



Paolo Crosignani

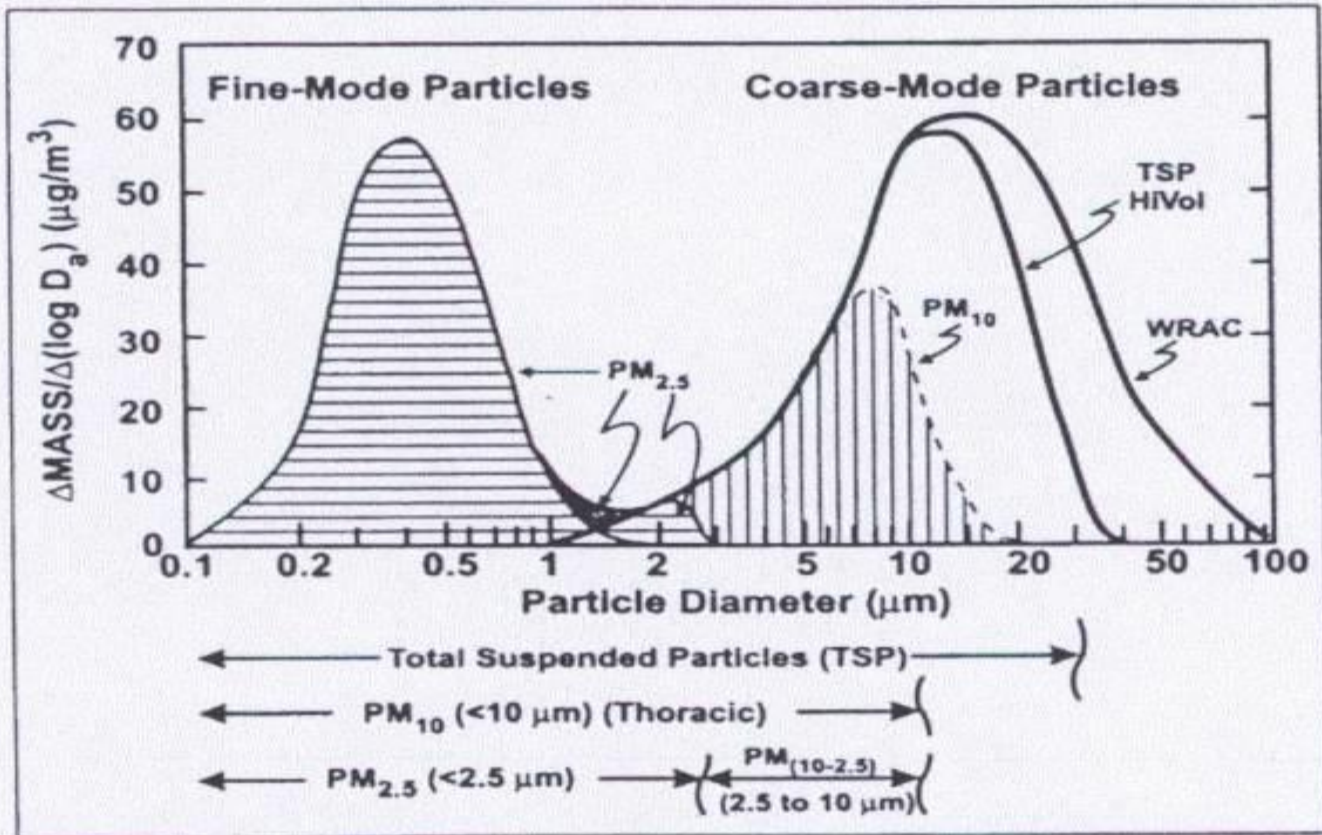
ISDE Italia

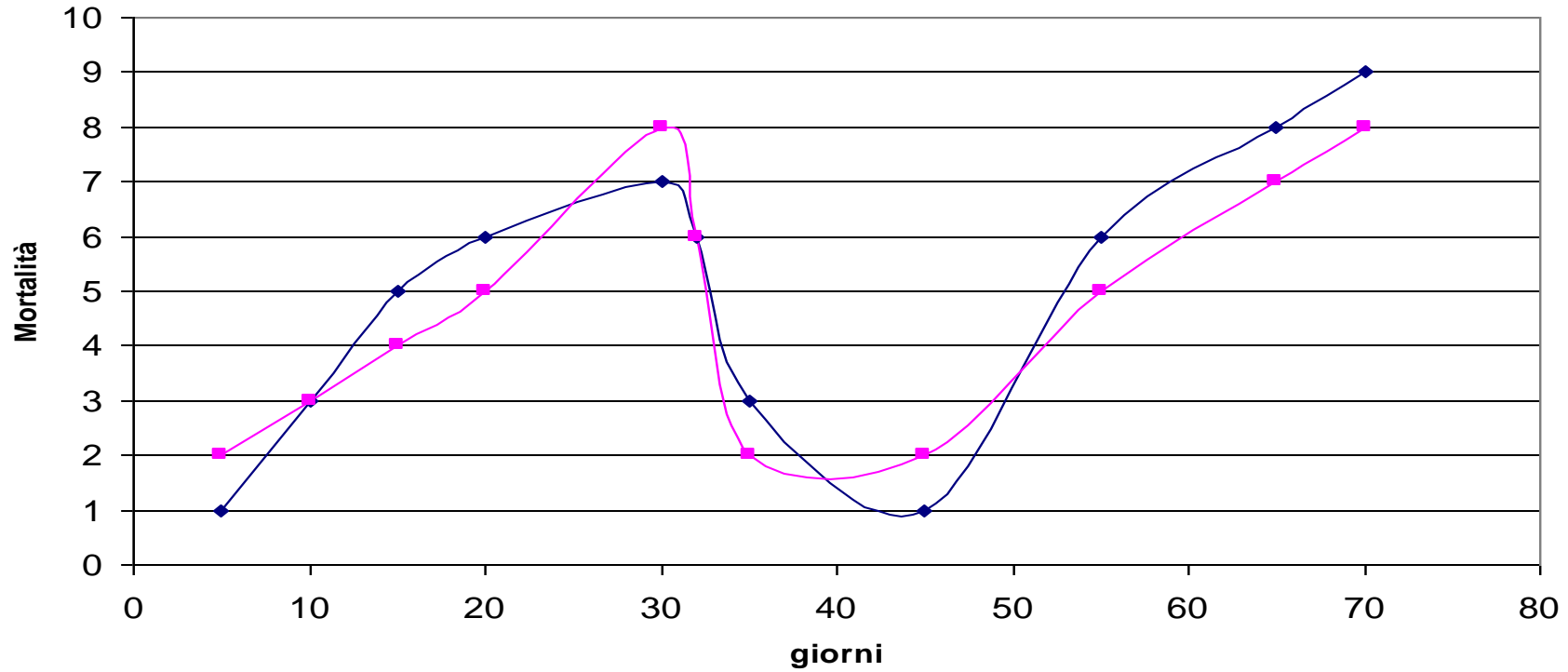
Già Direttore SC Epidemiologia Ambientale, Istituto Tumori, Milano



