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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 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 $\mu g/m^3$ $PM_{2.5}$. 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.

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 $\mu g/m^3$ 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.

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.

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

	SDPP	SALT	60YO	SNAC-K	All four
N	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	2.7	6.3	5.0	3.7	4.4
Education (%)					
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)

[α] Based on answers in categories

[β] Daily is ≥14 glasses/week and Weekly is 1-14 glasses/week [γ] 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	0.99	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	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

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 BMI^2

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
				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 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 period	Model	Hazard Ratio	Lower Bound	Upper Bound
Total PM_{10}	Stroke	3.28	0 years	Main	1.008	0.957	1.062
				BMI adj	1.010	0.958	1.064
			1-5 years	Main	1.026	0.962	1.093
				BMI adj	1.030	0.968	1.098
			6-10 years	Main	1.010	0.941	1.084
				BMI adj	1.013	0.945	1.088
Total $PM_{2.5}$	Stroke	1.94	0 years	Main	1.006	0.948	1.067
				BMI adj	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
				BMI adj	1.007	1.001	1.014
			6-10 years	Main	1.027	0.992	1.063
				BMI adj	1.005	0.999	1.012
BC residential heating	Stroke	0.05	0 years	Main	0.995	0.945	1.047
				BMI adj	0.976	0.750	1.271
			1-5 years	Main	0.993	0.935	1.055
				BMI adj	0.968	0.710	1.321
			6-10 years	Main	0.996	0.926	1.072
				BMI adj	0.967	0.666	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

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

Characteristic	Level of characteristic	Hazard ratio	95% CI	P-value for 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 equivalent	1.04	0.80, 1.35	0.50
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]

