Table A. Pooled results. Increased risk (IR) in multiple respiratory health effects in 35+ year olds due to rising PM_{10} (IQR = 24.9μg/m^3) and NO_2 (IQR = 25.9μg/m3) at different lags, 6 Italian cities, 2001 – 2005

	lag	all respiratory diseases (n.100690)				COPD (n. 38577)				LRTI in COPD (n. 9886)				out-of-hospital respiratory deaths[‡] (n. 5490)			
		%	95% CI		p HET[†]	%	95% CI		p HET[†]	%	95% CI		p HET[†]	%	95% CI		p HET[†]
PM_{10}	**0**	1.32	*0.23*	*2.41*	0.597	**1.66**	*-0.04*	*3.40*	0.580	0.69	*-2.71*	*4.22*	0.837	2.83	*-1.54*	*7.38*	0.898
	0-1	**1.47**	*0.24*	*2.71*	0.718	0.58	*-1.35*	*2.55*	0.817	1.43	*-2.35*	*5.35*	0.880	4.66	*-0.42*	*10.00*	0.376
	0-3	1.51	*0.03*	*3.01*	0.634	-0.35	*-2.65*	*2.00*	0.475	**4.81**	*0.14*	*9.70*	0.655	**10.12**	*3.86*	*16.76*	0.437
	2-5	0.87	*-0.53*	*2.29*	0.330	-1.88	*-4.25*	*0.55*	0.184	4.13	*-0.76*	*9.27*	0.154	**11.58**	*5.55*	*17.96*	0.517
	0-5	1.53	*-0.17*	*3.27*	0.651	-1.06	*-3.68*	*1.63*	0.424	3.75	*-1.61*	*9.40*	0.585	**11.25**	*3.95*	*19.05*	0.639
NO_2																	
	0	1.75	*0.08*	*3.44*	0.522	**3.13**	*0.44*	*5.88*	0.574	-0.36	*-5.35*	*4.89*	0.589	0.39	*-6.26*	*7.51*	0.767
	0-1	1.94	*0.09*	*3.83*	0.987	2.56	*-0.42*	*5.62*	0.736	-1.72	*-7.17*	*4.05*	0.853	2.98	*-4.59*	*11.15*	0.820
	0-3	2.85	*0.63*	*5.12*	0.729	2.23	*-1.30*	*5.89*	0.724	2.96	*-3.78*	*10.16*	0.820	9.42	*-0.12*	*19.86*	0.264
	2-5	1.90	*-0.94*	*4.82*	0.033	-0.02	*-3.25*	*3.31*	0.413	6.78	*-1.87*	*16.18*	0.118	**18.92**	*9.41*	*29.25*	0.194
	0-5	**3.10**	*0.60*	*5.66*	0.837	2.14	*-1.81*	*6.25*	0.766	**4.71**	*-2.97*	*12.99*	0.714	**16.26**	*5.05*	*28.67*	0.521

Table B. Pooled results. Percentage increased risk (IR) in respiratory disease hospitalisations and out-of-hospital respirato deaths associated with 10 µg/m3 increase in pollutants, in 35+year olds, by season, 6 Italian cities, 2001 – 2005

		pollutant PM_{10}												p
		cold seasons[#]						warm seasons +					p
	lag	N.	%	% IR	95% CI		p_{HET}[‡]	N.	%	% IR	95% CI		p_{HET}[‡]	interaction[†]
hospitalisations for														
respiratory diseases	*0-1*	56,978	56.6	0.25	-0.25	0.76	0.351	43,712	43.4	3.05	1.38	4.74	0.010	0.006
COPD	*0*	22,612	58.6	0.25	-0.49	0.99	0.641	15,965	41.4	1.87	0.63	3.12	0.615	0.076
LRTI in COPD	*0-3*	5,688	37.4	1.21	-0.63	3.08	0.735	4,198	27.6	6.45	1.24	11.92	0.081	0.026
out-of-hospital														
respiratory deaths	*0-3*	3,279	59.7	3.94	1.44	6.51	0.606	2,211	40.3	6.68	-1.76	15.84	0.060	0.553

		pollutant NO_2												p
		cold seasons[#]						warm seasons +					p
	lag	N.	%	% IR	95% CI		p_{HET}[‡]	N.	%	% IR	95% CI		p_{HET}[‡]	interaction[†]
hospitalisations for														
respiratory diseases	*0-5*	56,978	56.6	-0.30	-1.38	0.78	0.531	43,712	43.4	4.02	1.48	6.62	0.060	0.002
COPD	*0*	22,612	58.6	0.73	-0.73	2.21	0.225	15,965	41.4	1.60	-0.11	3.33	0.482	0.453
LRTI in COPD	*0-5*	5,688	37.4	1.41	-2.12	5.06	0.526	4,198	27.6	4.88	-0.05	10.05	0.936	0.269
out-of-hospital														
respiratory deaths	*0-5*	3,279	59.7	4.28	-2.04	11.01	0.226	2,211	40.3	9.93	0.01	20.84	0.21	0.362

[#]October to March.   +April to September.   ‡p-value of heterogeneity test (null hypothesis is perfect homogeneity of city-specific results).

