.45, 4.39)	0.74** (0.27, 1.22)	1.88** (1.23, 2.54)	2.51** (1.66, 3.36)
lag02	3.65** (1.05, 6.31)	4.18** (3.12, 5.25)	1.05** (0.55, 1.55)	2.50** (1.79, 3.22)	3.17** (2.23, 4.11)
lag03	4.26** (1.42, 7.19)	4.83** (3.68, 5.98)	1.23** (0.70, 1.75)	2.97** (2.20, 3.75)	3.62** (2.61, 4.64)
lag04	4.78** (1.74, 7.91)	5.49** (4.28, 6.71)	1.29** (0.75, 1.84)	3.35** (2.53, 4.17)	3.91** (2.83, 5.00)
lag05	6.21** (2.96, 9.56)	6.19** (4.91, 7.48)	1.29** (0.72, 1.86)	3.87** (3.01, 4.74)	4.37** (3.23, 5.53)
lag06	8.02** (4.56, 11.59)	6.94** (5.59, 8.31)	1.34** (0.74, 1.94)	4.38** (3.47, 5.30)	4.99** (3.78, 6.22)
lag07	9.61** (5.98, 13.37)	7.54** (6.13, 8.96)	1.40** (0.78, 2.03)	4.88** (3.93, 5.84)	5.53** (4.26, 6.81)
6-14 years old					
lag0	2.03 (-0.49, 4.61)	2.96** (1.82, 4.11)	0.09 (-0.51, 0.69)	1.90** (1.15, 2.65)	1.88** (0.92, 2.84)
lag1	3.69** (1.24, 6.20)	2.74** (1.64, 3.86)	0.53* (0.02, 1.03)	1.97** (1.24, 2.70)	2.25** (1.31, 3.20)
lag2	2.63* (0.24, 5.08)	2.05** (0.99, 3.12)	0.62** (0.15, 1.09)	1.65** (0.95, 2.36)	1.77** (0.85, 2.70)

lag3	2.24 (-0.12, 4.66)	2.01** (0.97, 3.05)	0.34 (-0.13, 0.80)	1.54** (0.86, 2.22)	1.42** (0.52, 2.33)
lag4	1.52 (-0.77, 3.87)	2.21** (1.20, 3.24)	0.08 (-0.38, 0.54)	1.36** (0.68, 2.03)	0.74 (-0.15, 1.63)
lag5	1.85 (-0.43, 4.18)	1.53** (0.51, 2.55)	-0.01 (-0.47, 0.44)	1.20** (0.53, 1.88)	0.89* (0.00, 1.78)
lag6	3.52** (1.22, 5.87)	1.68** (0.67, 2.70)	-0.11 (-0.57, 0.35)	1.08** (0.42, 1.74)	1.09* (0.22, 1.97)
lag7	2.07 (-0.21, 4.39)	1.27* (0.26, 2.29)	[a]-0.35 (-0.81, 0.11)	[a]0.61 (-0.05, 1.28)	[a]0.65 (-0.23, 1.53)
lag01	4.06** (1.09, 7.12)	3.80** (2.50, 5.12)	0.49 (-0.16, 1.14)	2.60** (1.75, 3.47)	2.77** (1.67, 3.88)
lag02	5.04** (1.69, 8.51)	4.31** (2.87, 5.76)	0.80* (0.12, 1.48)	3.06** (2.12, 4.01)	3.22** (2.00, 4.45)
lag03	5.69** (2.00, 9.51)	4.81** (3.26, 6.38)	0.86* (0.15, 1.58)	3.46** (2.45, 4.49)	3.51** (2.19, 4.85)
lag04	5.81** (1.88, 9.89)	5.31** (3.68, 6.97)	0.80* (0.05, 1.55)	3.46** (2.45, 4.49)	3.43** (2.01, 4.86)
lag05	6.20** (2.03, 10.53)	5.55** (3.83, 7.30)	0.71 (-0.07, 1.49)	3.95** (2.80, 5.10)	3.53** (2.03, 5.06)
lag06	7.42** (3.03, 12.00)	5.92** (4.11, 7.75)	0.60 (-0.21, 1.42)	4.17** (2.96, 5.38)	3.76** (2.18, 5.37)
lag07	7.94** (3.35, 12.74)	6.15** (4.26, 8.07)	0.53 (-0.42, 1.28)	4.22** (2.95, 5.50)	3.81** (2.15, 5.50)

[a] The difference between the 0-5 and 6-14 years old subgroup was statistically significant.

* Significant difference ($p < 0.05$); **Significant difference ($p < 0.01$)

Table S14. Estimated percentage increase [ER (95%CI)] in emergency department visits for pneumonia in children aged 0-5 and 6-14 associated with 10μg/m^3 increases in SO_2, NO_2, O_3, PM_{10} and $PM_{2.5}$ concentrations in Guangzhou, China, related to Figure 4.

