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Supplemental Material

Long-Term Exposure to Particulate Air Pollution, Black Carbon, and Their Source Components in Relation to Ischemic Heart Disease and Stroke

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Figure S10. City-specific and overall meta-analyses estimates for associations between same year average BC levels from traffic sources and incident stroke. Hazard ratios and 95% confidence intervals per $0.26 \ \mu g/m^3$ BC from traffic sources. I-V, inverse variance weighted fixed-effects meta-analyses. I-squared statistic is the percentage of variation attributable to heterogeneity. P-value for the chi-squared test of significance of hazard ratio of fixed-effect model. D+L, DerSimonian and Laird random-effects estimates.

	SDPP	SALT	60YO	SNAC-K	All four
Ν	7949	6884	4224	3257	22314
Years of enrollment	1992-1998	1998-2003	1997-1999	2001-2004	1992-2004
Age in 1990, years, median (range)	43 (29-52)	46 (31-92)	52 (51-63)	61 (46-91)	48 (29-92)
Female (%)	61	56	52	65	58
Married/living with partner (%)	83.1	65.6	71.6	43.1	69.7
Missing data	0.4	1.6	3.3	0.2	1.3
Smoking status (%)					
Current smoker	26.5	19.9	20.6	14.0	21.5
Former smoker	36.4	34.9	37.4	37.1	36.2
Never smoker	37.1	42.6	39.0	46.2	40.5
Missing data	0.1	2.6	3.0	2.7	1.8
Physical activity (%)					
Once a month or less / <1h/week	65.8	53.4	66.4	61.1	61.4
About once a week / ~1h/week	26.4	34.7	22.2	14.7	26.5
3 times a week or more / >2h/week	7.7	8.8	7.1	5.4	7.6
Missing data	0.1	3.1	4.3	18.9	4.6
Alcohol consumption (%)					
Daily	4	8 ^β	5	11^{γ}	6
Weekly	65	62 ^β	38	43	57
Seldom	27	25	44	35	30
Never	3	3	10	9	5
Missing	0.5	1.6	2.8	1.5	1.3
Occupation status (%)					
Gainfully employed	90.6	60.5	64.7	20.8	66.2
Unemployed / Not gainfully employed	6.5	2.2	14.0	0.8	5.8
Retired	2.6	36.8 ^δ	17.6	76.2	26.7
Missing data	0.4	0.5	3.8	2.3	1.3
Socio-economic index (%)					
Blue collar worker	28.1	26.6	28.8	19.9	26.5
Low and intermediate level white collar worker and self-employed	52.9	49.4	50.0	50.0	50.7
High-level white-collar worker (and self-employed professionals with academic degree)	16.3	17.6	17.6	26.2	18.3
Missing data Education (%)	2.7	6.3	5.0	3.7	4.4
Primary school or less	30.8	26.5	38.6	27.7	30.5
Up to secondary school or equivalent	37.3	35.1	31.1	39.2	35.7
University degree and more	29.2	35.2	26.6	32.4	31.1
Missing data	2.7	3.2	3.7	0.7	2.8
Body mass index kg/m ² , mean (SD)	25.7 (4.0)	24.5 (3.5)	26.8 (4.2)	25.6 (4.3)	25.5 (4.0)

Table S1. Descriptive data for four sub-cohorts included in Stockholm CEANS

^α Based on answers in categories

 $^{\beta}$ $\,$ Daily is 214 glasses/week and Weekly is 1-14 glasses/week

- ^Y Based on two sources, a food frequency questionnaire, used as the primary source, and a separate alcohol question where "Daily" is ≥4 times/week, the highest category of the alcohol question, for individuals lacking responses in the food frequency questionnaire (25% of participants).
- ^δ Everyone over 64 years is considered to be retired