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 ≤25 kg/m^2

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

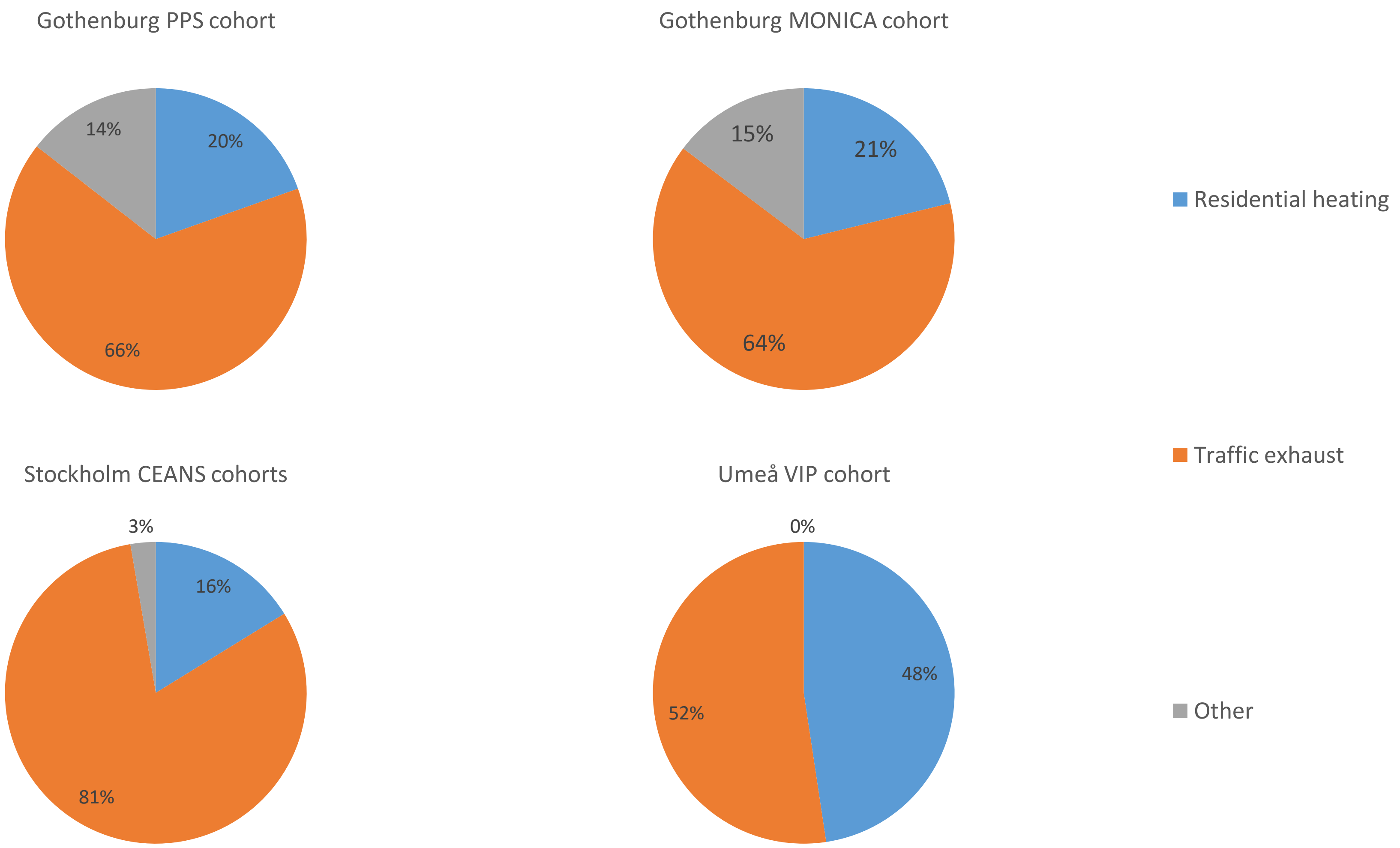

Figure S2 Local source contributions to residential BC levels by study

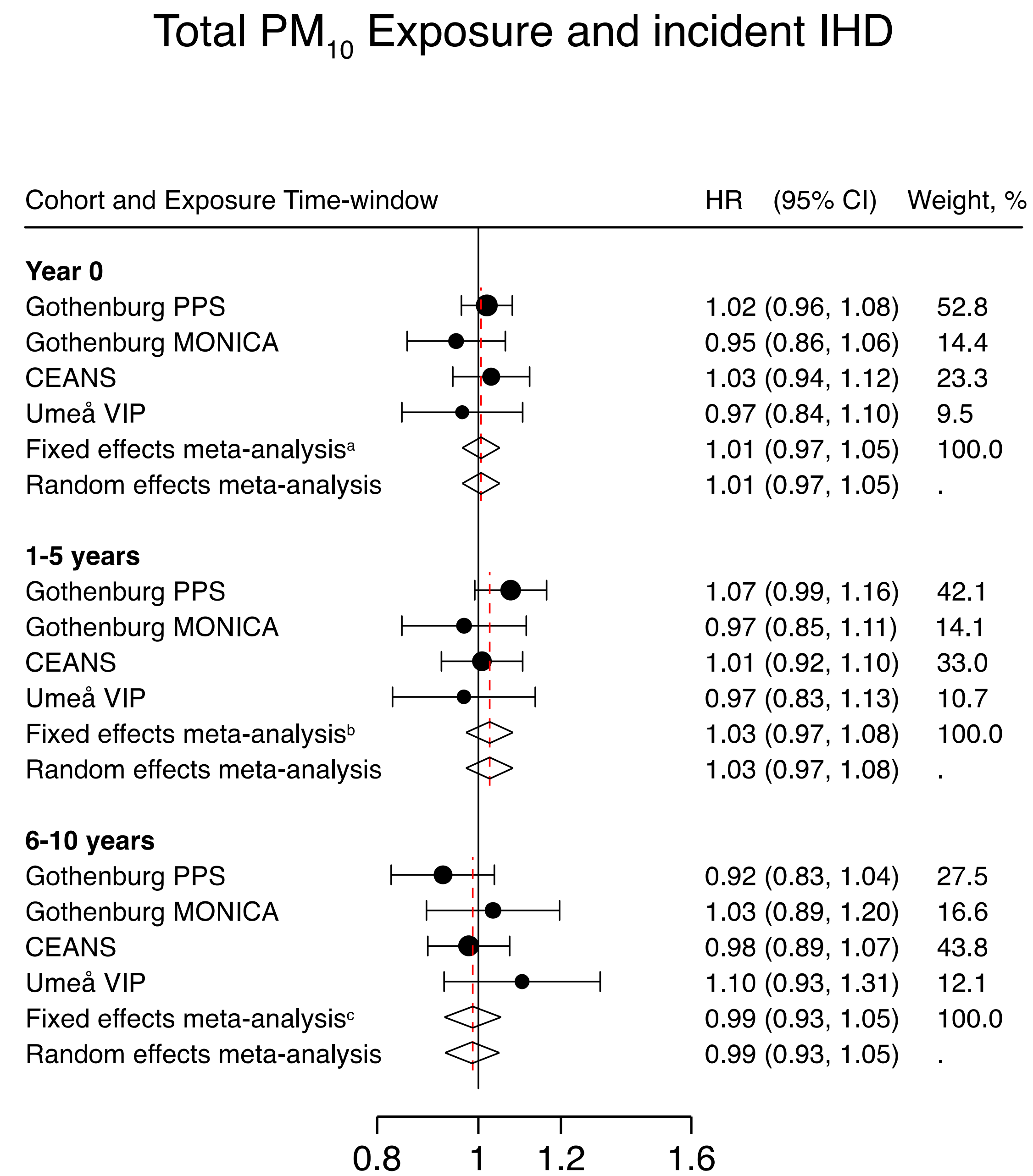

Figure S3. City-specific and overall meta-analyses estimates for associations between same year, 1-5 year, and 6-10 year average of total PM_{10} exposure and incident ischemic heart disease. Hazard ratios and 95% confidence intervals per 3.28 $\mu g/m^3$ PM_{10}. Fixed effects meta-analyses used inverse 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.