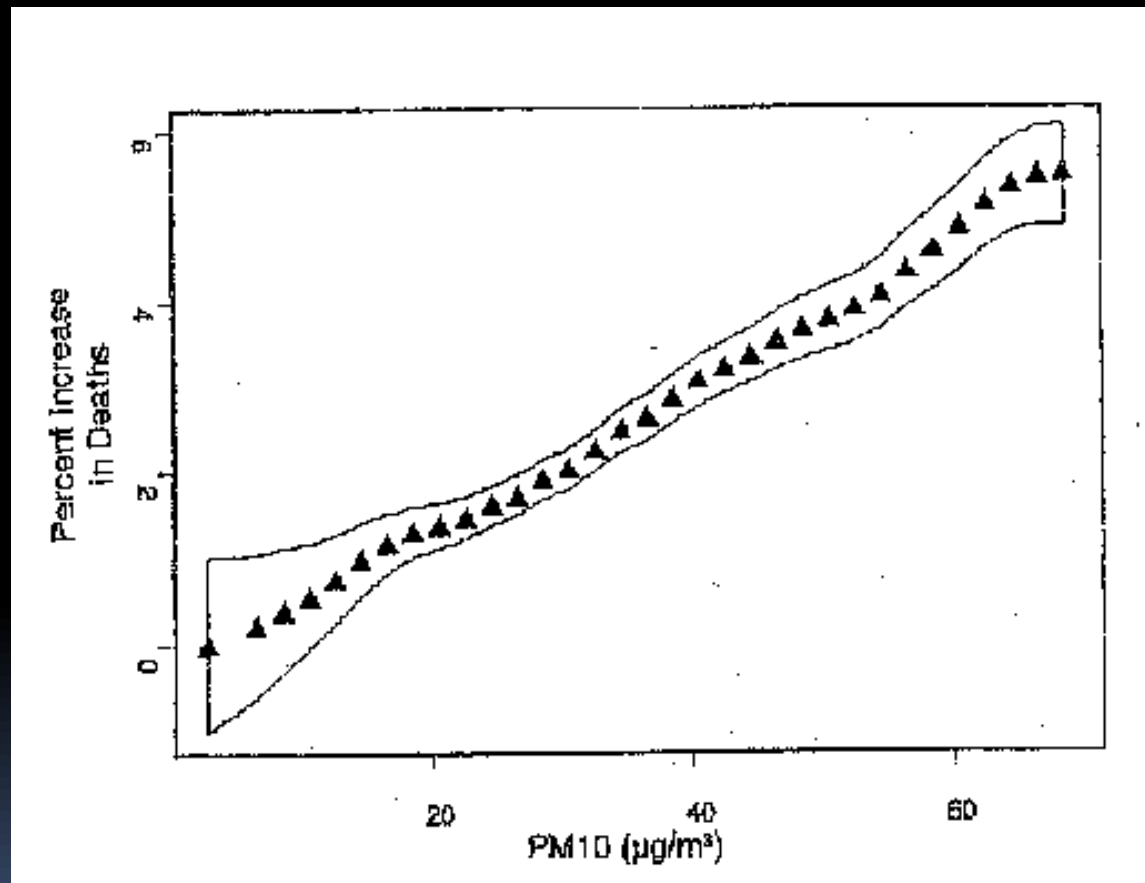
I COSTI DEL NON FARE

Distribuzione del particolato atmosferico



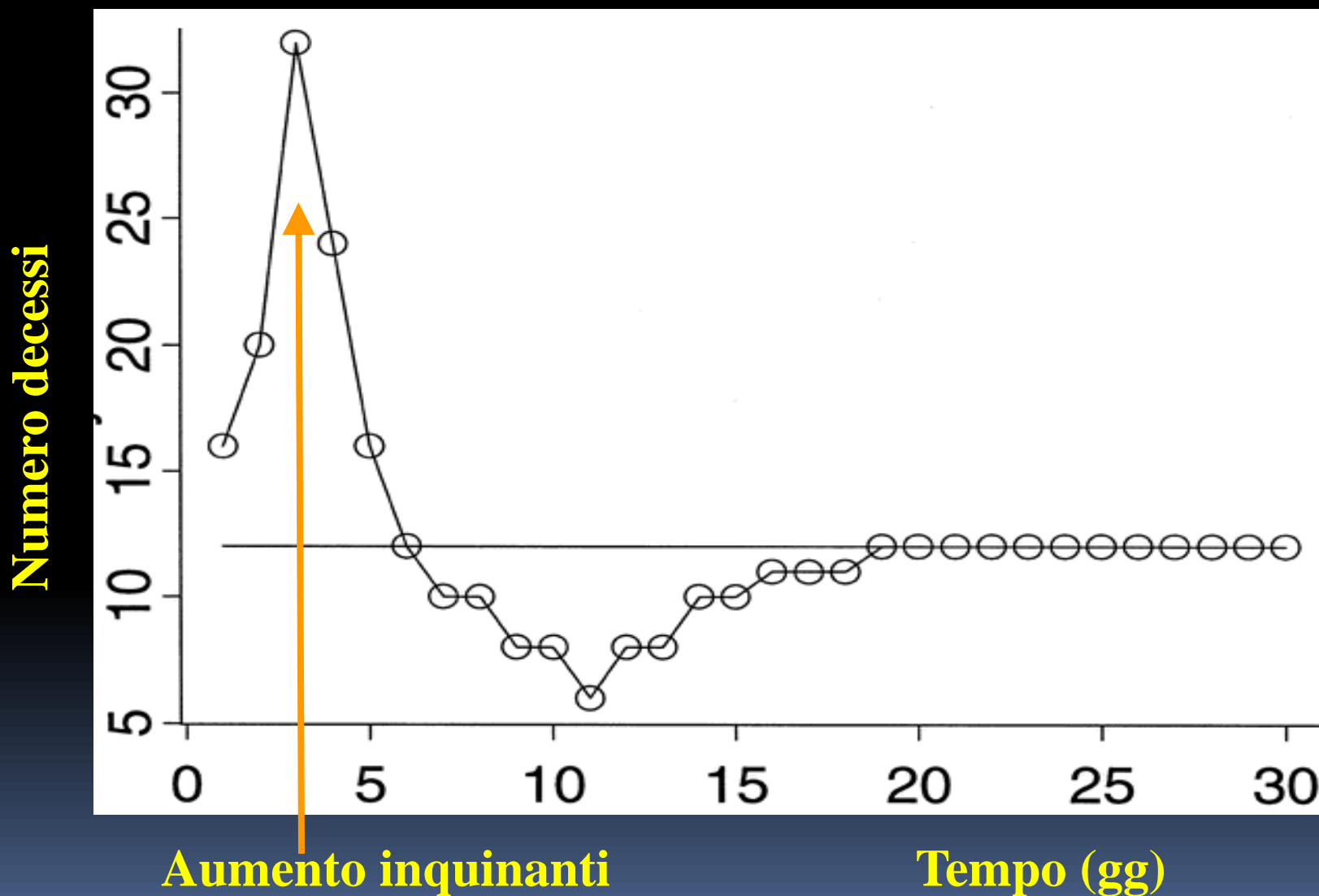


Curva dose-risposta tra la concentrazione di PM 10 e la mortalità giornaliera in 10 città degli Stati Uniti