Table S2 Pearson correlation coefficients between pollutants

Gothenburg PPS												
	Total PM ₁₀	Total PM _{2.5}	Total BC	Local PM ₁₀	Local PM _{2.5}	Local BC	PM ₁₀ wear	PM ₁₀ exhaust	PM ₁₀ residential heating	PM ₁₀ shipping	PM ₁₀ industry	BC traffic
Total PM ₁₀	1.00		_									
Total PM _{2.5}	0.73	1.00		_								
Total BC	0.56	0.55	1.00									
Local PM ₁₀	0.61	0.56	0.98	1.00		_						
Local PM _{2.5}	0.47	0.63	0.87	0.92	1.00							
Local BC	0.56	0.55	1.00	0.98	0.87	1.00)	_				
PM ₁₀ wear	0.64	0.42	0.94	0.93	0.72	0.94	1.00		_			
PM ₁₀ traffic exhaust	0.57	0.49	0.98	0.95	0.78	0.98	0.97	1.00		_		
PM ₁₀ residential heating	0.12	0.38	0.27	0.36	0.62	0.27	0.07	0.13	1.00		_	
PM ₁₀ shipping	0.31	0.29	0.49	0.50	0.48	0.49	0.44	0.44	0.07	1.00		_
PM ₁₀ industry	0.03	0.39	0.23	0.30	0.54	0.23	0.04	0.13	0.26	0.29	1.00	
BC traffic exhaust	0.56	0.47	0.98	0.93	0.75	0.98	0.97	0.99	0.09	0.44	0.10	1.00
BC residential heating	0.13	0.35	0.25	0.34	0.60	0.25	0.07	0.12	0.99	0.05	0.23	0.07

Gothenburg MONICA												
	Total PM ₁₀	Total PM _{2.5}	Total BC	Local PM ₁₀	Local PM _{2.5}	Local BC	PM ₁₀ wear	PM ₁₀ exhaust	PM ₁₀ residential heating	PM ₁₀ shipping	PM ₁₀ industry	BC traffic
Total PM ₁₀	1.00											
Total PM _{2.5}	0.70	1.00										
Total BC	0.54	0.56	1.00									
Local PM ₁₀	0.60	0.52	0.97	1.00								
Local PM _{2.5}	0.48	0.57	0.89	0.93	1.00							
Local BC	0.54	0.56	1.00	0.97	0.89	1.00						
PM ₁₀ wear	0.63	0.42	0.93	0.94	0.76	0.93	1.00					
PM ₁₀ traffic exhaust	0.55	0.51	0.98	0.94	0.80	0.98	0.96	1.00				
PM ₁₀ residential heating	0.17	0.32	0.29	0.39	0.66	0.29	0.12	0.14	1.00			
PM ₁₀ shipping	0.32	0.27	0.50	0.51	0.47	0.50	0.48	0.47	0.06	1.00		
PM ₁₀ industry	-0.01	0.33	0.31	0.33	0.51	0.31	0.14	0.24	0.25	0.30	1.00	
BC traffic exhaust	0.53	0.51	0.98	0.92	0.77	0.98	0.94	1.00	0.11	0.47	0.21	1.00
BC residential heating	0.17	0.28	0.26	0.37	0.62	0.26	0.10	0.11	0.9	9 0.04	0.21	0.08

Stockholm CEANS												
	Total PM ₁₀	Total PM _{2.5}	Total BC	Local PM ₁₀	Local PM _{2.5}	Local BC	PM ₁₀ wear	PM ₁₀ exhaust	PM ₁₀ residential heating	PM ₁₀ shipping	PM ₁₀ industry	BC traffic
Total PM ₁₀	1.00											
Total PM _{2.5}	0.83	1.00										
Total BC	0.91	0.69	1.00									
Local PM ₁₀	0.93	0.69	0.97	1.00								
Local PM _{2.5}	0.89	0.71	0.91	0.96	1.00		_					
Local BC	0.91	0.69	1.00	0.97	0.91	1.00)	_				
PM ₁₀ wear	0.92	0.65	0.96	0.99	0.90	0.96	5 1.00					
PM ₁₀ traffic exhaust	0.88	0.67	0.99	0.94	0.86	0.99	0.95	1.00		_		
PM ₁₀ residential heating	0.04	0.15	-0.04	0.07	0.33	-0.04	-0.09	-0.13	1.00			
PM ₁₀ shipping	0.43	0.30	0.50	0.47	0.46	0.50	0.46	0.48	-0.06	1.00		_
PM ₁₀ industry	0.44	0.51	0.41	0.42	0.49	0.41	0.36	0.36	0.23	0.34	1.00	
BC traffic exhaust	0.90	0.67	1.00	0.95	0.87	1.00	0.96	1.00	-0.13	0.49	0.38	1.00
BC residential heating	0.04	0.15	-0.04	0.07	0.33	-0.04	-0.09	-0.13	1.00	-0.06	0.23	-0.13