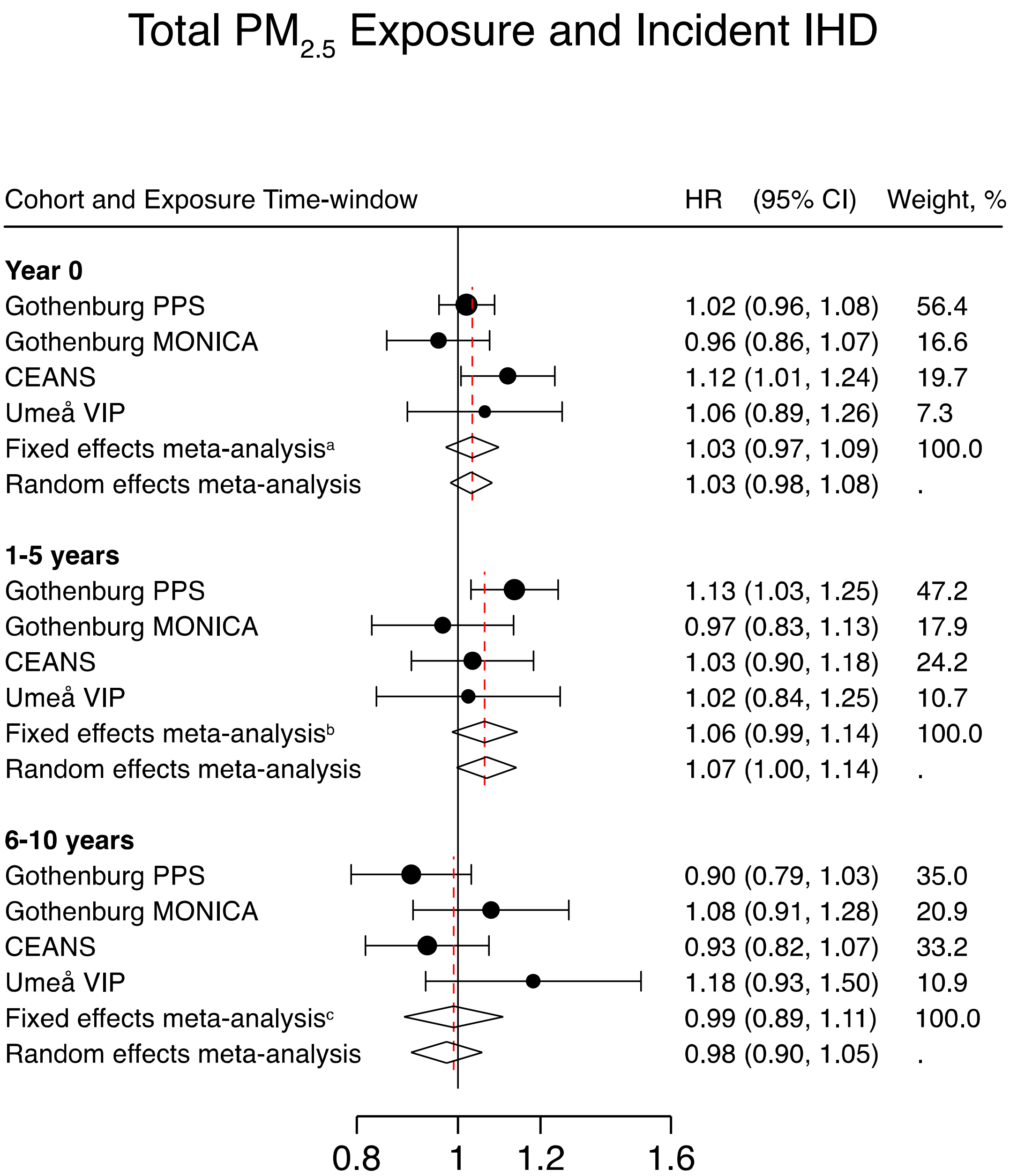

Figure S4. City-specific and overall meta-analyses estimates for associations between same year, 1-5 year, and 6-10 year average of total $PM_{2.5}$ exposure and incident ischemic heart disease. Hazard ratios and 95% confidence intervals per 1.94 µg/m^3 $PM_{2.5}$. Fixed effects meta-analyses used inverse 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.