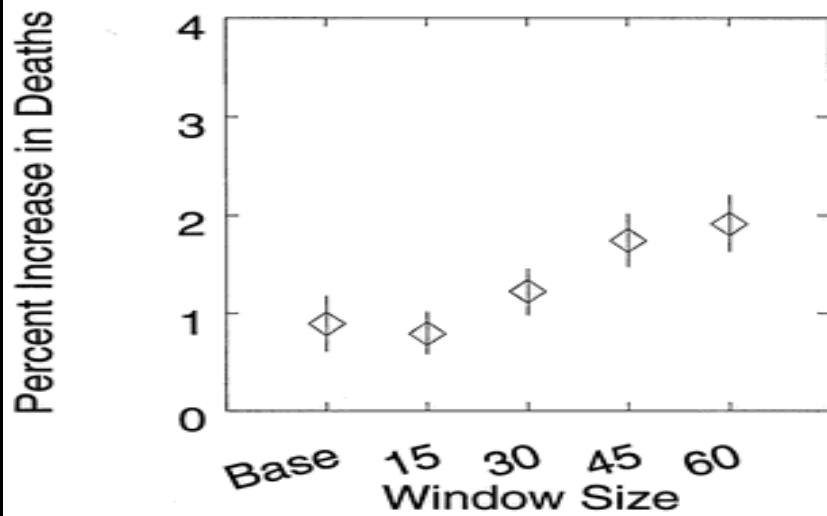


Schwartz e Zanobetti

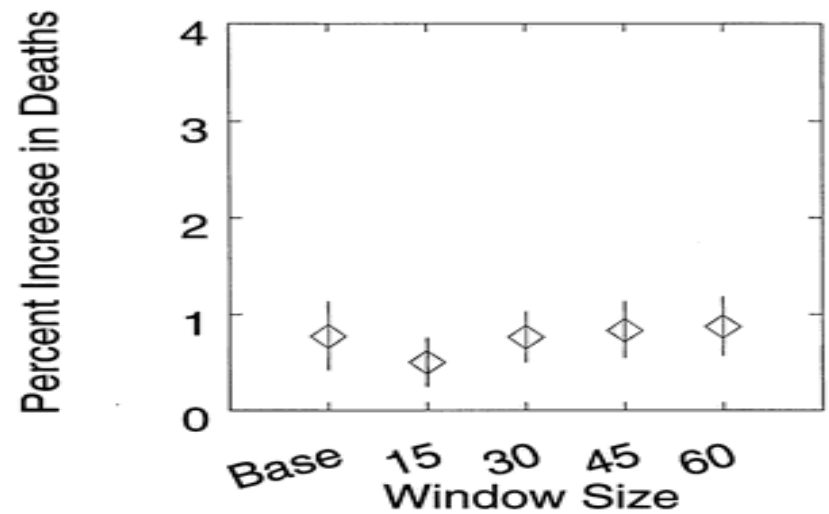
Andamento della mortalità nel caso di anticipazione dei decessi non evitabili