Umeå VIP												
	Total PM ₁₀	Total PM _{2.5}	Total BC	Local PM ₁₀	Local PM _{2.5}	Local BC	PM ₁₀ wear	PM ₁₀ exhaust	PM ₁₀ residential heating	PM ₁₀ shipping	PM ₁₀ industry	BC traffic
Total PM ₁₀	1.00											
Total PM _{2.5}	0.97	1.00										
Total BC	0.65	0.53	1.00									
Local PM ₁₀	0.52	0.47	0.83	1.00								
Local PM _{2.5}	0.49	0.53	0.69	0.93	1.00		_					
Local BC	0.60	0.58	0.84	0.97	0.95	1.00		_				
PM ₁₀ wear	0.48	0.30	0.91	0.68	0.45	0.60	1.00					
PM ₁₀ traffic exhaust	0.60	0.43	0.95	0.68	0.45	0.66	0.96	1.00		_		
PM ₁₀ residential heating	0.20	0.33	0.26	0.50	0.76	0.52	0.04	0.01	1.00		_	
PM ₁₀ shipping	0.01	0.08	-0.03	0.11	0.19	0.12	-0.05	-0.12	0.20	1.00		_
PM ₁₀ industry	0.23	0.30	0.06	0.28	0.34	0.27	0.02	-0.05	0.11	0.32	1.00	
BC traffic exhaust	0.59	0.42	0.95	0.66	0.43	0.65	0.94	1.00	0.00	-0.11	-0.05	1.00
BC residential heating	0.24	0.35	0.32	0.54	0.79	0.60	0.08	0.05	0.97	0.16	0.13	0.04

Pollutant	Outcome	IQR	Exposure	Model	Hazard	Lower	Upper
			period		Ratio	Bound	Bound
Total PM ₁₀	IHD	3.28	0 years	Main	1.006	0.966	1.048
				BMI adj	1.010	0.968	1.050
			1-5 years	Main	1.025	0.974	1.079
				BMI adj	1.026	0.974	1.081
			6-10 years	Main	0.986	0.929	1.047
				BMI adj	0.987	0.930	1.050
Total PM _{2.5}	IHD	1.94	0 years	Main	1.030	0.984	1.79
				BMI adj	1.033	0.986	1.081
			1-5 years	Main	1.065	0.997	1.138
				BMI adj	1.069	1.000	1.142
			6-10 years	Main	0.975	0.902	1.055
				BMI adj	0.981	0.907	1.061
Total BC	IHD	0.31	0 years	Main	1.002	0.973	1.032
				BMI adj	1.002	0.973	1.033
			1-5 years	Main	0.989	0.958	1.021
				BMI adj	0.990	0.959	1.023
			6-10 years	Main	1.004	0.971	1.039
				BMI adj	1.006	0.972	1.040
Local PM _{2.5}	IHD	1.12	0 years	Main	1.019	0.979	1.062
				BMI adj	1.021	0.980	1.064
			1-5 years	Main	1.003	0.958	1.049
				BMI adj	1.006	0.961	1.053
			6-10 years	Main	1.014	0.964	1.066
				BMI adj	1.019	0.968	1.072
PM ₁₀ traffic exhaust	IHD	0.23	0 years	Main	0.998	0.971	1.025
				BMI adj	0.997	0.970	1.025
			1-5 years	Main	0.987	0.958	1.016
				BMI adj	1.012	0.984	1.040
			6-10 years	Main	1.000	0.972	1.030
				BMI adj	1.000	0.972	1.029
PM ₁₀ residential heating	IHD	0.52	0 years	Main	1.055	1.010	1.102
				BMI adj	1.057	1.012	1.105
			1-5 years	Main	1.045	0.992	1.101
				BMI adj	1.011	0.957	1.068
			6-10 years	Main	1.025	0.964	1.091
				BMI adj	1.033	0.970	1.101

Table S3. Associations between long-term air pollution and incident ischemic heart disease (IHD) per interquartile range increase (IQR): Comparing estimates between main models and sensitivity analyses adjusted for BMI and BMI²

Table S4. Associations between long-term air pollution and incident stroke per interquartile range increase (IQR): Comparing estimates between main models and sensitivity analyses adjusted for BMI and BMI²