	SO_2	NO_2	O_3	PM_{10}	$PM_{2.5}$
	ER %(95%CI)	ER% (95%CI)	ER% (95%CI)	ER% (95%CI)	ER% (95%CI)
0-5 years old					
lag0	3.27*	3.73**	1.03**	1.79**	2.48**
	(0.24, 6.40)	(2.41, 5.06)	(0.36, 1.71)	(0.92, 2.68)	(1.35, 3.62)
lag1	6.92**	4.28**	0.96**	2.42**	3.16**
	(3.93, 9.99)	(3.00, 5.57)	(0.40, 1.53)	(1.57, 3.28)	(2.05, 4.28)
lag2	4.64**	3.88**	0.85**	2.21**	2.80**
	(1.73, 7.64)	(2.65, 5.13)	(0.32, 1.37)	(1.39, 3.03)	(1.72, 3.90)
lag3	4.04**	[a]2.99**	0.94**	1.88**	1.94**
	(1.17, 7.00)	(1.78, 4.21)	(0.43, 1.46)	(1.08, 2.69)	(0.87, 3.03)
lag4	2.48	[a]2.71**	0.71**	1.68**	1.85**
	(-0.31, 5.36)	(1.52, 3.92)	(0.19, 1.22)	(0.88, 2.48)	(0.79, 2.92)
lag5	2.52	2.74**	0.78**	1.84**	1.97**
	(-0.25, 5.37)	(1.54, 3.94)	(0.27, 1.30)	(1.05, 2.64)	(0.91, 3.04)
lag6	2.29	2.63**	0.69**	1.94**	2.40**
	(-0.48, 5.13)	(1.44, 3.83)	(0.17, 1.20)	(1.16, 2.73)	(1.36, 3.46)
lag7	3.03*	2.40**	0.30	1.66**	2.53**
	(0.26, 5.87)	(1.21, 3.60)	(-0.22, 0.82)	(0.88, 2.44)	(1.49, 3.59)
lag01	7.33**	5.31**	1.41**	2.87**	3.85**
	(3.69, 11.10)	(3.81, 6.84)	(0.69, 2.15)	(1.86, 3.89)	(2.53, 5.18)
lag02	9.18**	6.54**	1.63**	3.66**	4.81**
	(5.04, 13.49)	(4.89, 8.22)	(0.87, 2.39)	(2.54, 4.79)	(3.34, 6.29)
lag03	10.69**	7.29**	1.90**	4.24**	5.30**
	(6.09, 15.48)	(5.50, 9.11)	(1.10, 2.70)	(3.03, 5.46)	(3.70, 6.92)
lag04	11.18**	7.85**	2.05**	4.66**	5.76**
	(6.24, 16.35)	(5.95, 9.79)	(1.21, 2.89)	(3.38, 5.97)	(4.04, 7.51)
lag05	11.79**	[a]8.53**	2.26**	5.27**	6.40**
	(6.54, 17.30)	(6.51, 10.59)	(1.38, 3.14)	(3.90, 6.66)	(4.56, 8.28)
lag06	12.40**	9.23**	2.45**	6.01**	7.35**
	(6.85, 18.24)	(7.09, 11.41)	(1.53, 3.38)	(4.55, 7.49)	(5.39, 9.36)
lag07	13.39**	9.83**	2.51**	6.60**	8.30**
	(7.54, 19.56)	(7.59, 12.12)	(1.53, 3.49)	(5.05, 8.17)	(6.22, 10.42)
6-14 years old					
lag0	-0.04	3.90**	0.16	1.53*	1.49
	(-4.66, 4.80)	(1.72, 6.11)	(-0.98, 1.32)	(0.08, 3.00)	(-0.35, 3.36)
lag1	2.54	4.22**	0.92	2.16**	3.56**
	(-2.03, 7.32)	(2.13, 6.36)	(-0.04, 1.89)	(0.75, 3.58)	(1.74, 5.40)
lag2	4.35	5.13**	0.64	2.48**	2.53**
	(-0.20, 9.10)	(3.12, 7.18)	(-0.25, 1.54)	(1.13, 3.85)	(0.76, 4.34)

lag3	5.45* (0.94, 10.16)	[a]5.69** (3.71, 7.70)	0.42 (-0.47, 1.30)	2.93** (1.61, 4.26)	3.55** (1.81, 5.31)
lag4	4.69* (0.24, 9.33)	[a]5.40** (3.44, 7.40)	0.55 (-0.33, 1.44)	2.60** (1.29, 3.92)	3.36** (1.64, 5.11)
lag5	5.41* (1.00, 10.02)	4.29** (2.34, 6.28)	0.10 (-0.78, 0.98)	1.77** (0.46, 3.09)	1.76* (0.05, 3.50)
lag6	4.37 (-0.02, 8.94)	2.87** (0.93, 4.84)	0.19 (-0.69, 1.07)	1.70** (0.41, 3.00)	1.22 (-0.47, 2.93)
lag7	4.54* (0.13, 9.13)	2.19* (0.26, 4.16)	0.43 (-0.44, 1.31)	2.28** (1.00, 3.58)	2.28** (0.59, 3.99)
lag01	1.79 (-3.67, 7.56)	5.48** (2.98, 8.04)	0.87 (-0.38, 2.14)	2.51** (0.84, 4.21)	3.42** (1.28, 5.61)
lag02	4.20 (-2.02, 10.82)	7.58** (4.81, 10.43)	1.11 (-0.20, 2.43)	3.51** (1.66, 5.38)	4.21** (1.83, 6.64)
lag03	6.90 (-0.06, 14.34)	9.77** (6.74, 12.89)	1.16 (-0.21, 2.55)	4.65** (2.65, 6.68)	5.59** (2.99, 8.25)
lag04	8.73* (1.15, 16.88)	11.44** (8.19, 14.79)	1.33 (-0.12, 2.80)	5.43** (3.28, 7.61)	6.70** (3.89, 9.59)
lag05	11.32** (3.13, 20.16)	[a]12.70** (9.24, 16.26)	1.29 (-0.23, 2.83)	6.05** (3.76, 8.39)	7.33** (4.32, 10.43)
lag06	12.75** (4.05, 22.18)	13.12** (9.49, 16.87)	1.30 (-0.31, 2.92)	6.45** (4.03, 8.93)	7.44** (4.25, 10.73)
lag07	14.46** (5.22, 24.51)	13.37** (9.57, 17.30)	1.45 (-0.24, 3.16)	7.25** (4.69, 9.87)	8.13** (4.78, 11.60)

[a] The difference between the 0-5 and 6-14 years old subgroup was statistically significant.

* Significant difference ($p < 0.05$); **Significant difference ($p < 0.01$)

Table S15. Estimated percentage increase [ER (95%CI)] in emergency department visits for asthma in children aged 0-5 and 6-14 associated with 10μg/m^3 increases in SO_2, NO_2, O_3, PM_{10} and $PM_{2.5}$ concentrations in Guangzhou, China, related to Figure 4.