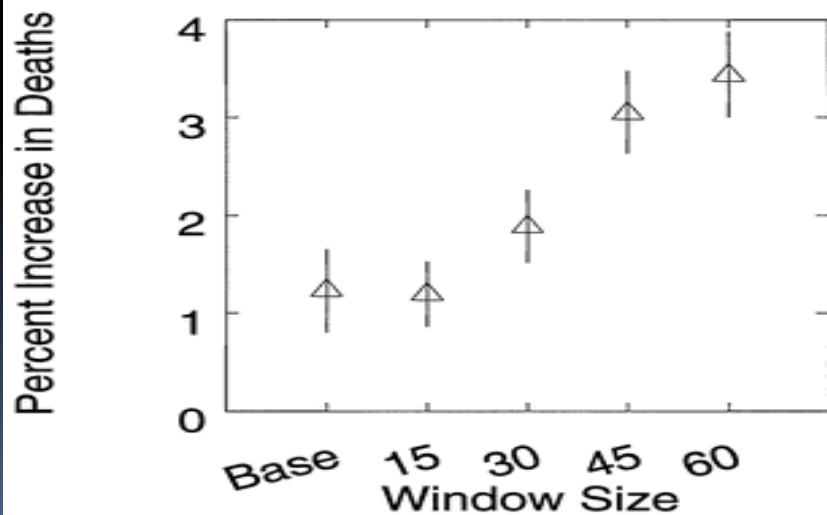
All Deaths



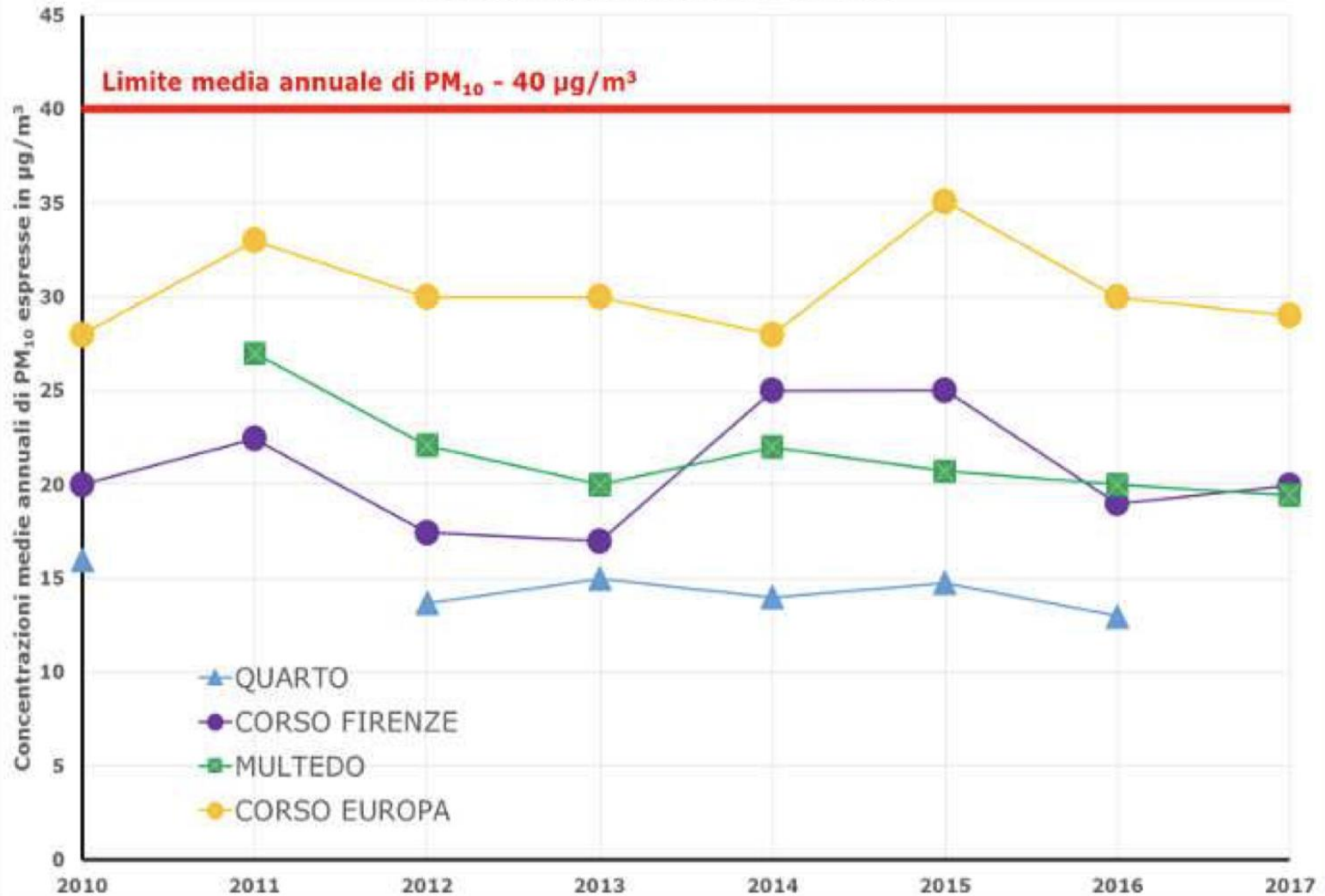
Deaths in Hospital



Deaths Out of Hospital