Pollutant	Outcome	IQR	Exposure	Model	Hazard	Lower	Upper
Total DNA	Stroko	2 20	0 voors	Main	1 009		1.062
I OLDI PIVI ₁₀	Stroke	3.28	0 years	IVIdIII BMI adi	1.008	0.957	1.062
			1-5 years	Main	1.010	0.958	1.004
			1-5 years	BMI adi	1.020	0.962	1.095
			6-10 years	Main	1 010	0.941	1 084
			o io years	BMI adi	1 013	0.945	1.088
Total PMar	Stroke	1 94	0 years	Main	1 006	0.948	1.067
10tur 1112.5	otroke	1.5 .	o years	BMI adi	1.008	0.950	1.069
			1-5 years	Main	1.030	0.947	1.120
				BMI adj	1.037	0.954	1.130
			6-10 years	Main	1.016	0.924	1.117
				BMI adj	1.018	0.924	1.118
Total BC	Stroke	0.31	0 years	Main	1.041	1.004	1.080
				BMI adj	1.044	1.006	1.083
			1-5 years	Main	1.032	0.994	1.071
				BMI adj	1.035	0.997	1.075
			6-10 years	Main	1.027	0.987	1.068
				BMI adj	1.029	0.989	1.070
Local BC	Stroke	0.3	0 years	Main	1.040	1.004	1.078
				BMI adj	1.042	1.006	1.080
			1-5 years	Main	1.031	0.994	1.069
				BMI adj	1.034	0.997	1.073
			6-10 years	Main	1.026	0.988	1.066
				BMI adj	1.028	0.990	1.067
BC traffic exhaust	Stroke	0.26	0 years	Main	1.044	1.011	1.078
				BMI adj	1.009	1.002	1.015
			1-5 years	Main	1.035	1.002	1.070
			6.40	BIVII adj	1.007	1.001	1.014
			6-10 years		1.027	0.992	1.063
DC as side atial basting	Chuelue	0.05	0	Bivii adj	1.005	0.999	1.012
BC residential heating	Stroke	0.05	0 years	IVIAIN DNALodi	0.995	0.945	1.047
			1 E voarc	Bivii auj	0.976	0.750	1.271
			T-2 And 2	BMLadi	0.995	0.955	1 221
			6-10 years	Main	0.900	0.926	1.521
			0-10 years	BMI adi	0.990	0.920	1 /0/2
				bivii auj	0.907	0.000	1.404

Table S5. Associations between long-term air pollution and incident ischemic heart disease (IHD) per
interquartile range increase (IQR): Comparing estimates between main models and sensitivity analyses
excluding the PPS cohort

Pollutant	Outcome	IQR	Exposure period	Model	Hazard Ratio	Lower Bound	Upper Bound
Total PM ₁₀	IHD	3.28	0 years	Main	1.006	0.966	1.048
				No PPS	0.990	0.933	1.053
			1-5 years	Main	1.025	0.974	1.079
				No PPS	0.990	0.927	1.060
			6-10 years	Main	0.986	0.929	1.047
				No PPS	1.010	0.942	1.084
Total PM _{2.5}	IHD	1.94	0 years	Main	1.030	0.984	1.79
				No PPS	1.045	0.973	1.120
			1-5 years	Main	1.065	0.997	1.138
				No PPS	1.008	0.920	1.105
			6-10 years	Main	0.975	0.902	1.055
				No PPS	1.018	0.922	1.122
Total BC	IHD	0.31	0 years	Main	1.002	0.973	1.032
				No PPS	0.990	0.948	1.035
			1-5 years	Main	0.989	0.958	1.021
				No PPS	0.994	0.954	1.037
			6-10 years	Main	1.004	0.971	1.039
				No PPS	1.002	0.963	1.043
Local PM _{2.5}	IHD	1.12	0 years	Main	1.019	0.979	1.062
				No PPS	1.009	0.952	1.067
			1-5 years	Main	1.003	0.958	1.049
				No PPS	1.010	0.952	1.072
			6-10 years	Main	1.014	0.964	1.066
				No PPS	1.017	0.956	1.080
PM ₁₀ traffic exhaust	IHD	0.23	0 years	Main	0.998	0.971	1.025
				No PPS	0.987	0.946	1.030
			1-5 years	Main	0.987	0.958	1.016
				No PPS	0.992	0.954	1.032
			6-10 years	Main	1.000	0.972	1.030
				No PPS	0.997	0.964	1.032
PM ₁₀ residential heating	IHD	0.52	0 years	Main	1.055	1.010	1.102
				No PPS	1.045	0.987	1.106
			1-5 years	Main	1.045	0.992	1.101
				No PPS	1.038	0.973	1.108
			6-10 years	Main	1.025	0.964	1.091
				No PPS	1.038	0.966	1.117

