

**Table S1** Odds ratios (ORs) and 95% confidence intervals from logistic regression for the association of annual PM<sub>2.5</sub> concentration exposure based on modelled data on cardiovascular disease and diabetes among CATHGEN participants, by cluster and total (N = 2192).

	<b>Cluster 1</b>	<b>Cluster 2</b>	<b>Cluster 3</b>	<b>Cluster 4</b>	<b>Cluster 5</b>	<b>Cluster 6</b>	<b>Total</b>
	(n = 388)	(n = 206)	(n = 922)	(n = 229)	(n = 354)	(n = 93)	(N = 2192)
	OR (95% CI)						
<b>Coronary Artery Disease</b>							
Unadjusted	1.07 (0.88, 1.30)	0.94 (0.67, 1.32)	1.16 (1.02, 1.31)	1.03 (0.79, 1.35)	0.96 (0.80, 1.15)	1.11 (0.72, 1.71)	1.03 (0.95, 1.12)
Model 1 <sup>a</sup>	1.09 (0.88, 1.36)	0.95 (0.66, 1.36)	1.15 (1.00, 1.32)	1.05 (0.79, 1.40)	0.99 (0.82, 1.20)	1.04 (0.67, 1.62)	1.07 (0.98, 1.17)
Model 2 <sup>b</sup>	1.10 (0.88, 1.36)	0.95 (0.67, 1.37)	1.16 (1.01, 1.33)	1.08 (0.81, 1.44)	0.98 (0.81, 1.19)	1.05 (0.68, 1.62)	1.09 (1.00, 1.19)
Model 3 <sup>c</sup>	1.09 (0.88, 1.36)	0.89 (0.60, 1.31)	1.11 (0.96, 1.28)	1.11 (0.82, 1.59)	1.02 (0.83, 1.24)	1.01 (0.65, 1.57)	1.07 (0.98, 1.17)
<b>Myocardial Infarction</b>							
Unadjusted	1.30 (1.01, 1.66)	1.30 (0.90, 1.87)	1.28 (1.10, 1.49)	1.47 (1.06, 2.05)	1.34 (1.07, 1.69)	1.64 (0.87, 3.11)	1.28 (1.17, 1.41)
Model 1 <sup>a</sup>	1.30 (1.02, 1.67)	1.33 (0.92, 1.92)	1.25 (1.07, 1.46)	1.46 (1.04, 2.04)	1.35 (1.07, 1.70)	1.50 (0.81, 2.76)	1.29 (1.16, 1.42)
Model 2 <sup>b</sup>	1.29 (1.01, 1.66)	1.33 (0.92, 1.92)	1.24 (1.06, 1.45)	1.49 (1.06, 2.08)	1.34 (1.06, 1.68)	1.48 (0.81, 2.73)	1.30 (1.17, 1.44)
Model 3 <sup>c</sup>	1.28 (1.00, 1.65)	1.07 (0.75, 1.54)	1.27 (1.07, 1.49)	1.34 (0.96, 1.87)	1.35 (1.05, 1.73)	1.42 (0.78, 2.59)	1.26 (1.13, 1.39)

<b>Hypertension</b>							
Unadjusted	1.12 (0.92, 1.36)	<b>1.48 (1.06, 2.07)</b>	0.96 (0.85, 1.09)	0.99 (0.77, 1.27)	0.79 (0.65, 0.97)	0.69 (0.44, 1.10)	1.02 (0.94, 1.10)
Model 1 <sup>a</sup>	<b>1.22 (0.99, 1.50)</b>	<b>1.64 (1.16, 2.32)</b>	0.93 (0.82, 1.07)	0.91 (0.70, 1.19)	0.81 (0.66, 1.00)	0.63 (0.39, 1.01)	0.98 (0.90, 1.06)
Model 2 <sup>b</sup>	<b>1.24 (1.00, 1.53)</b>	<b>1.62 (1.14, 2.30)</b>	0.94 (0.82, 1.07)	0.91 (0.69, 1.19)	0.82 (0.66, 1.01)	0.63 (0.39, 1.01)	0.98 (0.90, 1.07)
Model 3 <sup>c</sup>	<b>1.19 (0.96, 1.47)</b>	<b>1.57 (1.09, 2.27)</b>	0.90 (0.79, 1.04)	0.96 (0.73, 1.26)	0.76 (0.60, 0.95)	0.62 (0.38, 0.99)	0.94 (0.86, 1.03)
 <b>Diabetes</b>							
Unadjusted	0.97 (0.80, 1.17)	0.98 (0.73, 1.30)	0.98 (0.85, 1.12)	1.07 (0.81, 1.40)	0.90 (0.75, 1.10)	0.80 (0.54, 1.19)	0.97 (0.90, 1.06)
Model 1 <sup>a</sup>	1.02 (0.84, 1.24)	1.03 (0.77, 1.38)	0.98 (0.85, 1.13)	1.04 (0.79, 1.38)	0.95 (0.78, 1.15)	0.77 (0.51, 1.16)	0.96 (0.88, 1.05)
Model 2 <sup>b</sup>	1.01 (0.83, 1.24)	1.03 (0.77, 1.39)	0.98 (0.86, 1.13)	1.05 (0.79, 1.40)	0.94 (0.77, 1.15)	0.77 (0.52, 1.64)	0.97 (0.89, 1.05)
Model 3 <sup>c</sup>	1.01 (0.82, 1.23)	0.93 (0.68, 1.28)	0.93 (0.81, 1.08)	1.06 (0.79, 1.42)	0.94 (0.76, 1.15)	0.75 (0.50, 1.13)	0.93 (0.85, 1.02)