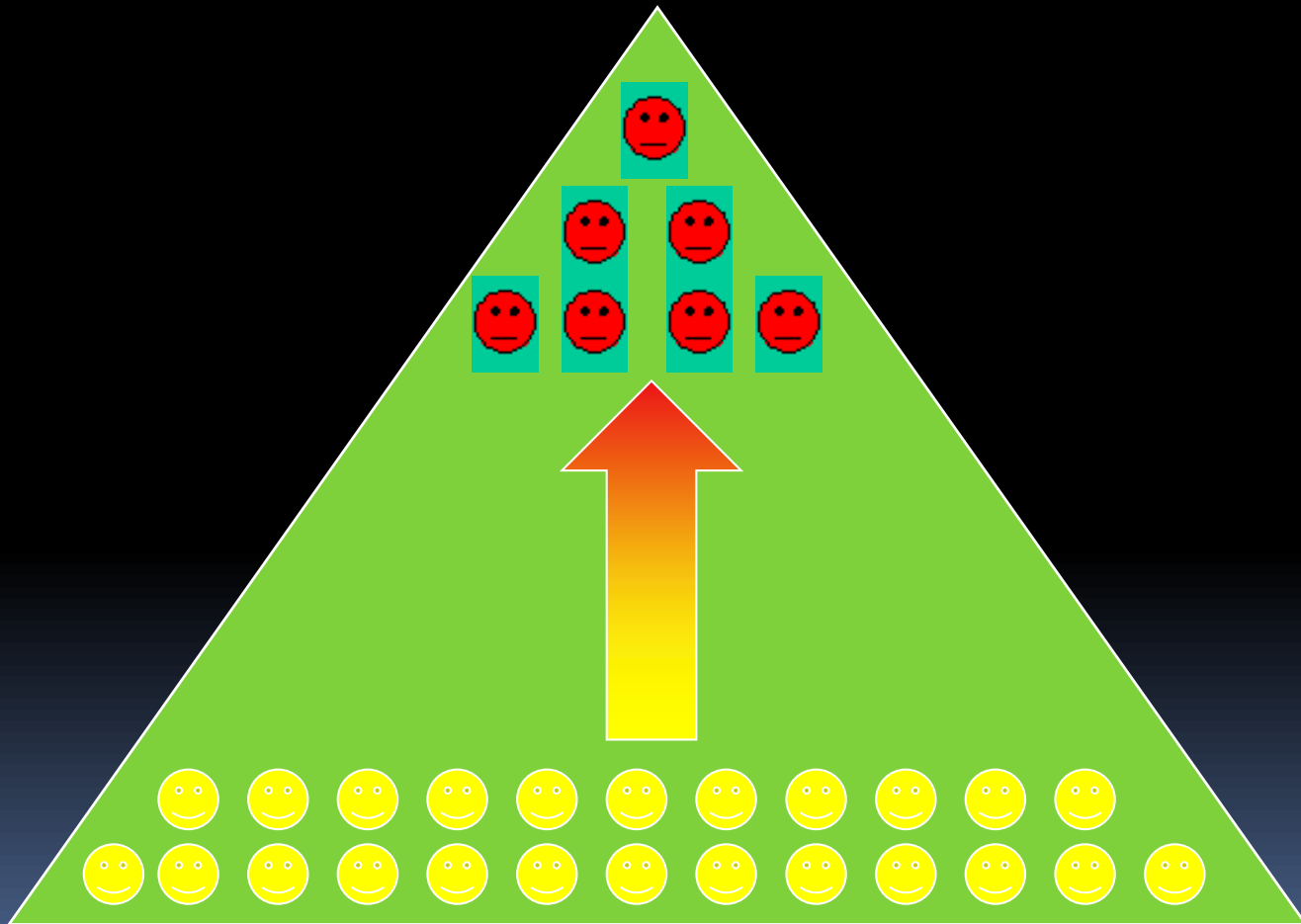
Zona IT0711 Agglomerato di Genova - Andamento storico medie annuali di PM₁₀
Periodo di osservazione 2010 - 2017