Table S6. Associations between long-term air pollution and incident stroke per interquartile range increase (IQR): Comparing estimates between main models and sensitivity analyses excluding the PPS cohort

Pollutant	Outcome	IQR	Exposure period	Model	Hazard Ratio	Lower Bound	Upper Bound
Total PM ₁₀	Stroke	3.28	0 years	Main	1.008	0.957	1.062
				No PPS	1.053	0.977	1.137
			1-5 years	Main	1.026	0.962	1.093
				No PPS	1.026	0.942	1.116
			6-10 years	Main	1.010	0.941	1.084
				No PPS	1.040	0.958	1.130
Total PM _{2.5}	Stroke	1.94	0 years	Main	1.006	0.948	1.067
				No PPS	1.063	0.971	1.165
			1-5 years	Main	1.030	0.947	1.120
				No PPS	1.035	0.918	1.165
			6-10 years	Main	1.016	0.924	1.117
				No PPS	1.075	0.952	1.212
Total BC	Stroke	0.31	0 years	Main	1.041	1.004	1.080
				No PPS	1.052	0.998	1.109
			1-5 years	Main	1.032	0.994	1.071
				No PPS	1.035	0.986	1.087
			6-10 years	Main	1.027	0.987	1.068
				No PPS	1.033	0.986	1.081
Local BC	Stroke	0.3	0 years	Main	1.040	1.004	1.078
				No PPS	1.050	0.998	1.105
			1-5 years	Main	1.031	0.994	1.069
				No PPS	1.034	0.986	1.084
			6-10 years	Main	1.026	0.988	1.066
				No PPS	1.032	0.987	1.078
BC traffic exhaust	Stroke	0.26	0 years	Main	1.044	1.011	1.078
				No PPS	1.052	1.005	1.101
			1-5 years	Main	1.035	1.002	1.070
				No PPS	1.035	0.992	1.080
			6-10 yrs	Main	1.027	0.992	1.063
				No PPS	1.032	0.993	1.074
BC residential heating	Stroke	0.05	0 years	Main	0.995	0.945	1.047
				No PPS	1.019	0.952	1.089
			1-5 years	Main	0.993	0.935	1.055
				No PPS	1.028	0.953	1.109
			6-10 years	Main	0.996	0.926	1.072
				No PPS	0.983	0.900	1.073

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Characteristic	Level of characteristic	Hazard	95% CI	P-value for
		ratio		interaction ^a
Sex	Women	1.18	0.79, 1.77	
	Men	1.21	0.99, 1.47	0.93
Smoking status	Never smoker	1.24	0.96, 1.62	
	Ever smoker	1.11	0.96, 1.28	0.45
Educational level ^b	University degree or more	1.17	0.93, 1.49	
	Up to secondary school or	1.04	0.80, 1.35	0.50
	equivalent			
Body mass index	≤25 kg/m ²	1.08	0.91, 1.27	
	25-30 kg/m ²	1.20	1.01, 1.43	0.67 ^c
	≥30 kg/m ²	1.30	0.94, 1.81	0.30 ^c

Table S7. Associations between same year exposure to BC and incident stroke by level of potential effect	:t
modifiers	

a. Cohort analyses including terms for main effect of effect modifier, main effect of BC and their product was first calculated to derive stratum specific results per cohort. These were then meta-analyzed to arrive at hazard ratios and confidence intervals per level of characteristic. The p-value for interaction was calculated by taking the difference in betas across level of characteristic and dividing it by the square root of the sum of squared standard errors for each level. This gave us a normal standard that was checked against percentiles to arrive at the p-value.

b. Does not include Gothenburg PPS cohort for which variable was unavailable.