<sup>a</sup> Adjusted for age, sex, body mass index, race, and smoking status

<sup>b</sup>Adjusted for age, sex, body mass index, race, smoking status, and traffic exposure zone (1, 2, 3, 4, 5/6)

<sup>c</sup>Adjusted for age, sex, body mass index, race, smoking status, and inverse natural log of distance to A1 or A2 roads

**Bold font** indicates odds ratio is significantly different ( $p_{int} < 0.05$ ) from that of Cluster 3 on a multiplicative scale

**Table S2.** Odds ratios (ORs) and 95% confidence intervals from logistic regression for the association of annual PM<sub>2.5</sub> concentration exposure based on nearest EPA monitor and cardiovascular disease and diabetes among CATHGEN participants, by cluster and total (N = 2192).

	<b>Cluster 1</b> <b>(n = 388)</b>	<b>Cluster 2</b> <b>(n = 206)</b>	<b>Cluster 3</b> <b>(n = 922)</b>	<b>Cluster 4</b> <b>(n = 229)</b>	<b>Cluster 5</b> <b>(n = 354)</b>	<b>Cluster 6</b> <b>(n = 93)</b>	<b>Total</b> <b>(N = 2192)</b>
	<b>OR (95% CI)</b>	<b>OR (95% CI)</b>	<b>OR (95% CI)</b>				
<b>Coronary Artery Disease</b>							
Unadjusted	1.03 (0.86, 1.24)	1.04 (0.77, 1.41)	1.15 (1.02, 1.29)	1.10 (0.87, 1.40)	0.93 (0.78, 1.12)	0.96 (0.67, 1.39)	1.07 (0.99, 1.15)
Model 1 <sup>a</sup>	1.06 (0.87, 1.29)	1.05 (0.76, 1.45)	1.15 (1.01, 1.30)	1.11 (0.87, 1.43)	0.96 (0.80, 1.17)	0.92 (0.63, 1.35)	1.08 (1.00, 1.17)
Model 2 <sup>b</sup>	1.06 (0.87, 1.29)	1.05 (0.76, 1.45)	1.15 (1.01, 1.30)	1.12 (0.87, 1.44)	0.96 (0.80, 1.17)	0.94 (0.64, 1.37)	1.09 (1.00, 1.18)
Model 3 <sup>c</sup>	1.06 (0.87, 1.30)	1.01 (0.72, 1.42)	1.11 (0.98, 1.27)	1.18 (0.91, 1.53)	0.99 (0.81, 1.20)	0.88 (0.60, 1.29)	1.08 (0.99, 1.17)
<b>Myocardial Infarction</b>							
Unadjusted	1.19 (0.97, 1.46)	1.19 (0.89, 1.59)	1.28 (1.12, 1.46)	<b>1.34 (1.02, 1.75)</b>	<b>1.41 (1.13, 1.75)</b>	1.32 (0.82, 2.13)	1.29 (1.18, 1.41)
Model 1 <sup>a</sup>	1.20 (0.97, 1.48)	1.22 (0.91, 1.63)	1.25 (1.09, 1.43)	1.33 (1.01, 1.74)	1.40 (1.12, 1.75)	1.26 (0.78, 2.03)	1.28 (1.17, 1.40)
Model 2 <sup>b</sup>	1.20 (0.97, 1.48)	1.22 (0.91, 1.63)	1.25 (1.09, 1.43)	1.33 (1.02, 1.75)	1.39 (1.12, 1.74)	1.27 (0.79, 2.04)	1.28 (1.17, 1.39)
Model 3 <sup>c</sup>	1.20 (0.96, 1.48)	1.07 (0.79, 1.44)	1.22 (1.06, 1.41)	1.28 (0.98, 1.69)	1.30 (1.04, 1.64)	1.28 (0.78, 2.08)	1.23 (1.12, 1.35)