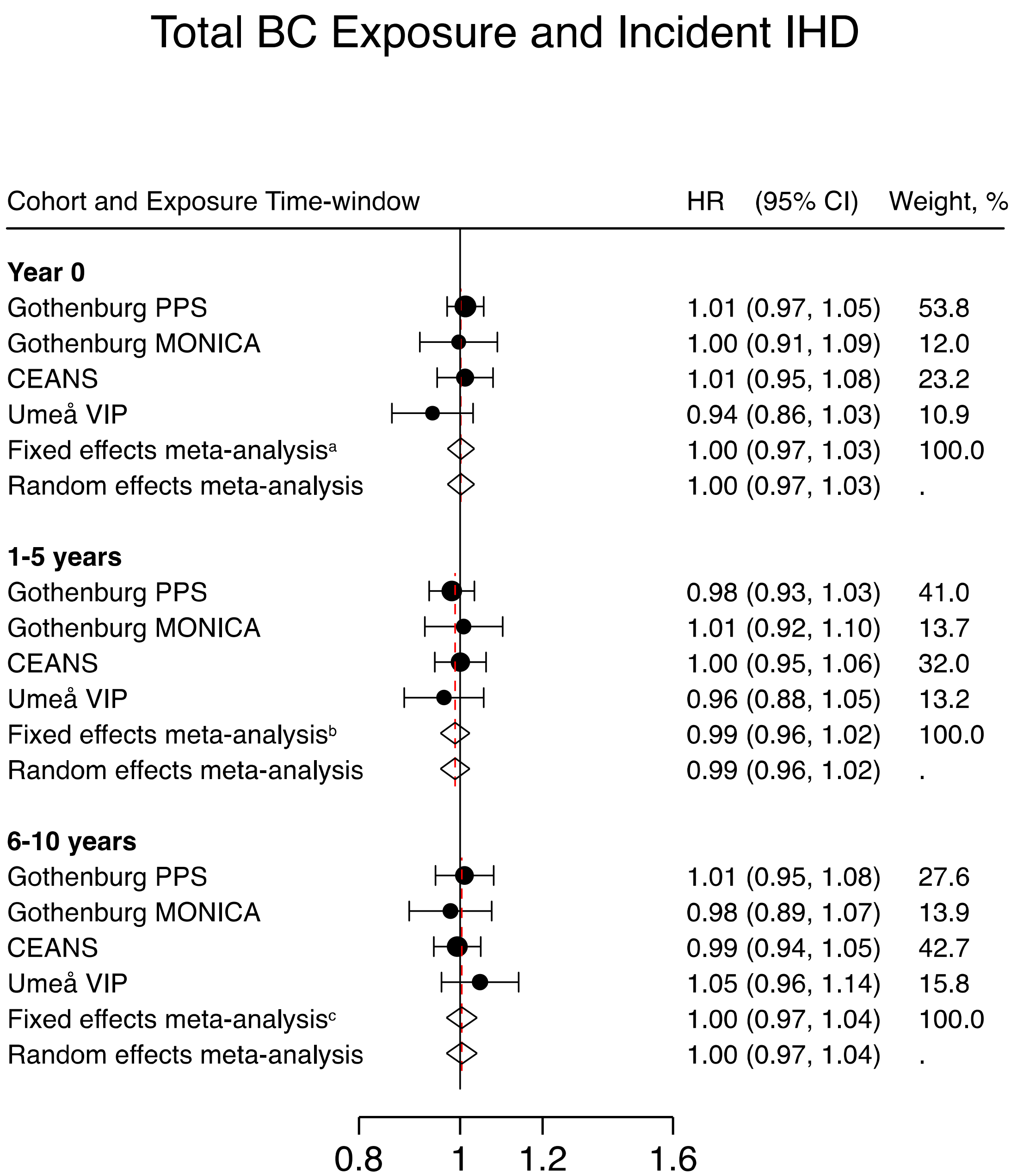

Figure S5. City-specific and overall meta-analyses estimates for associations between same year, 1-5 year, and 6-10 year average of total BC exposure and incident ischemic heart disease. Hazard ratios and 95% confidence intervals per 0.31 μg/m^3 BC. Fixed effects meta-analyses used inverse variance weighted 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.