c. Compared to $\leq 25 \text{ kg/m}^2$



Figure S1 Local source contributions to residential PM_{10} levels by study



Figure S2 Local source contributions to residential BC levels by study

Total PM₁₀ Exposure and incident IHD

Cohort and Exposure Time-window	HR	(95% CI)	Weight, %
Year 0			
Gothenburg PPS	1.02	(0.96, 1.08)	52.8
Gothenburg MONICA	0.95	(0.86, 1.06)	14.4
CEANS	1.03	(0.94, 1.12)	23.3
Umeå VIP Herei VIP	0.97	(0.84, 1.10)	9.5
Fixed effects meta-analysisª	1.01	(0.97, 1.05)	100.0
Random effects meta-analysis	1.01	(0.97, 1.05)	
1-5 years			
Gothenburg PPS	1.07	(0.99, 1.16)	42.1
Gothenburg MONICA	0.97	(0.85, 1.11)	14.1
CEANS Here	1.01	(0.92, 1.10)	33.0
Umeå VIP	0.97	(0.83, 1.13)	10.7
Fixed effects meta-analysis ^b	1.03	(0.97, 1.08)	100.0
Random effects meta-analysis	1.03	(0.97, 1.08)	·
6-10 years			
Gothenburg PPS	0.92	(0.83, 1.04)	27.5
Gothenburg MONICA	1.03	(0.89, 1.20)	16.6
CEANS H	0.98	(0.89, 1.07)	43.8
Umeå VIP	1.10	(0.93, 1.31)	12.1
Fixed effects meta-analysis ^c	0.99	(0.93, 1.05)	100.0
Random effects meta-analysis	0.99	(0.93, 1.05)	
	Г		
0.8 1 1.2 1	.6		

Figure S3. City-specific and overall meta-analyses estimates for associations between same year, 1-5 year, and 6-10 year average of total PM_{10} exposure and incident ischemic heart disease. Hazard ratios and 95% confidence intervals per 3.28 µg/m³ PM_{10} . Fixed effects meta-analyses used inverse variance weighted estimates. Random effects meta-analyses used a DerSimonian and Laird methodology. I-squared statistics and p-value for the chi-squared test of significance of the hazard ratio for the fixed effect models for each time-window were as follows: ^a 0.0%, p=0.606, ^b 0.0%, p=0.458, ^c 6.6%, p=0.360. I-squared statistic is the percentage of variation attributable to heterogeneity.

Total PM_{2.5} Exposure and Incident IHD

Cohort and Exposure Time-window	HR	(95% CI)	Weight, %
Year 0			
Gothenburg PPS	1.02	(0.96, 1.08)	56.4
Gothenburg MONICA	0.96	(0.86, 1.07)	16.6
CEANS -	1.12	(1.01, 1.24)	19.7
Umeå VIP	1.06	(0.89, 1.26)	7.3
Fixed effects meta-analysis ^a	1.03	(0.97, 1.09)	100.0
Random effects meta-analysis	1.03	(0.98, 1.08)	•
1-5 years			
Gothenburg PPS	1.13	(1.03, 1.25)	47.2
Gothenburg MONICA	0.97	(0.83, 1.13)	17.9
CEANS -	1.03	(0.90, 1.18)	24.2
Umeå VIP	1.02	(0.84, 1.25)	10.7
Fixed effects meta-analysis ^b	1.06	(0.99, 1.14)	100.0
Random effects meta-analysis	1.07	(1.00, 1.14)	
6-10 years			
Gothenburg PPS	0.90	(0.79, 1.03)	35.0
Gothenburg MONICA	1.08	(0.91, 1.28)	20.9
CEANS H	0.93	(0.82, 1.07)	33.2
Umeå VIP	1.18	(0.93, 1.50)	10.9
Fixed effects meta-analysis ^c	0.99	(0.89, 1.11)	100.0
Random effects meta-analysis	0.98	(0.90, 1.05)	•
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0.8 1 1.2 1	6		

Figure S4. City-specific and overall meta-analyses estimates for associations between same year, 1-5 year, and 6-10 year average of total $PM_{2.5}$ exposure and incident ischemic heart disease. Hazard ratios and 95% confidence intervals per 1.94 µg/m³ $PM_{2.5}$. Fixed effects meta-analyses used inverse variance weighted estimates. Random effects meta-analyses used a DerSimonian and Laird methodology. I-squared statistics and p-value for the chi-squared test of significance of the hazard ratio for the fixed effect models for each time-window were as follows: ^a 27.4%, p=0.247, ^b 11.5%, p=0.335, ^c 45.1%, p=0.141. I-squared statistic is the percentage of variation attributable to heterogeneity.