† p-value derived from the model with the interaction term (one season with respect to another as referent category).

Table C. Pooled results. Increased risk (IR) in respiratory disease hospitalisations and out-of-hospital respiratory deaths associated with 10 µg/m3 increase in PM_{10}, in 35+year-old people, by demographic characteristics and previous diseases, 6 Italian cities, 2001 - 2005.

	hospitalisation for all respiratory diseases							hospitalisations for COPD						
[†]	N.	%	% IR[§]	95% CI		pHET[‡]	pinter[†]	N.	%	% IR[§]	95% CI		pHET[‡]	pinter[†]
Total	**100,690**	**100**	**0.59**	*0.10*	*1.08*	**0.718**	**-**	**38,577**	**100**	**0.67**	*-0.02*	*1.35*	**0.580**	**-**
Age (years)														
35-64	22,572	22.4	0.05	-0.86	0.97	0.984	-	5,939	15.4	0.20	-1.24	1.66	0.748	-
65-74	26,093	25.9	0.54	*-0.52*	*1.61*	0.111	0.513	11,640	30.2	1.17	-0.60	2.97	0.019	0.230
75-84	34,492	34.3	0.79	*0.06*	*1.52*	0.813	0.205	15,092	39.1	0.71	-0.28	1.70	0.235	0.537
85+	17,533	17.4	1.24	*0.25*	*2.23*	0.541	0.131	5,906	15.3	0.05	-1.49	1.61	0.689	0.642
Gender														
men	56,647	56.3	0.50	*-0.08*	*1.09*	0.310	-	23,000	59.6	0.93	0.02	1.85	0.320	-
women	44,043	43.7	0.79	*0.14*	*1.44*	0.740	0.473	15,577	40.4	0.22	-0.73	1.18	0.964	0.371
Heart diseases in the previous 2 years														
yes	38,416	38.2	0.64	*-0.05*	*1.34*	0.612	0.924	17,394	45.1	0.71	-0.21	1.63	0.728	0.795
Ischemic heart diseases (ICD-9: 410-414)[*]	12,495	12.4	1.59	*0.41*	*2.79*	0.697	0.074	5,466	14.2	1.93	0.33	3.55	0.388	0.068
Diseases of pulmonary circulation (ICD-9: 415-417)[*]	3,349	3.3	-0.65	*-3.14*	*1.91*	0.259	0.326	2,131	5.5	-0.42	-3.38	2.63	0.212	0.554
Condution disorders (ICD-9: 426); arrhythmias (ICD-9: 427)[*]	10,197	10.1	0.70	*-0.57*	*1.98*	0.687	0.910	4,293	11.1	1.26	-0.35	2.90	0.771	0.482
Heart failure (ICD-9: 428)[*]	9,585	9.5	-0.67	*-2.15*	*0.83*	0.060	0.084	4,389	11.4	-0.46	-2.22	1.33	0.311	0.244
Other diseases in the previous 2 years														
Cancer (ICD-9: 140-208)	7,610	7.6	0.66	*-1.38*	*2.73*	0.048	0.959	2,193	5.7	-0.03	-2.58	2.59	0.475	0.689
Diabetes (ICD-9: 250)	9,857	9.8	0.01	*-1.63*	*1.67*	0.302	0.426	4,099	10.6	-0.40	-2.59	1.83	0.283	0.429
Cerebrovascular diseases (ICD-9: 430-438)[*]	8,068	8.0	1.07	*-0.35*	*2.52*	0.618	0.531	3,075	8.0	1.29	-0.65	3.27	0.530	0.524
Chronic pulmonary diseases (ICD-9: 490-505)	25,490	25.3	0.69	*-0.16*	*1.54*	0.366	0.897	15,782	40.9	0.57	-0.40	1.54	0.727	0.910
Cirrhosis and other chronic liver disease (ICD-9: 571-572)	2,804	2.8	0.70	*-1.72*	*3.17*	0.483	0.976	1,235	3.2	0.38	-2.89	3.76	0.830	0.847
Renal failure (ICD-9: 584-588)	5,168	5.1	-0.09	*-1.86*	*1.70*	0.259	0.411	1,829	4.7	0.45	-2.82	3.84	0.048	0.953

[§] percentage increase of risk has been estimated at the best lag for each outcome: hospitalisations for respiratory diseases (lag0-1), for COPD (lag 0), for LRTI in COPD (lag 0-3), out-of-hospital mortality (lag 0-3). ‡ p-value of heterogeneity test (null hypothesis is perfect homogeneity of city-specific results).
† p-value derived from the model with the interaction term (for each condition, the reference category is the group of subjects without the disease).
*discharge diagnosis in the period 29 days - 2 years before death