	SO_2	NO_2	O_3	PM_{10}	$PM_{2.5}$
	ER %(95%CI)	ER% (95%CI)	ER% (95%CI)	ER% (95%CI)	ER% (95%CI)
0-5 years old					
lag0	-0.86 (-7.30, 6.03)	1.89 (-0.92, 4.78)	0.02 (-1.41, 1.47)	0.57 (-1.35, 2.52)	0.99 (-1.48, 3.53)
lag1	-2.71 (-8.87, 3.86)	2.99* (0.21, 5.84)	0.26 (-0.96, 1.49)	1.54 (-0.32, 3.44)	2.07 (-0.38, 4.58)
lag2	0.50 (-5.71, 7.12)	3.93** (1.15, 6.59)	0.26 (-0.88, 1.42)	1.63 (-0.18, 3.47)	1.21 (-1.18, 3.65)
lag3	3.78 (-2.50, 10.47)	4.40** (1.76, 7.11)	0.46 (-0.67, 1.59)	1.95* (0.18, 3.75)	1.81 (-0.53, 4.21)
lag4	2.59 (-3.53, 9.10)	3.55** (0.94, 6.24)	1.10 (-0.02, 2.22)	1.56 (-0.20, 3.35)	1.15 (-1.18, 3.53)
lag5	1.14 (-4.89, 7.55)	3.26* (0.64, 5.94)	1.02 (-0.09, 2.14)	1.14 (-0.63, 2.94)	1.49 (-0.85, 3.88)
lag6	0.18 (-5.79, 6.53)	1.76 (-0.83, 4.42)	0.66 (-0.44, 1.78)	1.23 (-0.51, 3.01)	2.02 (-0.29, 4.38)
lag7	4.75 (-1.41, 11.29)	2.77* (0.19, 5.42)	0.29 (-0.82, 1.41)	2.21* (0.46, 3.98)	2.80* (0.50, 5.16)
lag01	-2.50 (-9.82, 5.41)	3.20** (-0.01, 6.51)	0.25 (-1.30, 1.83)	1.44 (-0.75, 3.68)	2.06 (-0.79, 5.00)
lag02	-1.79 (-9.95, 7.10)	4.78** (1.23, 8.45)	0.36 (-1.26, 2.01)	2.11 (-0.31, 4.58)	2.33 (-0.81, 5.57)
lag03	0.57 (-8.43, 10.45)	6.50** (2.63, 10.51)	0.56 (-1.14, 2.28)	2.90* (0.29, 5.57)	3.02 (-0.38, 6.54)
lag04	1.96 (-7.73, 12.67)	7.63** (3.48, 11.95)	1.06 (-0.73, 2.88)	3.39* (0.62, 6.24)	3.34 (-0.30, 7.10)
lag05	1.95 (-8.28, 13.32)	8.45** (4.03, 13.06)	1.43 (-0.45, 3.34)	3.51* (0.56, 6.54)	3.57 (-0.30, 7.58)
lag06	2.02 (-8.72, 14.04)	8.80** (4.13, 13.67)	1.65 (-0.33, 3.66)	3.92* (0.81, 7.12)	4.34* (0.25, 8.60)
lag07	4.05 (-7.40, 16.92)	[a]9.57** (4.66, 14.71)	1.72 (-0.36, 3.84)	4.70** (1.42, 8.09)	5.35* (1.03, 9.86)
6-14 years old					
lag0	3.93 (-0.07, 8.10)	2.20* (0.44, 4.00)	0.39 (-0.51, 1.30)	1.42* (0.21, 2.65)	2.05** (0.49, 3.63)
lag1	2.35 (-1.50, 6.35)	0.79 (-0.94, 2.54)	0.29 (-0.47, 1.07)	0.79 (-0.39, 1.98)	0.57 (-0.96, 2.13)
lag2	3.53 (-0.29, 7.49)	1.52 (-0.14, 3.21)	0.42 (-0.30, 1.15)	1.28* (0.14, 2.43)	0.87 (-0.63, 2.38)

lag3	2.74 (-1.02, 6.64)	2.43** (0.79, 4.09)	0.35 (-0.36, 1.06)	1.51** (0.40, 2.64)	1.50* (0.03, 2.99)
lag4	3.41 (-0.33, 7.29)	1.98* (0.36, 3.63)	0.34 (-0.37, 1.05)	1.18* (0.07, 2.31)	0.79 (-0.67, 2.27)
lag5	-0.13 (-3.77, 3.65)	0.60 (-1.02, 2.24)	0.27 (-0.43, 0.97)	0.25 (-0.86, 1.38)	-0.49 (-1.95, 0.98)
lag6	-0.69 (-4.32, 3.08)	0.39 (-1.22, 2.03)	0.39 (-0.31, 1.10)	0.75 (-0.35, 1.86)	0.08 (-1.36, 1.55)
lag7	0.01 (-3.61, 3.77)	0.00 (-1.60, 1.63)	0.28 (-0.43, 0.99)	0.66 (-0.44, 1.77)	0.42 (-1.03, 1.88)
lag01	4.37 (-0.30, 9.26)	1.96 (-0.06, 4.01)	0.49 (-0.50, 1.48)	1.47* (0.09, 2.88)	1.73 (-0.06, 2.53)
lag02	5.83* (0.56, 11.36)	2.46* (0.25, 4.72)	0.65 (-0.38, 1.69)	1.91* (0.40, 3.45)	1.86 (-0.09, 3.84)
lag03	6.76* (1.00, 12.85)	3.43** (1.04, 5.88)	0.74 (-0.35, 1.83)	2.44** (0.82, 4.09)	2.38* (0.28, 4.52)
lag04	8.08* (1.85, 14.69)	4.06** (1.51, 6.67)	0.83 (-0.31, 1.99)	2.76** (1.04, 4.52)	2.53* (0.30, 4.81)
lag05	7.61* (1.01, 14.63)	4.06** (1.37, 6.83)	0.90 (-0.30, 2.11)	2.73** (0.90, 4.59)	2.20 (-0.16, 4.61)
lag06	6.84 (-0.07, 14.23)	3.98* (1.15, 6.89)	1.02 (-0.24, 2.30)	2.87** (0.94, 4.83)	2.08 (-0.40, 4.62)
lag07	6.20 (-0.99, 13.92)	[a]3.71* (0.77, 6.73)	1.10 (-0.22, 2.44)	2.88** (0.87, 4.93)	1.98 (-0.60, 4.64)

[a] The difference between the 0-5 and 6-14 years old subgroup was statistically significant.

* Significant difference ($p < 0.05$); **Significant difference ($p < 0.01$)

Table S16. For each 10μg/m^3 increase in pollutant concentration in the multiple-pollutant model, ER (and 95% CI) was associated with total respiratory diseases[a], related to Figure 5.