Total BC Exposure and Incident IHD

Cohort and Exposure Time-window	HR (95% CI) Weight,	, %
Year 0		
Gothenburg PPS	1.01 (0.97, 1.05) 53.8	
Gothenburg MONICA	1.00 (0.91, 1.09) 12.0	
CEANS	1.01 (0.95, 1.08) 23.2	
Umeå VIP Het H	0.94 (0.86, 1.03) 10.9	
Fixed effects meta-analysis ^a	1.00 (0.97, 1.03) 100.0	0
Random effects meta-analysis	1.00 (0.97, 1.03)	
1-5 years		
Gothenburg PPS	0.98 (0.93, 1.03) 41.0	
Gothenburg MONICA	1.01 (0.92, 1.10) 13.7	
CEANS H	1.00 (0.95, 1.06) 32.0	
Umeå VIP	0.96 (0.88, 1.05) 13.2	
Fixed effects meta-analysis ^b	0.99 (0.96, 1.02) 100.0	С
Random effects meta-analysis	0.99 (0.96, 1.02) .	
6-10 years		
Gothenburg PPS	1.01 (0.95, 1.08) 27.6	
Gothenburg MONICA	0.98 (0.89, 1.07) 13.9	
CEANS H	0.99 (0.94, 1.05) 42.7	
Umeå VIP	1.05 (0.96, 1.14) 15.8	
Fixed effects meta-analysis 🛛 🔶	1.00 (0.97, 1.04) 100.0	С
Random effects meta-analysis	1.00 (0.97, 1.04) .	
0.8 1 1.2	1.6	

Figure S5. City-specific and overall meta-analyses estimates for associations between same year, 1-5 year, and 6-10 year average of total BC exposure and incident ischemic heart disease. Hazard ratios and 95% confidence intervals per $0.31 \mu g/m^3$ BC. Fixed effects meta-analyses used inverse variance weighted estimates. Random effects meta-analyses used a DerSimonian and Laird methodology. I-squared statistics and p-value for the chi-squared test of significance of the hazard ratio for the fixed effect models for each time-window were as follows: ^a 0.0%, p=0.530, ^b 0.0%, p=0.866, ^c 0.0%, p=0.722. I-squared statistic is the percentage of variation attributable to heterogeneity.

Same Year Exposure to PM from Residential Heating and Incident IHD

Figure S6. City-specific and overall meta-analyses estimates for associations between same year average $PM_{2.5}$ levels from residential heating sources and incident ischemic heart disease. Hazard ratios and 95% confidence intervals per 0.52 µg/m³ PM_{2.5} from residential heating sources. I-V, inverse variance weighted fixed-effects meta-analyses. I-squared statistic is the percentage of variation attributable to heterogeneity. P-value for the chi-squared test of significance of hazard ratio of fixed-effect model. D+L, DerSimonian and Laird random-effects estimates.

Total PM₁₀ Exposure and Incident Stroke

Cohort and Exposure Time-window	HR (95% CI) Weight, %
Year 0	
Gothenburg PPS	0.97 (0.90, 1.04) 52.8
Gothenburg MONICA	1.13 (0.98, 1.29) 14.6
CEANS	1.02 (0.92, 1.13) 26.0
Umeå VIP	1.02 (0.83, 1.25) 6.6
Fixed effects meta-analysis ^a	1.01 (0.95, 1.08) 100.0
Random effects meta-analysis	1.01 (0.96, 1.06)
1-5 years	
Gothenburg PPS	1.02 (0.93, 1.13) 42.7
Gothenburg MONICA	1.14 (0.96, 1.35) 14.2
CEANS Het	0.98 (0.88, 1.09) 35.6
Umeå VIP H	1.05 (0.83, 1.32) 7.5
Fixed effects meta-analysis ^b	1.03 (0.96, 1.09) 100.0
Random effects meta-analysis	1.03 (0.96, 1.09)
6-10 years	
Gothenburg PPS	0.94 (0.82, 1.07) 27.5
Gothenburg MONICA	1.10 (0.91, 1.32) 15.1
CEANS	1.02 (0.92, 1.12) 49.3
Umeå VIP Henne H	1.07 (0.84, 1.37) 8.2
Fixed effects meta-analysis ^c	1.01 (0.94, 1.08) 100.0
Random effects meta-analysis	1.01 (0.94, 1.08)
	16
U.O I I.Z	1.0

Figure S7. City-specific and overall meta-analyses estimates for associations between same year, 1-5 year, and 6-10 year average of total PM_{10} exposure and incident stroke. Hazard ratios and 95% confidence intervals per 3.28 µg/m³ PM_{10} . Fixed effects meta-analyses used inverse variance weighted estimates. Random effects meta-analyses used a DerSimonian and Laird methodology. I-squared statistics and p-value for the chi-squared test of significance of the hazard ratio for the fixed effect models for each time-window were as follows: ^a 21.5%, p=0.281, ^b 0.0%, p=0.540, ^c 0.0%, p=0.533. I-squared statistic is the percentage of variation attributable to heterogeneity.