Effetti a breve termine: eventi risparmiati in Corso Europa 30 vs 20 ug/m³

- Mortalità totale, (esclusi gli incidenti) 1.006
 - 5 per mille
- Mortalità per cause cardiovascolari 1.009
 - 8 per mille
- Mortalità per cause respiratorie 1.013
 - 1.2 per cento
- Ospedalizzazione cause cardiache 1.003
 - 2 per mille
- Ospedalizzazione cause respiratorie 1.006
 - 4 per mille

Effetti a breve e lungo termine dell'inquinamento sullo stato di salute dell'uomo



Tab.1 – Stima degli effetti a lungo termine causati dal particolato atmosferico PM 2.5

Cause of Mortality	Adjusted RR (95% CI)*		
	1979-1983	1999-2000	Average
All-cause	1.04 (1.01-1.08)	1.06 (1.02-1.10)	1.06 (1.02-1.11)
Cardiopulmonary	1.06 (1.02-1.10)	1.08 (1.02-1.14)	1.09 (1.03-1.16)
Lung cancer	1.08 (1.01-1.16)	1.13 (1.04-1.22)	1.14 (1.04-1.23)
All other cause	1.01 (0.97-1.05)	1.01 (0.97-1.06)	1.01 (0.95-1.06)

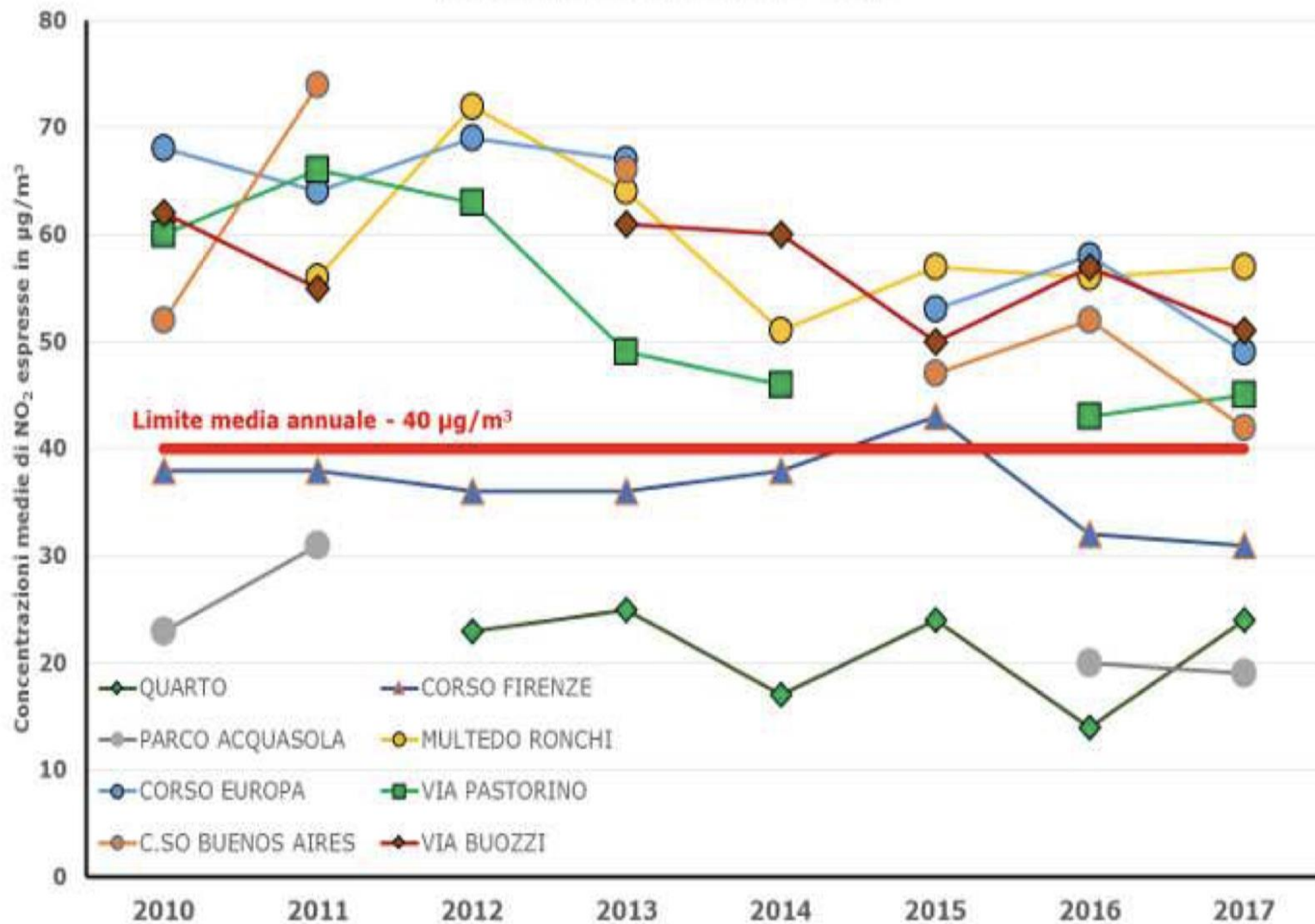
*Estimated and adjusted based on the baseline random-effects Cox proportional hazards model, controlling for age, sex, race, smoking, education, marital status, body mass, alcohol consumption, occupational exposure, and diet. CI indicates confidence interval.