		Total	Boy	Girl	0-5 years old	6-14 years old
SO_2	+NO_2	0.73 (-1.02,2.50)	0.92 (-0.82, 2.69)	1.82* (0.01, 3.66)	2.00* (0.33, 3.71)	0.96 (-1.23, 3.19)
	+O_3	3.30** (1.74, 4.88)	3.38** (1.83, 4.96)	4.36** (2.80, 5.93)	4.63** (3.19, 6.10)	4.67** (2.73, 6.64)
	+PM_{10}	-0.16 (-1.99, 1.71)	-0.005 (-1.83, 1.85)	1.11 (-0.80, 3.01)	1.44 (-0.33, 3.24)	-1.06 (-3.25, 1.18)
	+$PM_{2.5}$	0.92 (-0.80,2.66)	1.02 (-0.69, 2.76)	1.96* (0.21, 3.74)	2.36** (0.73, 4.02)	1.13 (-0.98, 3.29)
NO_2	+SO_2	2.67** (1.84, 3.52)	2.63** (1.80, 3.47)	2.73** (1.85, 3.62)	2.65** (1.85, 3.46)	2.73** (1.71, 3.76)
	+O_3	2.92** (2.18, 3.66)	2.92** (2.19, 3.66)	2.92** (2.14, 3.69)	2.71** (2.02, 3.43)	3.34** (2.45, 4.25)
	+PM_{10}	1.22* (0.24, 2.20)	1.19* (0.22, 2.17)	1.25* (0.23, 2.30)	1.61** (0.66, 2.57)	0.52 (-0.64, 1.70)
	+$PM_{2.5}$	1.74** (0.86, 8.62)	1.80** (0.92, 2.69)	1.65** (0.72, 2.58)	1.79** (0.94, 2.65)	1.70** (0.65, 2.77)
O_3	+SO_2	0.26 (-0.05, 0.57)	0.26 (-0.04, 0.57)	0.25 (-0.08, 0.57)	0.38* (0.08, 0.67)	0.004 (-0.38, 0.39)
	+NO_2	0.18 (-0.12, 0.48)	0.20 (-0.10, 0.50)	0.16 (-0.16, 0.48)	0.28 (-0.01, 0.57)	-0.03 (-0.41, 0.34)
	+PM_{10}	0.04 (-0.27, 0.35)	0.05 (-0.26, 0.36)	0.02 (-0.31, 0.35)	0.19 (-0.10, 0.50)	-0.28 (-0.66, 0.10)
	+$PM_{2.5}$	0.06 (-0.26, 0.37)	0.07 (-0.24, 0.38)	0.04 (-0.29, 0.37)	0.20 (-0.10, 0.50)	-0.25 (-0.63, 0.14)
PM_{10}	+SO_2	2.07** (1.50, 2.65)	2.07** (1.50, 2.64)	2.09** (1.49, 2.69)	[b] 1.76** (1.20, 2.32)	2.68** (2.00, 3.37)
	+NO_2	1.35** (0.70, 2.01)	1.39** (0.74, 2.04)	1.31** (0.62, 2.00)	[b] 0.89** (0.25, 1.53)	2.23** (1.46, 3.00)
	+O_3	2.07** (1.59, 2.55)	2.09** (1.61, 2.57)	2.04** (1.54, 2.55)	[b] 1.73** (1.27, 2.20)	2.72** (2.15, 3.29)
	+$PM_{2.5}$	1.79** (0.87, 2.72)	1.99** (1.07, 2.92)	1.51** (0.55, 2.48)	[b] 1.21** (0.31, 2.12)	2.91** (1.84, 4.00)
$PM_{2.5}$	+SO_2	2.09** (1.41, 2.78)	1.98** (1.30, 2.66)	2.22** (1.50, 2.95)	1.95** (1.28, 2.62)	2.34** (1.53, 3.17)
	+NO_2	1.27** (0.53, 2.03)	1.37** (0.64, 2.11)	1.38** (0.60, 2.17)	1.05** (0.31, 1.78)	1.67** (0.79, 2.57)
	+O_3	2.42** (1.80, 3.06)	2.15** (1.54, 2.77)	2.49** (1.84, 3.16)	3.16** (1.55, 2.77)	2.93** (2.18, 3.68)
	+PM_{10}	0.23 (-0.93, 1.40)	0.64 (-0.52, 1.82)	0.59 (-0.63, 1.82)	0.68 (-0.47, 1.84)	-0.62 (-1.95, 0.72)

[a] In total population and each subgroup, lag0 was selected for NO_2 , PM_{10} and lag1 for O_3. For SO_2, lag1 was selected to analyze the impact on the total population and boy, lag6 was selected to girl and 0-5-year-old subgroups, and lag0 for 6-14-year-old subgroups. For $PM_{2.5}$, lag1 was selected for boy and lag0 for other groups.

[b] The difference between the 0-5 and 6-14 years old subgroup was statistically significant.

* Significant difference ($p < 0.05$); **Significant difference ($p < 0.01$)

Table S17. For each 10μg/m^3 increase in pollutant concentration in the multiple-pollutant model, ER (and 95% CI) was associated with acute upper respiratory infection[a], related to Figure 5.

		Total	Boy	Girl	0-5 years old	6-14 years old
SO_2	$+NO_2$	1.91 (-0.18, 4.03)	2.29* (0.18, 4.44)	1.39 (-0.81, 3.65)	1.91 (-0.11, 3.96)	1.92 (-0.58, 4.48)
	$+O_3$	4.24** (2.40, 6.11)	4.45** (2.59, 6.34)	3.97** (2.01, 5.96)	3.87** (2.09, 5.69)	4.85** (2.65, 7.09)
	$+PM_{10}$	0.22 (-1.92, 2.42)	0.26 (-1.90, 4.48)	0.17 (-2.12, 2.52)	1.09 (-1.03, 3.25)	-1.07 (-3.59, 1.52)
	$+PM_{2.5}$	1.81 (-0.20, 3.87)	1.85 (-0.18, 3.93)	1.96 (-0.39, 3.96)	2.32* (0.34, 4.34)	1.11 (-1.27, 3.55)
NO_2	$+SO_2$	2.07** (1.09, 3.05)	1.98** (0.99, 2.97)	2.19** (1.15, 3.24)	2.01** (1.07, 2.95)	2.18** (0.99, 3.38)
	$+O_3$	2.49** (1.66, 3.33)	2.47** (1.63, 3.32)	2.53** (1.64, 3.42)	2.31** (1.51, 3.12)	2.80** (1.79, 3.82)
	$+PM_{10}$	0.63 (-0.49, 7.75)	0.38 (-0.73, 1.52)	0.94 (-0.25, 2.14)	1.13* (0.05, 2.23)	-0.13 (-1.45, 1.20)
	$+PM_{2.5}$	1.42** (0.41, 1.75)	1.23* (0.21, 2.25)	1.67** (0.60, 2.76)	1.70** (0.71, 2.70)	1.06 (-0.14, 2.27)
O_3	$+SO_2$	0.17 (-0.20, 0.54)	0.21 (-0.16, 0.58)	0.11 (-0.28, 0.51)	0.35 (-0.00, 0.70)	-0.16 (-0.61, 0.30)
	$+NO_2$	0.15 (-0.21, 0.51)	0.21 (-0.16, 0.58)	0.07 (-0.32, 0.46)	0.33 (-0.02, 0.67)	-0.17 (-0.62, 0.28)
	$+PM_{10}$	-0.07 (-0.44, 0.30)	-0.04 (-0.41, 0.34)	-0.11 (-0.35, 0.40)	0.19 (-0.17, 0.54)	0.19 (-0.17, 0.54)
	$+PM_{2.5}$	-0.01 (-0.38, 0.37)	0.02 (-0.35, 0.40)	-0.04 (-0.44, 0.36)	[b]0.25 (-0.11, 0.60)	[b]-0.43 (-0.89, 0.03)
PM_{10}	$+SO_2$	2.06** (1.39, 2.74)	2.18** (1.50, 2.87)	1.91** (1.19, 2.64)	[b]1.61** (0.95, 2.27)	[b]2.77** (1.97, 3.59)
	$+NO_2$	1.81** (1.07, 2.56)	2.05** (1.30, 2.80)	1.50** (0.71, 2.30)	[b]1.28** (0.55, 2.01)	[b]2.62** (1.74, 3.51)
	$+O_3$	2.14** (1.58, 2.71)	2.25** (1.68, 2.82)	2.00** (1.41, 2.60)	1.72** (1.17, 2.27)	1.72** (1.17, 2.27)
	$+PM_{2.5}$	2.16** (1.11, 3.22)	2.18** (1.11, 3.25)	2.14** (1.02, 3.27)	1.91** (0.86, 2.97)	2.59** (1.37, 3.82)
$PM_{2.5}$	$+SO_2$	1.95** (1.14, 2.76)	2.12** (1.31, 2.94)	1.72** (0.87, 2.59)	1.53** (0.74, 2.32)	2.57** (1.62, 3.53)
	$+NO_2$	1.58** (0.72, 2.45)	1.86** (0.99, 2.74)	1.22** (0.30, 2.14)	1.10* (0.25, 1.96)	2.27** (1.26, 3.29)
	$+O_3$	2.34** (1.61, 3.08)	2.51** (1.77, 3.25)	2.13** (1.35, 2.91)	[b]1.85** (1.13, 2.57)	[b]3.09** (2.23, 3.95)
	$+PM_{10}$	-0.08 (-1.40, 1.27)	0.08 (-1.26, 1.44)	-0.28 (-1.69, 1.14)	-0.12 (-1.45, 1.22)	-0.04 (-1.56, 1.50)