Total PM_{2.5} Exposure and Incident Stroke

Figure S8. City-specific and overall meta-analyses estimates for associations between same year, 1-5 year, and 6-10 year average of total $PM_{2.5}$ exposure and incident stroke. Hazard ratios and 95% confidence intervals per 1.94 µg/m³ PM_{2.5}. Fixed effects meta-analyses used inverse variance weighted estimates. Random effects meta-analyses used a DerSimonian and Laird methodology. I-squared statistics and p-value for the chi-squared test of significance of the hazard ratio for the fixed effect models for each time-window were as follows: ^a 28.5%, p=0.241, ^b 0.0%, p=0.518, ^c 0.0%, p=0.476. I-squared statistic is the percentage of variation attributable to heterogeneity.

Total BC Exposure and Incident Stroke

Cohort and Exposure Time-window			HR	(95% CI)	Weight, %
Year 0				<i></i>	
Gothenburg PPS	H		1.03	8 (0.98, 1.09)	51.8
Gothenburg MONICA		●	1.11	(1.00, 1.23)	11.9
CEANS		4	1.04	(0.96, 1.12)	24.9
Umeå VIP ⊢		-1	1.03	8 (0.92, 1.14)	11.4
Fixed effects meta-analysis ^a	\Diamond		1.04	(1.00, 1.08)	100.0
Random effects meta-analysis	\diamond		1.04	(1.00, 1.08)) .
1-5 years					
Gothenburg PPS	⊢∳⊣		1.03	8 (0.97, 1.09)	41.8
Gothenburg MONICA	⊢	—	1.07	' (0.96, 1.19)	12.6
CEANS	⊢∳⊣		1.02	2 (0.95, 1.09)	32.3
Umeå VIP	⊢┼┢╸		1.05	5 (0.94, 1.16)	13.3
Fixed effects meta-analysis ^b	\diamond		1.03	8 (0.99, 1.07)	100.0
Random effects meta-analysis	\Diamond		1.03	8 (0.99, 1.07)).
6-10 years					
Gothenburg PPS			1.01	(0.94, 1.09)	26.8
Gothenburg MONICA	⊢┼┼●	—	1.08	8 (0.97, 1.20)	14.3
CEANS	⊢∳⊣		1.01	(0.96, 1.08)	45.9
Umeå VIP		—	1.04	(0.94, 1.16)	13.0
Fixed effects meta-analysis ^c	\diamond		1.03	8 (0.99, 1.07)	100.0
Random effects meta-analysis	\Rightarrow		1.03	8 (0.99, 1.07)	
Г	- <u> </u>				
0.8	1	1.2	1.6		

Figure S9. City-specific and overall meta-analyses estimates for associations between same year, 1-5 year, and 6-10 year average of total BC exposure and incident stroke. Hazard ratios and 95% confidence intervals per $0.31 \,\mu\text{g/m}^3$ BC. Fixed effects meta-analyses used inverse variance weighted estimates. Random effects meta-analyses used a DerSimonian and Laird methodology. I-squared statistics and p-value for the chi-squared test of significance of the hazard ratio for the fixed effect models for each time-window were as follows: ^a 0.0%, p=0.663, ^b 0.0%. p=0.847, ^c 0.0%, p=0.716. I-squared statistic is the percentage of variation attributable to heterogeneity.

Same Year Exposure to BC from Traffic Exhaust and Incident Stroke

Figure S10. City-specific and overall meta-analyses estimates for associations between same year average BC levels from traffic sources and incident stroke. Hazard ratios and 95% confidence intervals per $0.26 \,\mu\text{g/m}^3$ BC from traffic sources. I-V, inverse variance weighted fixed-effects meta-analyses. I-squared statistic is the percentage of variation attributable to heterogeneity. P-value for the chi-squared test of significance of hazard ratio of fixed-effect model. D+L, DerSimonian and Laird random-effects estimates.