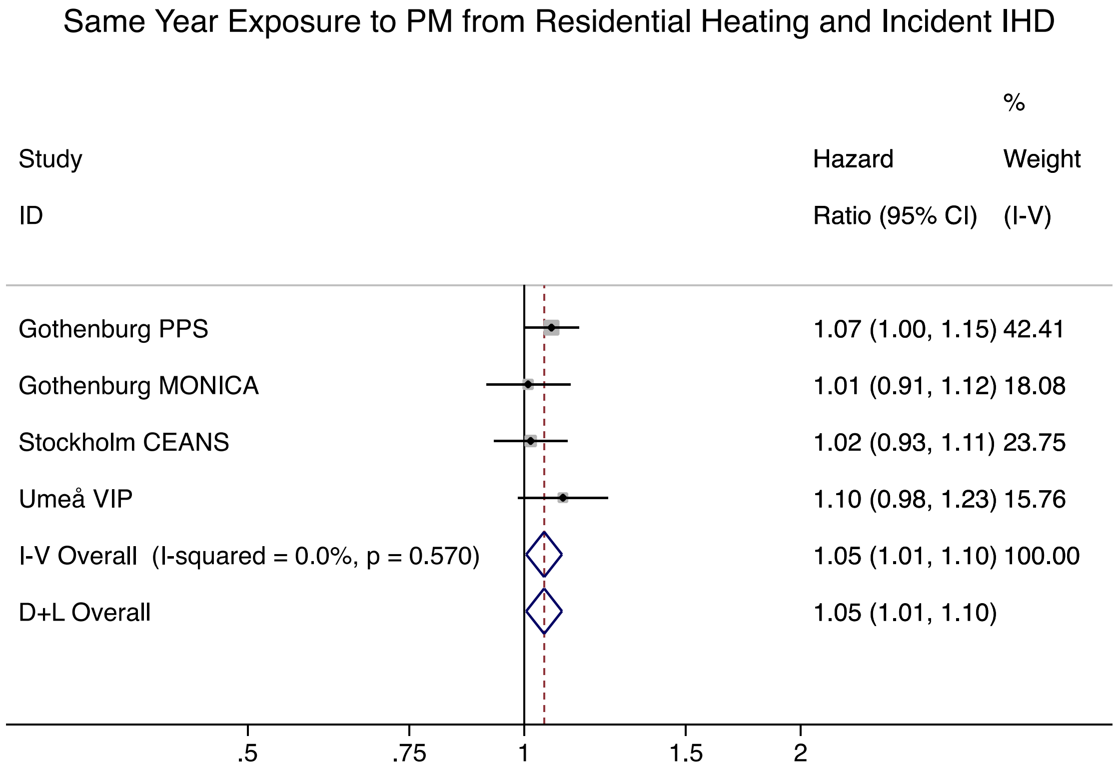

Figure S6. City-specific and overall meta-analyses estimates for associations between same year average $PM_{2.5}$ levels from residential heating sources and incident ischemic heart disease. Hazard ratios and 95% confidence intervals per 0.52 μg/m^3 $PM_{2.5}$ from residential heating sources. I-V, 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.