	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
<b>Hypertension</b>								
Unadjusted	1.07 (0.89, 1.29)	1.35 (0.98, 1.84)	0.98 (0.87, 1.10)	0.94 (0.75, 1.18)	0.84 (0.69, 1.02)	0.89 (0.62, 1.27)	0.99 (0.92, 1.07)	
Model 1 <sup>a</sup>	1.15 (0.95, 1.40)	<b>1.41 (1.02, 1.95)</b>	0.98 (0.87, 1.11)	0.92 (0.72, 1.16)	0.87 (0.71, 1.06)	0.83 (0.58, 1.20)	1.01 (0.93, 1.09)	
Model 2 <sup>b</sup>	1.15 (0.94, 1.40)	<b>1.40 (1.01, 1.94)</b>	0.98 (0.87, 1.11)	0.92 (0.72, 1.16)	0.87 (0.72, 1.07)	0.82 (0.57, 1.18)	1.00 (0.92, 1.08)	
Model 3 <sup>c</sup>	1.12 (0.92, 1.37)	1.34 (0.95, 1.90)	0.96 (0.85, 1.09)	0.95 (0.75, 1.21)	0.85 (0.69, 1.05)	0.79 (0.55, 1.15)	0.99 (0.91, 1.08)	
<b>Diabetes</b>								
Unadjusted	0.94 (0.79, 1.13)	1.01 (0.79, 1.26)	0.95 (0.84, 1.07)	0.99 (0.79, 1.26)	0.92 (0.76, 1.12)	0.87 (0.62, 1.22)	0.95 (0.88, 1.03)	
Model 1 <sup>a</sup>	0.99 (0.83, 1.19)	1.07 (0.82, 1.40)	0.97 (0.85, 1.10)	1.00 (0.78, 1.27)	0.97 (0.80, 1.18)	0.82 (0.58, 1.16)	0.98 (0.90, 1.06)	
Model 2 <sup>b</sup>	0.99 (0.82, 1.19)	1.07 (0.82, 1.40)	0.97 (0.85, 1.10)	1.00 (0.79, 1.28)	0.97 (0.80, 1.18)	0.82 (0.58, 1.17)	0.97 (0.90, 1.05)	
Model 3 <sup>c</sup>	0.98 (0.82, 1.19)	0.99 (0.74, 1.31)	0.93 (0.81, 1.06)	1.02 (0.79, 1.31)	0.96 (0.78, 1.18)	0.80 (0.56, 1.13)	0.95 (0.88, 1.03)	

<sup>a</sup> Adjusted for age, sex, body mass index, race, and smoking status

<sup>b</sup>Adjusted for age, sex, body mass index, race, smoking status, and traffic exposure zone (1, 2, 3, 4, 5/6)

<sup>c</sup>Adjusted for age, sex, body mass index, race, smoking status, and inverse natural log of distance to A1 or A2 roads

**Bold font** indicates odds ratio is significantly different ( $p_{int} < 0.05$ ) from that of Cluster 3 on a multiplicative scale

**Table S3.** Pearson correlations of indicators of air pollution exposure among CATHGEN participants: 2192 participants in CATHeterization GENetics study, Wake, Durham, and Orange counties, North Carolina, 2001-2010.

	PM <sub>2.5</sub> from satellite data	PM <sub>2.5</sub> from EPA monitors	Inverse log distance to A1 or A2 road
PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ )			
from satellite data	1.0	0.87	0.14
PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ )			
from EPA monitors		1.0	0.027
Inverse log distance to A1 or A2 road			1.0

**Table S4.** Indicators of air pollution by traffic exposure zone (TEZ) among CATHGEN participants: 2192 participants in CATHeterization GENetics study, Wake, Durham, and Orange counties, North Carolina, 2001-2010.

	<b>TEZ 1</b> <b>(n = 515)</b>	<b>TEZ 2</b> <b>(n = 780)</b>	<b>TEZ 3</b> <b>(n = 312)</b>	<b>TEZ 4</b> <b>(n = 543)</b>	<b>TEZ 5/6</b> <b>(n = 41)</b>
	<b>mean (SD)</b>				
PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ ) from satellite data	12.3 (1.1)	12.7 (1.1)	13.0 (1.0)	13.1 (1.1)	13.0 (1.3)
PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ ) from AQI monitors	13.1 (1.2)	13.1 (1.2)	13.2 (1.1)	13.2 (1.2)	13.2 (1.3)
Distance to A1 or A2 road (m)	1835.5 (1473.3)	1172.0 (819.8)	589.9 (526.5)	599.9 (526.5)	143.9 (252.2)

**Table S5.** Odds ratios (ORs) and 95% confidence intervals from logistic regression of eleven Census-level variables on cardiovascular disease and diabetes among CATHGEN participants (N = 2192).