[a] In total population and each subgroup, lag1 was selected for SO_2, NO_2 , PM_{10}, $PM_{2.5}$, and O_3.

[b] The difference between the 0-5 and 6-14 years old subgroup was statistically significant.

* Significant difference ($p < 0.05$); **Significant difference ($p < 0.01$)

Table S18. For each 10μg/m^3 increase in pollutant concentration in the multiple-pollutant model, ER (and 95% CI) was associated with bronchitis[a], related to Figure 5.

		Total	Boy	Girl	0-5 years old	6-14 years old
SO_2	$+NO_2$	-1.21 (-3.39, 1.03)	-0.79 (-3.03, 1.50)	-1.87 (-4.38, 0.72)	-1.68 (-3.88, 0.58)	0.32 (-2.56, 3.29)
	$+O_3$	1.90 (-0.08, 3.91)	2.24* (0.23, 4.30)	1.35 (-0.92, 3.68)	1.48 (-0.52, 3.52)	3.20* (0.63, 5.83)
	$+PM_{10}$	-1.59 (-3.93, 0.80)	-1.13 (-3.52, 1.32)	-2.31 (-5.00, 0.45)	-1.79 (-4.16, 0.64)	-0.88 (-3.91, 2.25)
	$+PM_{2.5}$	-0.48 (-2.66, 1.75)	-0.02 (-2.25, 2.26)	-1.21 (-3.72, 1.36)	-0.83 (-3.04, 1.43)	0.70 (-2.14, 3.62)
NO_2	$+SO_2$	2.98** (1.97, 4.00)	2.94** (1.92, 3.98)	3.04** (1.88, 4.23)	3.08** (2.07, 4.10)	2.66** (1.31, 4.03)
	$+O_3$	2.51** (1.65, 3.37)	2.55** (1.68, 3.43)	2.43** (1.44, 3.43)	2.47** (1.61, 3.34)	2.62** (1.47, 3.78)
	$+PM_{10}$	1.85** (0.66, 3.06)	1.89** (0.67, 3.12)	1.79* (0.41, 3.19)	2.06** (0.86, 3.28)	1.22 (-0.34, 2.82)
	$+PM_{2.5}$	1.95** (0.87, 3.03)	2.02** (0.93, 3.13)	1.83** (0.59, 3.09)	2.02** (0.93, 3.12)	1.78* (0.36, 3.21)
O_3	$+SO_2$	0.45* (0.05, 0.84)	0.47* (0.07, 0.87)	0.41 (-0.04, 0.87)	0.49* (0.09, 0.88)	0.32 (-0.20, 0.85)
	$+NO_2$	0.27 (-0.12, 0.65)	0.30 (-0.09, 0.69)	0.21 (-0.24, 0.65)	0.28 (-0.10, 0.67)	0.22 (-0.30, 0.73)
	$+PM_{10}$	0.20 (-0.20, 0.59)	0.23 (-0.17, 0.64)	0.14 (-0.32, 0.60)	0.25 (-0.15, 0.64)	0.06 (-0.47, 0.29)
	$+PM_{2.5}$	0.21 (-0.19, 0.61)	0.25 (-0.15, 0.65)	0.14 (-0.32, 0.60)	0.25 (-0.15, 0.64)	0.11 (-0.43, 0.64)
PM_{10}	$+SO_2$	1.95** (1.23, 2.67)	1.91** (1.18, 2.64)	2.02** (1.21, 2.98)	1.88** (1.15, 2.61)	2.14** (1.19, 3.10)
	$+NO_2$	0.74 (-0.05, 1.54)	0.77 (-0.04, 1.58)	0.69 (-0.23, 1.62)	0.53 (-0.28, 1.33)	1.38** (0.34, 2.44)
	$+O_3$	1.53** (0.95, 2.13)	1.56** (0.96, 2.16)	1.49** (0.81, 2.18)	1.40** (0.81, 2.00)	1.94** (1.16, 2.72)
	$+PM_{2.5}$	1.13 (-0.02, 2.30)	1.23* (0.05, 2.42)	0.97 (-0.37, 2.32)	0.89 (-0.29, 2.09)	1.85* (0.38, 3.34)
$PM_{2.5}$	$+SO_2$	2.16** (1.29, 3.03)	2.09** (1.21, 2.98)	2.26** (1.26, 3.27)	2.16** (1.29, 3.04)	2.10** (0.98, 3.24)
	$+NO_2$	0.95* (0.02, 1.89)	0.95 (-0.00, 1.90)	0.96 (-0.12, 2.05)	0.82 (-0.12, 1.78)	1.29* (0.09, 2.51)
	$+O_3$	1.90** (1.13, 2.68)	1.91** (1.13, 2.70)	1.89** (1.00, 2.79)	1.80** (1.02, 2.58)	2.18** (1.17, 3.20)
	$+PM_{10}$	0.75 (-0.75, 2.26)	0.67 (-0.86, 2.21)	0.88 (-0.85, 2.64)	0.94 (-0.59, 2.50)	0.17 (-1.68, 2.07)

[a] In total population and each subgroup, lag1 was selected for SO_2, NO_2 , PM_{10}, $PM_{2.5}$, and O_3.