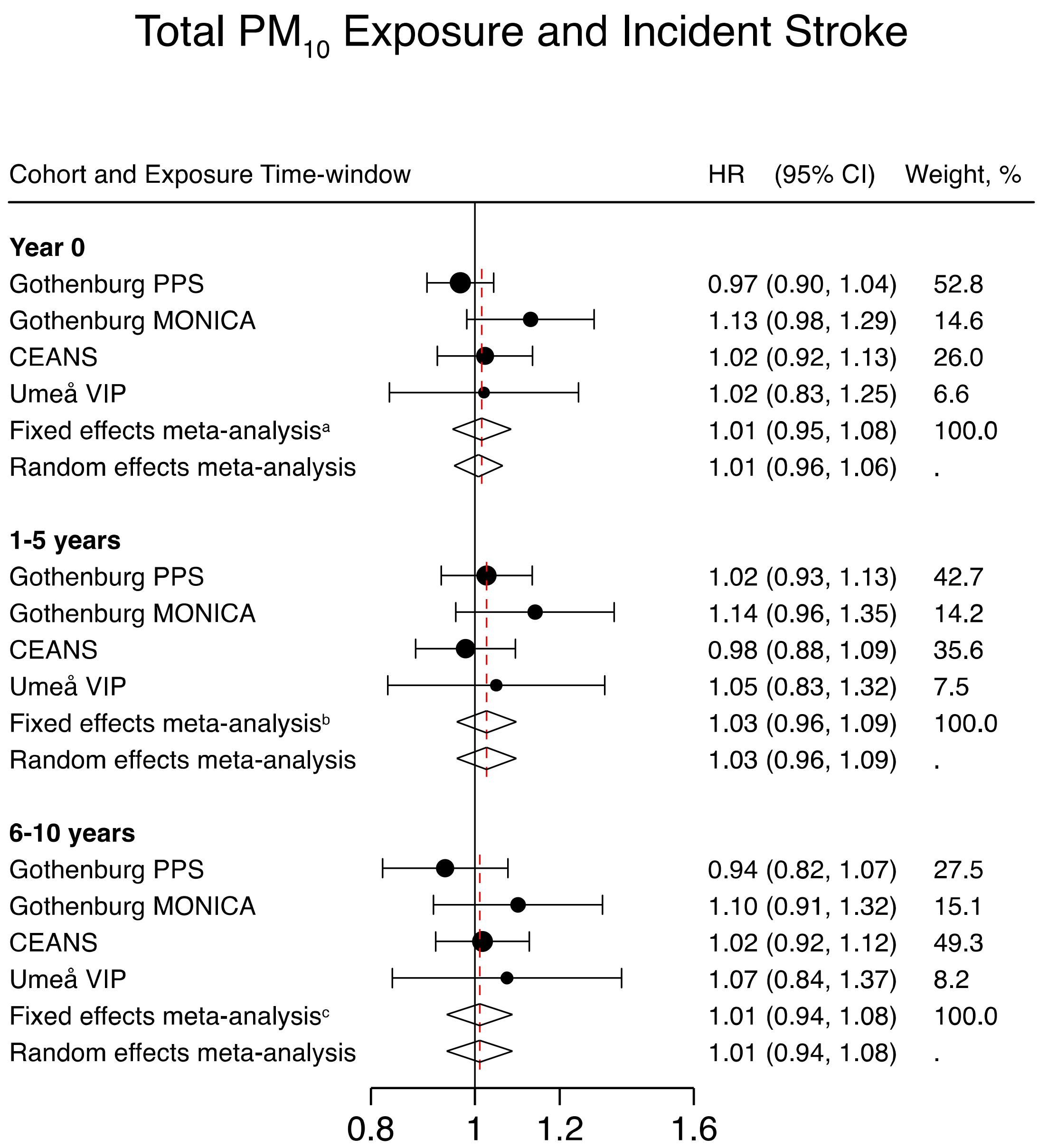

Figure S7. City-specific and overall meta-analyses estimates for associations between same year, 1-5 year, and 6-10 year average of total PM_{10} exposure and incident stroke. Hazard ratios and 95% confidence intervals per 3.28 μg/m^3 PM_{10}. Fixed effects meta-analyses used inverse variance weighted 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.