Urban	Bachelor's degree or more	Owner-occupied housing	Income below poverty level	Public assistance income	Black	Other race	Unemployment	Non-managerial occupation	Single parent	Vacant housing
OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Coronary Artery Disease										
Unadjusted										
0.67 (0.49, 0.92)	<b>1.01</b> <b>(1.00, 1.01)</b>	1.01 (1.00, 1.01)	0.98 (0.97, 0.99)	0.95 (0.92, 0.98)	0.99 (0.99, 1.00)	0.98 (0.96, 1.00)	0.98 (0.96, 1.00)	0.99 (0.99, 1.00)	0.98 (0.97, 0.99)	<b>0.97</b> <b>(0.94, 0.99)</b>
Adjusted <sup>a</sup>										
0.69 (0.50, 0.96)	1.00 (1.00, 1.01)	1.00 (1.00, 1.01)	0.99 (0.98, 1.00)	0.98 (0.94, 1.01)	1.00 (0.99, 1.00)	0.98 (0.96, 1.00)	0.99 (0.97, 1.01)	1.00 (1.00, 1.00)	0.99 (0.98, 1.00)	0.97 (0.95, 1.00)
Myocardial Infarction										
Unadjusted										
0.81 (0.58, 1.12)	1.00 (0.99, 1.00)	1.00 (0.99, 1.00)	1.01 (1.00, 1.02)	1.01 (0.97, 1.04)	1.00 (1.00, 1.00)	1.01 (0.99, 1.03)	1.01 (0.99, 1.03)	1.00 (1.00, 1.01)	1.00 (0.99, 1.01)	1.00 (0.97, 1.03)

Adjusted <sup>a</sup>	0.85	1.00	1.00	1.01	1.02	1.00	1.01	1.01	1.00	1.01	1.00
	(0.61, 1.19)	(0.99, 1.00)	(0.99, 1.00)	(1.00, 1.02)	(0.98, 1.05)	(1.00, 1.01)	(0.99, 1.03)	(0.99, 1.03)	(1.00, 1.01)	(1.00, 1.02)	(0.97, 1.03)
<b>Hypertension</b>											
Unadjusted	<b>1.06</b>	0.99	0.99	<b>1.02</b>	1.08	1.01	1.00	1.05	<b>1.01</b>	1.03	1.03
	<b>(0.77, 1.46)</b>	(0.99, 1.00)	(0.99, 1.00)	<b>(1.01, 1.03)</b>	(1.04, 1.12)	(1.01, 1.02)	(0.98, 1.02)	(1.02, 1.08)	<b>(1.01, 1.02)</b>	(1.02, 1.04)	(1.01, 1.06)
Adjusted <sup>a</sup>	0.98	<b>0.99</b>	0.99	<b>1.01</b>	1.07	<b>1.01</b>	1.00	1.04	<b>1.01</b>	<b>1.03</b>	1.03
	(0.70, 1.37)	<b>(0.99, 1.00)</b>	(0.99, 1.00)	<b>(1.01, 1.03)</b>	(1.03, 1.11)	<b>(1.01, 1.02)</b>	(0.98, 1.02)	(1.02, 1.07)	<b>(1.01, 1.02)</b>	<b>(1.02, 1.04)</b>	(1.00, 1.06)
<b>Diabetes</b>											
Unadjusted	0.87	0.99	1.00	1.02	1.05	1.01	1.00	1.04	1.02	1.02	1.03
	(0.63, 1.21)	(0.98, 0.99)	(0.99, 1.00)	(1.01, 1.03)	(1.02, 1.08)	(1.01, 1.01)	(0.98, 1.02)	(1.02, 1.06)	(1.01, 1.02)	(1.01, 1.03)	(1.01, 1.06)
Adjusted <sup>a</sup>	0.87	0.99	1.00	1.02	1.04	1.01	1.00	1.04	1.01	1.02	1.03
	(0.62, 1.22)	(0.98, 0.99)	(0.99, 1.00)	(1.01, 1.03)	(1.00, 1.07)	(1.00, 1.01)	(0.98, 1.02)	(1.02, 1.05)	(1.01, 1.02)	(1.01, 1.03)	(1.00, 1.06)

<sup>a</sup> Adjusted for age, sex, body mass index, and smoking status

**Bold font** indicates statistically significant interactions ( $p_{int} < 0.05$ ) between Census-level variable and  $PM_{2.5}$