* Significant difference ($p < 0.05$); **Significant difference ($p < 0.01$)

Table S19. For each 10μg/m^3 increase in pollutant concentration in the multiple-pollutant model, ER (and 95% CI) was associated with pneumonia[a], related to Figure 5.

		Total	Boy	Girl	0-5 years old	6-14 years old
SO_2	$+NO_2$	0.14 (-3.01, 3.40)	-0.03 (-3.72, 3.81)	0.34 (-3.98, 4.84)	1.82 (-1.63, 5.39)	-3.72 (-8.84, 1.68)
	$+O_3$	4.13** (1.26, 7.08)	4.02* (0.66, 7.49)	4.24* (0.32, 8.30)	5.87** (2.74, 9.10)	1.31 (-3.44, 6.29)
	$+PM_{10}$	0.85 (-2.56, 4.37)	2.21 (-1.83, 6.42)	-1.08 (-5.64, 3.70)	2.56 (-1.16, 6.42)	-3.08 (-8.60, 2.77)
	$+PM_{2.5}$	1.25 (-1.90, 4.50)	2.36 (-1.38, 6.23)	-0.33 (-4.57, 4.09)	3.23 (-0.23, 6.81)	-3.10 (-8.18, 2.25)
NO_2	$+SO_2$	4.09** (2.64, 5.57)	4.01** (2.30, 5.76)	4.21** (2.21, 6.24)	3.81** (2.25, 5.39)	5.22** (2.69, 7.82)
	$+O_3$	3.76** (2.53, 5.01)	3.69** (2.24, 5.17)	3.85** (2.15, 5.57)	3.97** (2.65, 5.31)	3.97** (1.80, 6.18)
	$+PM_{10}$	3.48** (1.75, 5.24)	4.36** (2.31, 6.46)	2.27 (-0.07, 4.66)	3.44** (1.59, 5.32)	3.93* (0.92, 7.03)
	$+PM_{2.5}$	3.01** (1.45, 4.60)	3.76** (1.90, 5.65)	1.99 (-0.12, 4.15)	3.31** (1.62, 5.03)	2.70* (0.06, 5.41)
O_3	$+SO_2$	0.79** (0.23, 1.35)	0.69* (0.04, 1.35)	0.93* (0.16, 1.70)	0.60* (0.01, 1.19)	0.83 (-0.18, 1.85)
	$+NO_2$	0.61* (0.07, 1.15)	0.52 (-0.11, 1.15)	0.75 (0.00, 1.50)	0.50 (-0.07, 1.08)	0.46 (-0.52, 1.44)
	$+PM_{10}$	0.60* (0.04, 1.16)	0.61 (-0.04, 1.27)	0.58 (-0.19, 1.35)	0.47 (-0.13, 1.06)	0.47 (-0.55, 1.49)
	$+PM_{2.5}$	0.56* (0.01, 1.12)	0.59 (-0.07, 1.25)	0.52 (-0.25, 1.29)	0.47 (-0.12, 1.07)	0.30 (-0.71, 1.32)
PM_{10}	$+SO_2$	2.11** (1.07, 3.15)	1.35* (0.14, 2.57)	3.17** (1.74, 4.62)	1.94** (0.83, 3.05)	2.77** (0.96, 4.62)
	$+NO_2$	0.59 (-0.55, 1.74)	[b]-0.32 (-1.65, 1.03)	[b]1.84* (0.26, 3.45)	0.75 (-0.47, 1.99)	0.27 (-1.72, 2.30)
	$+O_3$	1.96** (1.11, 2.81)	1.45** (0.46, 2.45)	2.65** (1.48, 3.83)	2.18** (1.27, 3.09)	1.92* (0.43, 3.44)
	$+PM_{2.5}$	0.56 (-1.10, 2.24)	0.53 (-1.42, 2.52)	0.56 (-1.72, 2.88)	1.30 (-0.51, 3.14)	-0.90 (-3.64, 1.92)
$PM_{2.5}$	$+SO_2$	2.90** (1.66, 4.16)	[b]1.94** (0.49, 3.42)	[b]4.25** (2.54, 5.99)	2.47** (1.14, 3.81)	4.24** (2.09, 6.44)
	$+NO_2$	1.45* (0.10, 2.82)	[b]0.32 (-1.27, 1.93)	[b]3.03** (1.17, 4.92)	1.24 (-0.22, 2.72)	2.08 (-0.21, 4.43)
	$+O_3$	2.79** (1.69, 3.91)	2.05** (0.76, 3.36)	3.83** (2.31, 5.36)	2.84** (1.66, 4.03)	3.36** (1.43, 5.33)
	$+PM_{10}$	2.52* (0.34, 4.76)	1.83 (-0.73, 4.46)	3.52* (0.51, 6.62)	1.63 (-0.72, 4.04)	4.61* (0.91, 8.44)

[a] In total population and each subgroup, lag1 was selected for SO_2, NO_2 , PM_{10}, $PM_{2.5}$, and O_3.

[b] The difference between the boy and girl subgroup was statistically significant.

* Significant difference ($p < 0.05$); **Significant difference ($p < 0.01$)

Table S20. For each 10μg/m^3 increase in pollutant concentration in the multiple-pollutant model, ER (and 95% CI) was associated with asthma[a], related to Figure 5.

