scarp
Swedish Clean Air Research Program
Frisk Luft i Sverige

SCARP Health – key results

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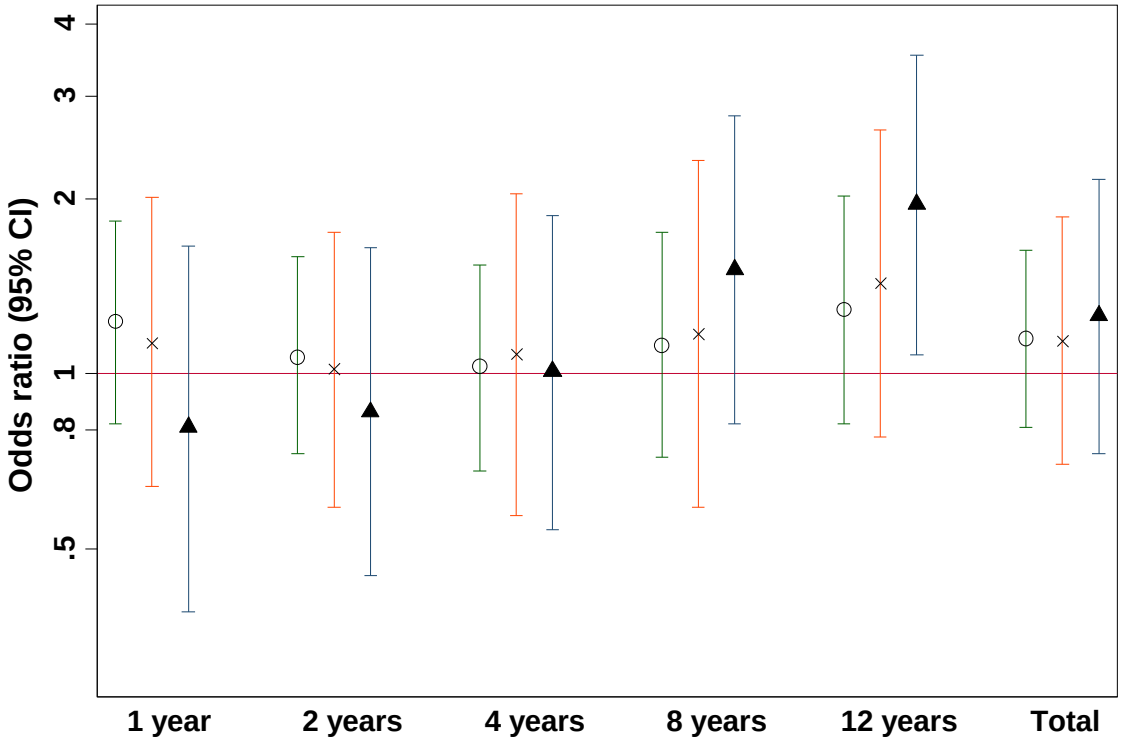
SCARP Health

- Three universities (Karolinska Institutet, Sahlgrenska Academy, Umeå University)
- 12 projects (epidemiological och experimental studies)
- Air pollution from road traffic and wood combustion
- Effects of short- and long-term exposure

Asthma and wheezing in relation to exposure to PM_{10} during the first year of life



o wheezing (≥ 1 episode)

x wheezing (≥ 3 episodes)

▲ asthma

Odds ratios are estimated for an increment in PM_{10} level from 5th till 95th percentile, corresponding to 7 µg/m³