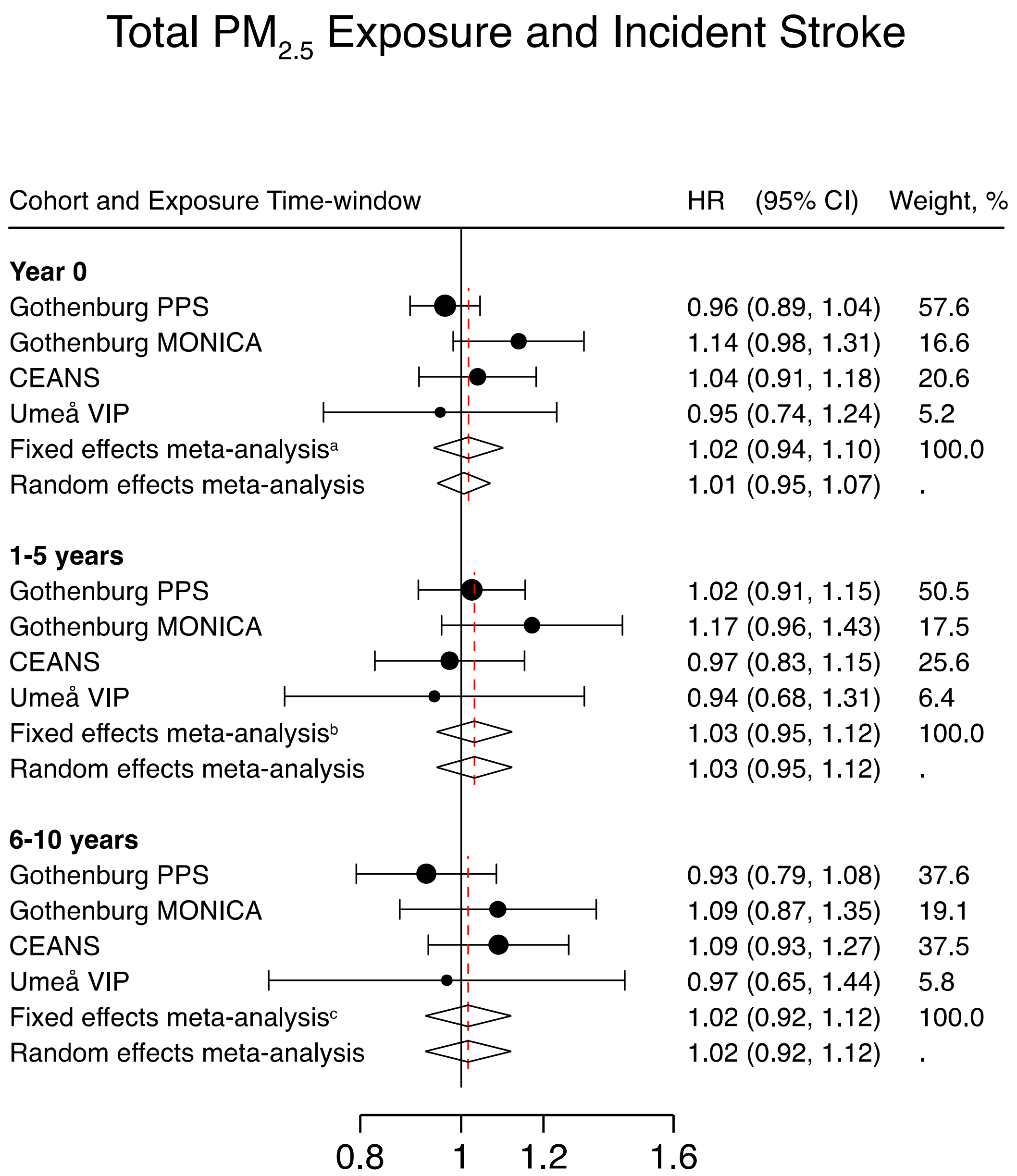

Figure S8. City-specific and overall meta-analyses estimates for associations between same year, 1-5 year, and 6-10 year average of total $PM_{2.5}$ exposure and incident stroke. Hazard ratios and 95% confidence intervals per 1.94 $\mu g/m^3$ $PM_{2.5}$. Fixed effects meta-analyses used inverse variance 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.