		Total	Boy	Girl	0-5 years old	6-14 years old
SO_2	$+NO_2$	-1.05 (-5.31, 3.41)	-1.96 (-6.81, 3.14)	-1.31 (-8.00, 5.86)	[b]-9.50* (-16.41, -2.03)	[b]1.99 (-2.69, 6.90)
	$+O_3$	0.66 (-3.13, 4.60)	2.12 (-2.29, 6.74)	-1.36 (-7.19, 4.84)	-3.57 (-10.05, 3.38)	2.08 (-2.00, 6.34)
	$+PM_{10}$	-1.86 (-6.41, 2.92)	0.42 (-4.94, 6.07)	-1.00 (-8.20, 6.77)	[b]-10.08* (-17.43, -2.07)	[b]1.13 (-3.88, 6.40)
	$+PM_{2.5}$	-0.50 (-4.78, 3.96)	2.22 (-2.82, 7.53)	0.08 (-6.66, 7.30)	[b]-8.25* (-15.24, -0.68)	[b]2.26 (-2.42, 7.16)
NO_2	$+SO_2$	1.66 (-0.30, 3.65)	3.20** (0.93, 5.53)	0.97 (-2.08, 4.11)	[b]5.49** (2.07, 9.02)	[b]0.27 (-1.83, 2.41)
	$+O_3$	1.30 (-0.36, 2.99)	2.80** (0.87, 4.77)	0.25 (-2.32, 2.88)	3.05* (0.17, 6.02)	0.65 (-1.14, 2.48)
	$+PM_{10}$	0.64 (-1.71, 3.05)	3.87** (1.06, 6.75)	0.81 (-2.88, 4.65)	2.83 (-1.27, 7.11)	-0.16 (-2.68, 2.43)
	$+PM_{2.5}$	1.16 (-0.98, 3.35)	4.35** (1.78, 6.98)	1.24 (-2.12, 4.71)	2.57 (-1.18, 6.45)	0.64 (-1.66, 3.00)
O_3	$+SO_2$	0.25 (-0.51, 1.01)	0.00 (-0.87, 0.88)	0.75 (-0.44, 1.96)	0.49 (-0.81, 1.81)	0.15 (-0.66, 0.97)
	$+NO_2$	0.13 (-0.60, 0.87)	-0.18 (-1.03, 0.67)	0.63 (-0.53, 1.80)	-0.10 (-1.36, 1.17)	0.21 (-0.58, 1.02)
	$+PM_{10}$	0.04 (-0.72, 0.81)	-0.09 (-0.98, 0.81)	0.70 (-0.51, 1.93)	-0.14 (-1.45, 1.19)	0.11 (-0.73, 0.95)
	$+PM_{2.5}$	0.11 (-0.65, 0.89)	0.07 (-0.82, 0.97)	0.79 (-0.42, 2.02)	-0.15 (-1.45, 1.18)	0.21 (-0.62, 1.06)
PM_{10}	$+SO_2$	1.38 (-0.06, 2.83)	0.79 (-0.86, 2.47)	0.44 (-1.80, 2.73)	[b]3.54** (1.09, 6.06)	[b]0.56 (-0.99, 2.14)
	$+NO_2$	0.68 (-0.93, 2.31)	-1.05 (-2.90, 0.84)	-0.17 (-2.68, 2.42)	0.14 (-2.60, 2.95)	0.87 (-0.88, 2.64)
	$+O_3$	0.98 (-0.20, 2.17)	0.93 (-0.44, 2.31)	-0.17 (-2.01, 1.70)	1.62 (-0.39, 3.67)	0.73 (-0.56, 2.02)
	$+PM_{2.5}$	1.71 (-0.78, 4.27)	3.04* (0.14, 6.04)	1.51 (-2.37, 5.55)	0.64 (-3.72, 5.19)	2.04 (-0.64, 4.79)
$PM_{2.5}$	$+SO_2$	1.10 (-0.63, 2.86)	-0.06 (-2.05, 1.96)	-0.08 (-2.76, 2.68)	[b]3.95** (0.95, 7.03)	[b]0.06 (-1.80, 1.95)
	$+NO_2$	0.30 (-1.60, 2.23)	-2.11 (-4.30, 0.12)	-0.79 (-3.74, 2.25)	0.54 (-2.73, 3.92)	0.19 (-1.85, 2.28)
	$+O_3$	0.90 (-0.64, 2.46)	0.38 (-1.41, 2.19)	-0.67 (-3.05, 1.77)	2.18 (-0.45, 4.88)	0.40 (-1.26, 2.10)
	$+PM_{10}$	-1.01 (-4.16, 2.25)	-3.05 (-6.63, 0.66)	-1.80 (-6.68, 3.33)	1.30 (-4.39, 7.34)	-1.78 (-5.13, 1.69)

[a] In total population and each subgroup, lag1 was selected for SO_2, NO_2 , PM_{10}, $PM_{2.5}$, and O_3.

[b] The difference between the 0-5 and 6-14 years old subgroup was statistically significant.

* Significant difference ($p < 0.05$); **Significant difference ($p < 0.01$)

Table S21. The ER (and 95% CI) of the number of emergency department visits for respiratory diseases caused by the increase of 10 μg/m^3 of pollutants in different time smoothing trends [a,b], related to STAR Methods.

		ER% (95%CI)				
	df	5	6	7	8	9
Total	SO_2	5.06** (3.49, 6.66)	4.61** (2.94, 6.31)	3.61** (2.07, 5.17)	3.69** (2.18, 5.22)	2.57** (1.23, 3.92)
	NO_2	3.11** (2.41, 3.81)	3.22** (2.48, 3.96)	2.71** (2.03, 3.40)	2.42** (1.74, 3.10)	2.08** (1.47, 2.69)
	O_3	0.41** (0.10, 0.72)	0.48** (0.16, 0.80)	0.46** (0.17, 0.76)	0.36** (0.07, 0.65)	0.40** (0.14, 0.66)
	PM_{10}	2.20** (1.74, 2.66)	2.20** (1.71, 2.69)	1.95** (1.50, 2.40)	1.55** (1.10, 2.00)	1.24** (0.83, 1.64)
	$PM_{2.5}$	2.56** (1.97, 3.16)	2.63** (2.01, 3.26)	2.23** (1.65, 2.81)	1.84** (1.27, 2.42)	1.62** (1.10, 2.14)
Boy	SO_2	5.22** (3.65, 6.82)	4.79** (3.12, 6.49)	3.75** (2.21, 5.30)	3.83** (2.33, 5.36)	2.71** (1.36, 4.07)
	NO_2	3.11** (2.41, 3.82)	3.23** (2.49, 3.97)	2.72** (2.04, 3.40)	2.44** (1.77, 3.12)	2.13** (1.52, 2.75)
	O_3	0.42** (0.11, 0.73)	0.49** (0.17, 0.81)	0.48** (0.18, 0.77)	0.38* (0.09, 0.67)	0.42** (0.16, 0.68)
	PM_{10}	2.22** (1.76, 2.68)	2.22** (1.73, 2.71)	1.97** (1.52, 2.42)	1.58** (1.13, 2.02)	1.28** (0.88, 1.69)
	$PM_{2.5}$	2.53** (1.94, 3.12)	2.60** (1.98, 3.22)	2.19** (1.62, 2.77)	1.80** (1.23, 2.38)	1.61** (1.09, 2.13)
Girl	SO_2	4.84** (3.19, 6.51)	4.37** (2.63, 6.14)	3.41** (1.79, 5.05)	3.49** (1.90, 5.11)	2.38** (0.96, 3.81)
	NO_2	3.10** (2.36, 3.84)	3.20** (2.43, 3.98)	2.70** (1.98, 3.42)	2.38** (1.67, 3.10)	2.01** (1.36, 2.66)
	O_3	0.40** (0.08, 0.73)	0.47** (0.14, 0.81)	0.45** (0.13, 0.76)	0.34* (0.03, 0.64)	0.37** (0.09, 0.64)
	PM_{10}	2.17** (1.68, 2.65)	2.17** (1.66, 2.68)	1.92** (1.45, 2.39)	2.17** (1.66, 2.68)	1.17** (0.74, 1.60)
	$PM_{2.5}$	2.61** (1.99, 3.23)	2.68** (2.03, 3.33)	2.28** (1.68, 2.89)	1.89** (1.28, 2.50)	1.63** (1.08, 2.18)
0-5 years old	SO_2	4.49** (2.97, 6.03)	4.10** (2.49, 5.74)	3.21** (1.73, 4.71)	3.20** (1.74, 4.67)	2.27** (0.92, 3.64)
	NO_2	2.92** (2.25, 3.60)	3.06** (2.35, 3.77)	2.59** (1.94, 3.25)	2.22** (1.57, 2.87)	1.92** (1.31, 2.53)
	O_3	0.52** (0.22, 0.81)	0.58** (0.27, 0.89)	0.56** (0.27, 0.84)	0.43** (0.15, 0.71)	0.46** (0.20, 0.72)
	PM_{10}	1.91** (1.46, 2.36)	1.93** (1.45, 2.40)	1.68** (1.24, 2.12)	1.29** (0.86, 1.73)	1.03** (0.63, 1.44)