Gruzieva et al. 2013

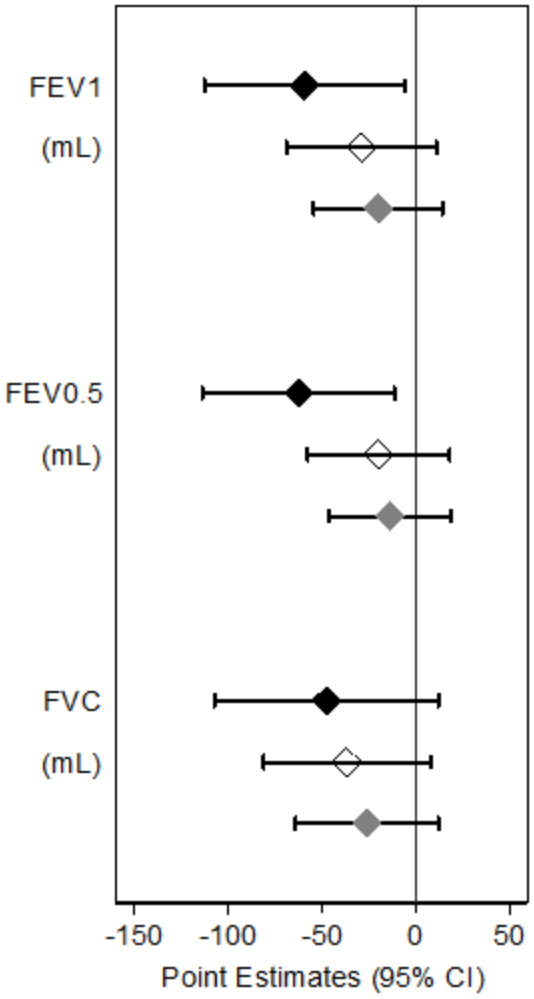
Sensitization against common allergens in children in relation to exposure to PM_{10} during the first year of life

	4 years of age		8 years of age	
Allergen	**OR**	**CI (95%)**	**OR**	**CI (95%)**
Inhalant	1.60	0.82 – 3.11	1.35	0.74 – 2.48
-pollen	2.07	0.98 – 4.39	1.53	0.79 – 2.96
Food	1.26	0.65 – 2.43	1.77	0.93 – 3.37

Odds ratios are estimated for an increment in PM_{10} level from 5th till 95th percentile, corresponding to 7 µg/m^3