C. Arden Pope III (JAMA, 2002 – Vol. 287, No. 9)

Effetti a lungo termine: eventi risparmiati in Corso Europa 30 vs 20 ug/m³ PM10

- Mortalità totale, (esclusi gli incidenti) **1.06**
 - 5 per cento (59 decessi su 1172)
- Mortalità per cause cardioresp **1.09**
 - 8 per cento
- Tumori del polmone **1.14**
 - 12 per cento
- Perdita di vita: 6 mesi (65-74 anni)

Zona IT0711 - Agglomerato di Genova - Andamento Medie annuali di NO₂
Periodo di osservazione 2010 - 2017



Nitrogen dioxide and mortality: review and meta-analysis of long-term studies

Annunziata Faustini¹, Regula Rapp² and Francesco Forastiere¹

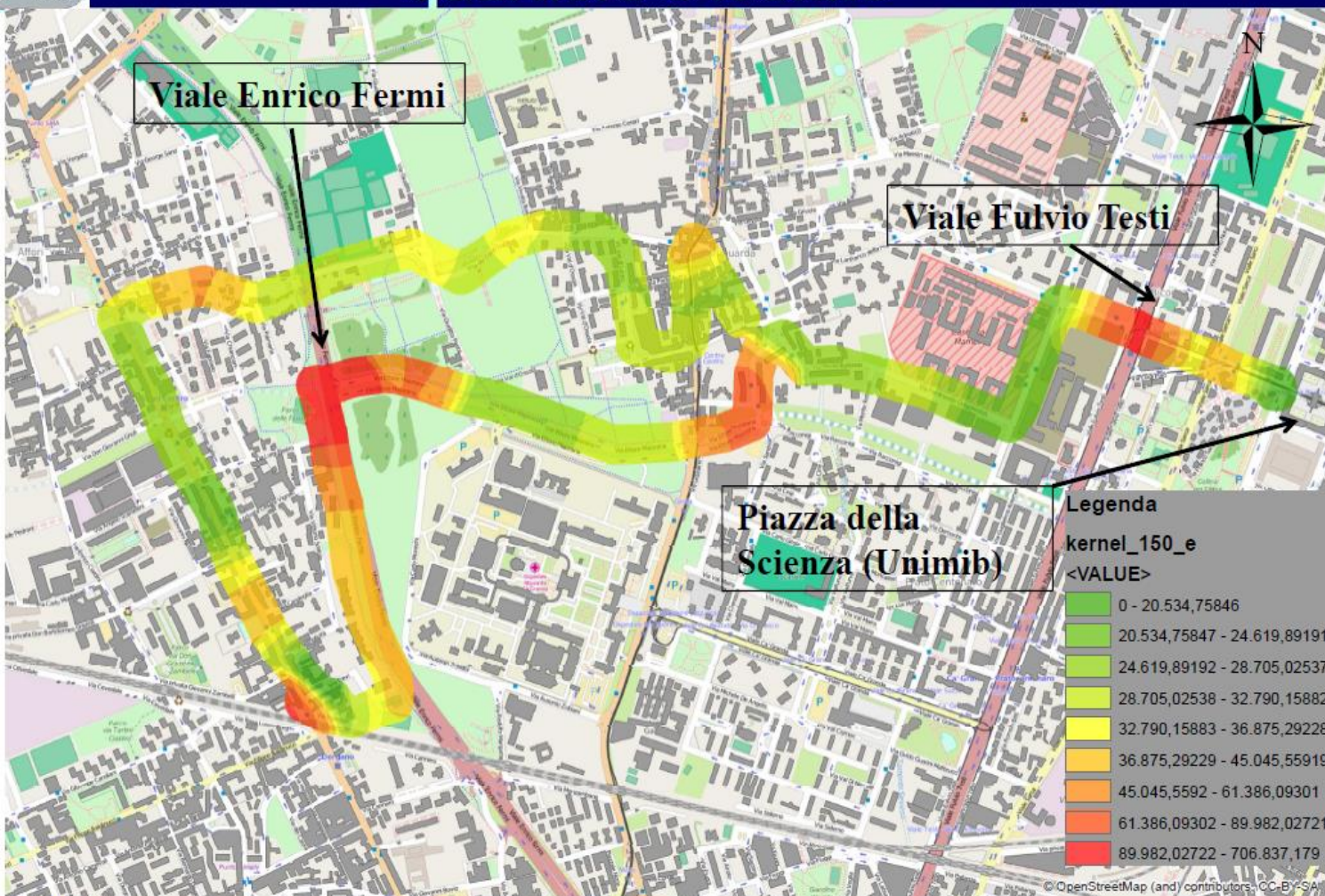
The pooled effect on mortality was 1.04 (95% CI 1.02–1.06) with an increase of $10 \mu\text{g}\cdot\text{m}^{-3}$ in the annual NO_2 concentration and 1.05 (95% CI 1.01–1.09) for particulate matter $<2.5 \mu\text{m}$ in diameter (PM_{2.5}) ($10 \mu\text{g}\cdot\text{m}^{-3}$). The effect on cardiovascular mortality was 1.13 (95% CI 1.09–1.18) for NO_2 and 1.20 (95% CI 1.09–1.31) for PM_{2.5}. The NO_2 effect on respiratory mortality was 1.03 (95% CI 1.02–1.03) and 1.05 (95% CI 1.01–1.09) for PM_{2.5}. Four bipollutant analyses with particulate matter and NO_2 in the same models showed minimal changes in the effect estimates of NO_2 .