Table C (cont). Pooled results. Increased risk in respiratory disease hospitalisations and out-of-hospital respiratory deaths associated with 10 µg/m3 increase in PM_{10}, in 35+year-old people, by demographic characteristics and previous diseases, 6 Italian cities, 2001 - 2005.

	hospitalisation for LRTI in COPD							out-of-hospital respiratory deaths						
	N.	%	% IR[§]	95% CI		pHET[‡]	pinter[†]	N.	%	% IR[§]	95% CI		pHET[‡]	pinter[†]
Total	**9,886**	**100**	**1.91**	*0.06*	*3.79*	0.655	-	**5,490**	**100**	**3.95**	*1.53*	*6.43*	0.344	-
Age (years)														
35-64	1,563	15.8	0.78	*-3.41*	*5.15*	0.827	-	288	5.2	-5.38	*-14.10*	*4.22*	0.397	-
65-74	2,569	26.0	0.77	*-2.23*	*3.86*	0.501	0.883	575	10.5	4.00	*-2.98*	*11.48*	0.707	0.120
75-84	3,726	37.7	2.42	*-0.19*	*5.10*	0.432	0.504	1,682	30.6	5.07	*1.01*	*9.30*	0.704	0.049
85+	2,028	20.5	3.78	*0.45*	*7.22*	0.660	0.243	2,944	53.6	4.82	*1.81*	*7.92*	0.468	0.047
Gender														
mem	6,344	64.2	2.46	*0.41*	*4.56*	0.879	-	2,550	46.4	1.98	*-1.32*	*5.40*	0.098	-
women	3,542	35.8	1.27	*-1.36*	*3.96*	0.296	0.486	2,940	53.6	6.15	*3.06*	*9.33*	0.395	0.076
Heart diseases in the previous 2 years														
yes	3,742	37.9	2.40	*-0.21*	*5.08*	0.791	0.690	1,392	25.4	6.00	*1.68*	*10.51*	0.933	0.348
Ischemic heart diseases (ICD-9: 410-414)[*]	1,227	12.4	4.89	*0.29*	*9.69*	0.755	0.192	476	8.7	3.42	*-3.40*	*10.72*	0.943	0.820
Diseases of pulmonary circulation (ICD-9: 415-417)[*]	287	2.9	4.50	*-6.71*	*17.1*	0.313	0.634	197	3.6	6.71	*-8.11*	*23.91*	0.083	0.745
Condution disorders (ICD-9: 426); arrhythmias (ICD-9: 427)[*]	982	9.9	4.41	*-0.41*	*9.46*	0.064	0.345	475	8.7	5.35	*-1.56*	*12.76*	0.596	0.748
Heart failure (ICD-9: 428)[*]	901	9.1	2.01	*-3.17*	*7.47*	0.075	0.980	444	8.1	7.69	*-1.70*	*17.98*	0.048	0.452
Other diseases in the previous 2 years														
Cancer (ICD-9: 140-208)	644	6.5	0.87	*-4.84*	*6.92*	0.512	0.637	196	3.6	-5.32	*-16.64*	*7.53*	0.169	0.134
Diabetes (ICD-9: 250)	855	8.6	3.45	*-2.46*	*9.73*	0.121	0.693	298	5.4	-0.66	*-9.91*	*9.55*	0.845	0.324
Cerebrovascular diseases (ICD-9: 430-438)[*]	872	8.8	4.52	*-0.64*	*9.96*	0.938	0.287	570	10.4	4.09	*-2.18*	*10.76*	0.818	0.956
Chronic pulmonary diseases (ICD-9: 490-505)	2,942	29.8	2.85	*-0.10*	*5.88*	0.711	0.512	1,174	21.4	5.33	*0.42*	*10.47*	0.149	0.688
Cirrhosis and other chronic liver disease (ICD-9: 571-572)	271	2.7	9.21	*-0.39*	*19.73*	0.066	0.156	-	-	-	-	-	-	-
Renal failure (ICD-9: 584-588)	476	4.8	3.06	*-4.00*	*10.63*	0.934	0.742	-	-	-	-	-	-	-

[§] percentage increase of risk has been estimated at the best lag for each outcome: hospitalisations for respiratory diseases (lag0-1), for COPD (lag 0), for LRTI in COPD (lag 0-3), out-of-hospital mortality (lag 0-3). [‡] p-value of heterogeneity test (null hypothesis is perfect homogeneity of city-specific results).
[†] p-value derived from the model with the interaction term (for each condition, the reference category is the group of subjects without the disease).
[*]discharge diagnosis in the period 29 days - 2 years before death