6-14 years old	$PM_{2.5}$	2.36** (1.79, 2.94)	2.45** (1.85, 3.06)	2.04** (1.49, 2.61)	1.63** (1.08, 2.19)	1.44** (0.92, 1.97)
	SO_2	6.23** (4.32, 8.18)	5.68** (3.69, 7.72)	4.45** (2.59, 6.34)	4.75** (2.91, 6.61)	3.20** (1.68, 4.75)
	NO_2	3.49** (2.63, 4.36)	3.55** (2.65, 4.45)	2.99** (2.15, 3.83)	3.49** (2.63, 4.36)	2.46** (1.75, 3.16)
	O_3	0.18 (-0.20, 0.57)	0.27 (-0.12, 0.66)	0.26 (-0.11, 0.63)	0.21 (-0.15, 0.57)	0.27 (-0.03, 0.58)
	PM_{10}	2.77** (2.22, 3.33)	2.74** (2.16, 3.32)	2.48** (1.94, 3.02)	2.07** (1.54, 2.61)	1.64** (1.18, 2.09)
	$PM_{2.5}$	2.96** (2.25, 3.67)	2.98** (2.24, 3.72)	2.58** (1.88, 3.27)	2.24** (1.55, 2.93)	1.95** (1.36, 2.53)

[a] The concentrations of pollutants on the day of exposure were selected for analysis. However, there was no statistical significance in the effect of O_3 on the day of exposure, so the concentration of lag1 was selected for sensitivity analysis.

[b] Except for the O_3 effect of the 6-14-year-old subgroup, the pollutant effect of the other groups was statistically significant.

* Significant difference ($p < 0.05$); **Significant difference

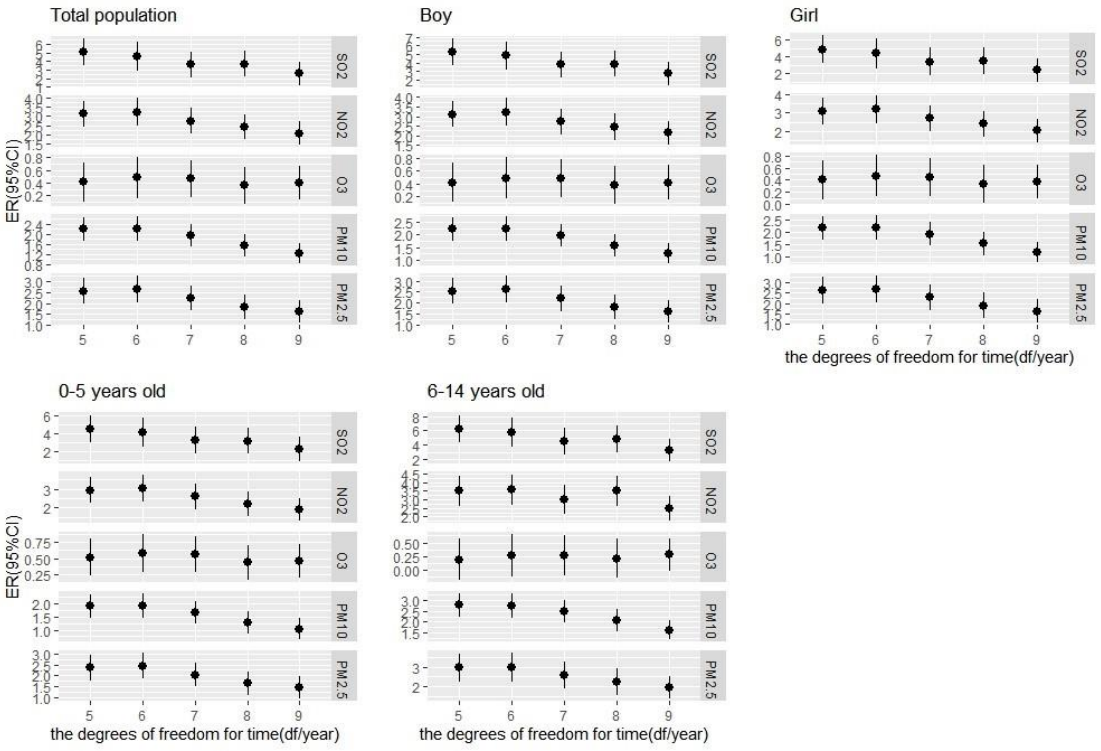

Figure. S1. The percentage and 95% CI of the number of emergency department visits for respiratory diseases in the population aged 0-14, boy, girl, 0-5-year-old and 6-14-year-old subgroups caused by the increase of 10 μg/m^3 of pollutants in different time smoothing trends. The concentrations of pollutants on the day of exposure were selected for analysis. However, there was no statistical significance in the effect of O_3 on the day of exposure, so the concentration of lag1 was selected for sensitivity analysis. Related to STAR Methods.