Effetti a lungo termine: eventi risparmiati 55 vs 25 ug/m³

- Mortalità totale, (1.04) 1.12
 - 11 per cento (129 decessi su 1172)
- Mortalità cause cardiovascolari (1.13) 1.39
 - 28 per cento
- Mortalità respiratoria (1.03) 1.09
 - 8 per cento
- Perdita di vita: 12 mesi (65-74 anni)



Qualità dell'aria su scala locale: quartiere e isolato



m.boffi - m.rossetti - 2015
università milano bicocca



0 150 300 600 900 1.200
Metri

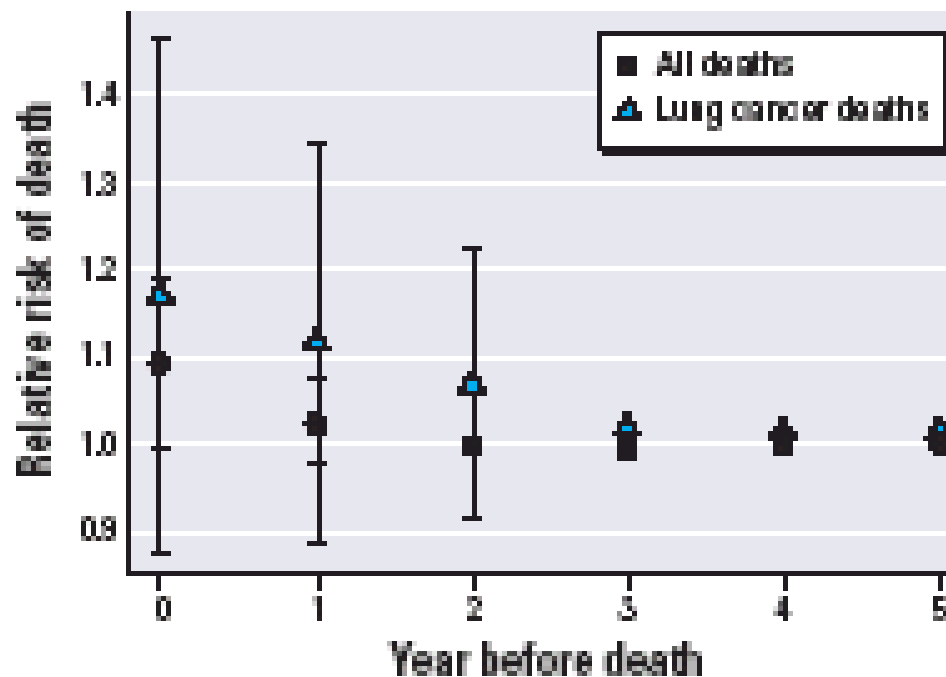


Figure 5. The model-averaged estimated effect of a $10\text{-}\mu\text{g}/\text{m}^3$ increase in $\text{PM}_{2.5}$ on all-cause mortality and on lung cancer mortality. The estimated effect for lung cancer remains elevated up to 3 years preceding the death. Also shown are the pointwise 95% CIs for each lag, based on jackknife estimates.