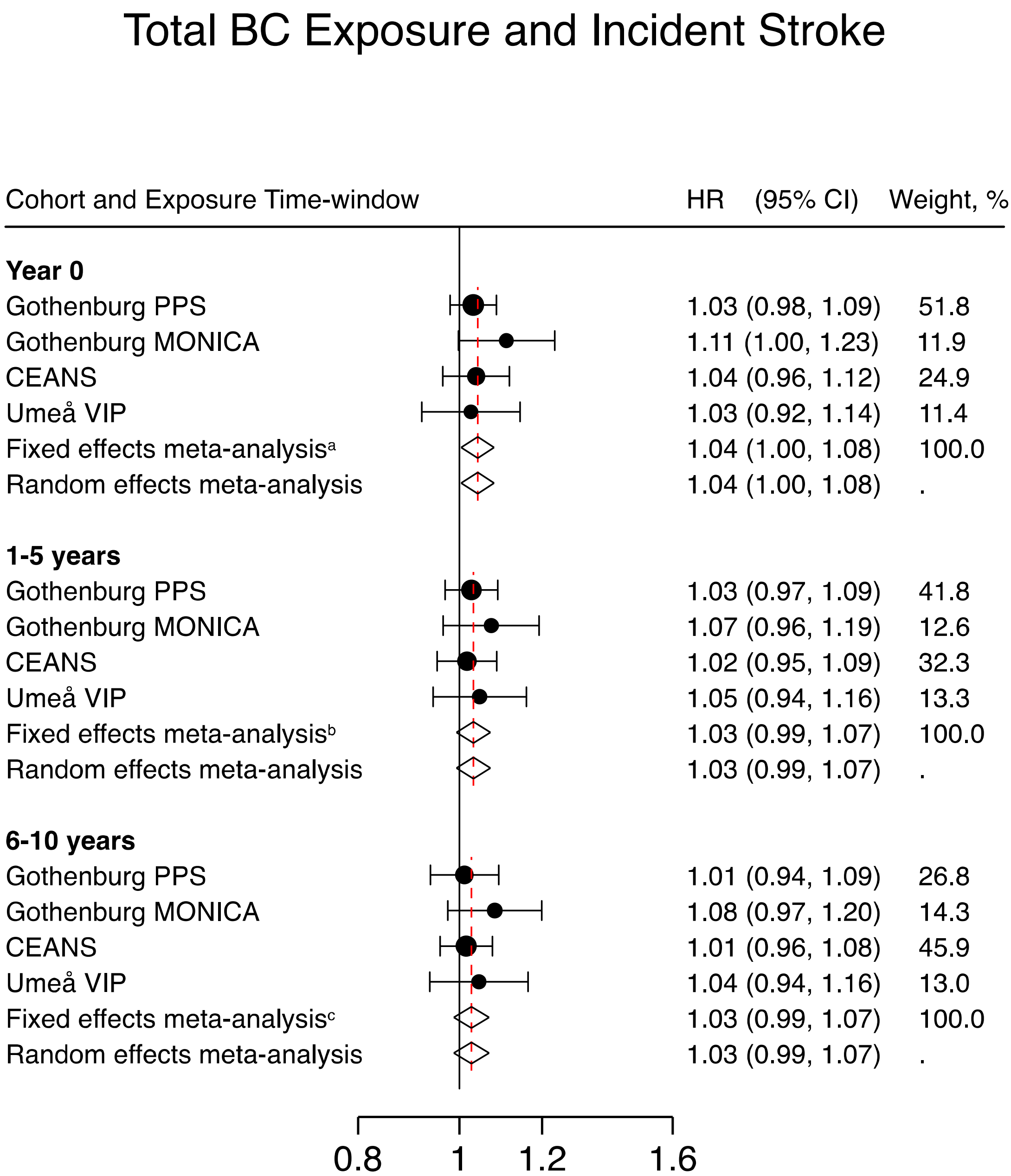

Figure S9. City-specific and overall meta-analyses estimates for associations between same year, 1-5 year, and 6-10 year average of total BC exposure and incident stroke. Hazard ratios and 95% confidence intervals per 0.31 μg/m^3 BC. Fixed effects meta-analyses used inverse variance weighted estimates. 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.

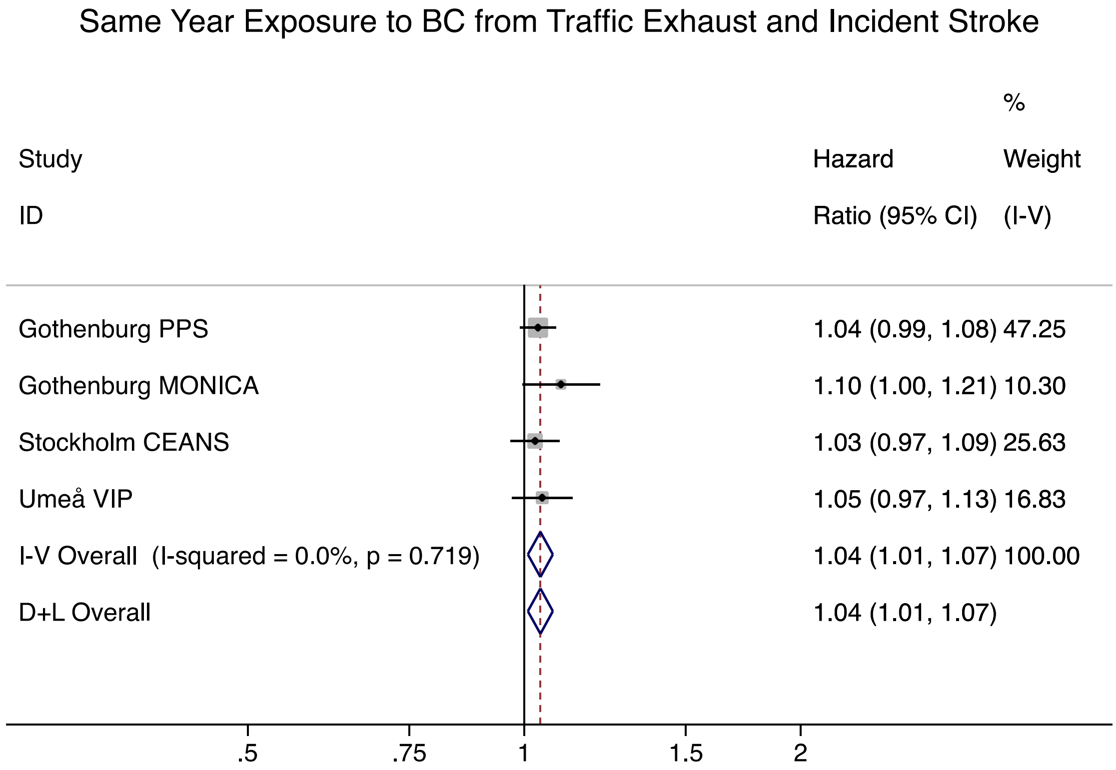

Figure S10. City-specific and overall meta-analyses estimates for associations between same year average BC levels from traffic sources and incident stroke. Hazard ratios and 95% confidence intervals per 0.26 μg/m^3 BC from traffic sources. I-V, inverse variance weighted fixed-effects meta-analyses. 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.