Gruzieva et al. 2012

Lung function in relation to exposure to PM_{10} during different time periods



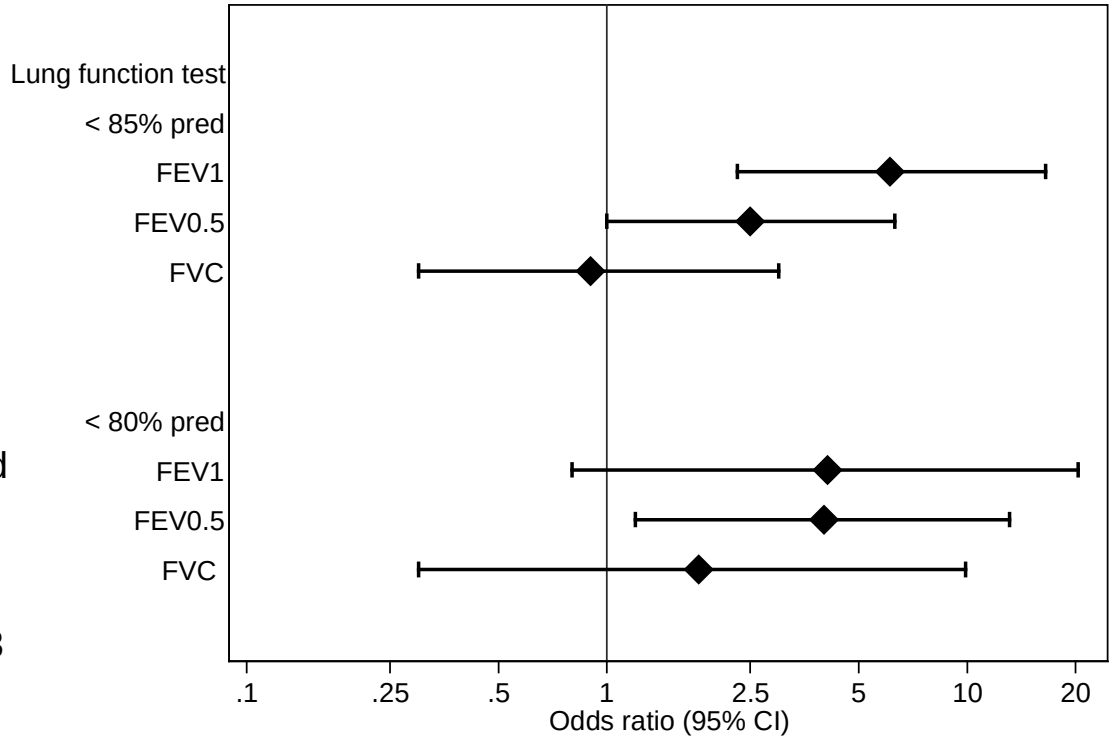
Mean FEV1: 1781 ml

Effects are estimated for an increment in PM_{10} level from 5th till 95th percentile, corresponding to 7 µg/m^3

◆ **First year**
◇ **1 - 4 years**
◆ **4 - 8 years**

Schultz et al. 2012

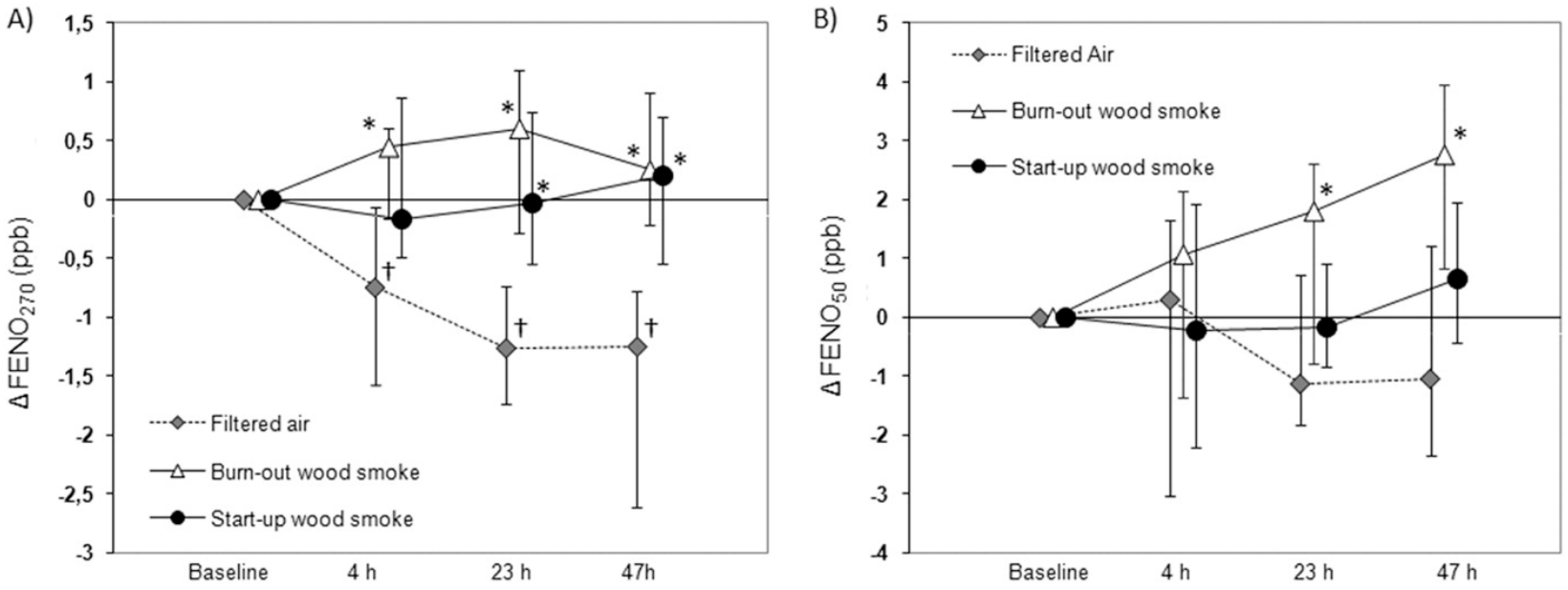
Lung function lower than 80 and 85% of predicted in relation to exposure to PM_{10} during the first year of life



Odds ratios are estimated for an increment in PM10 level from 5th till 95th percentile, corresponding to 7 µg/m3

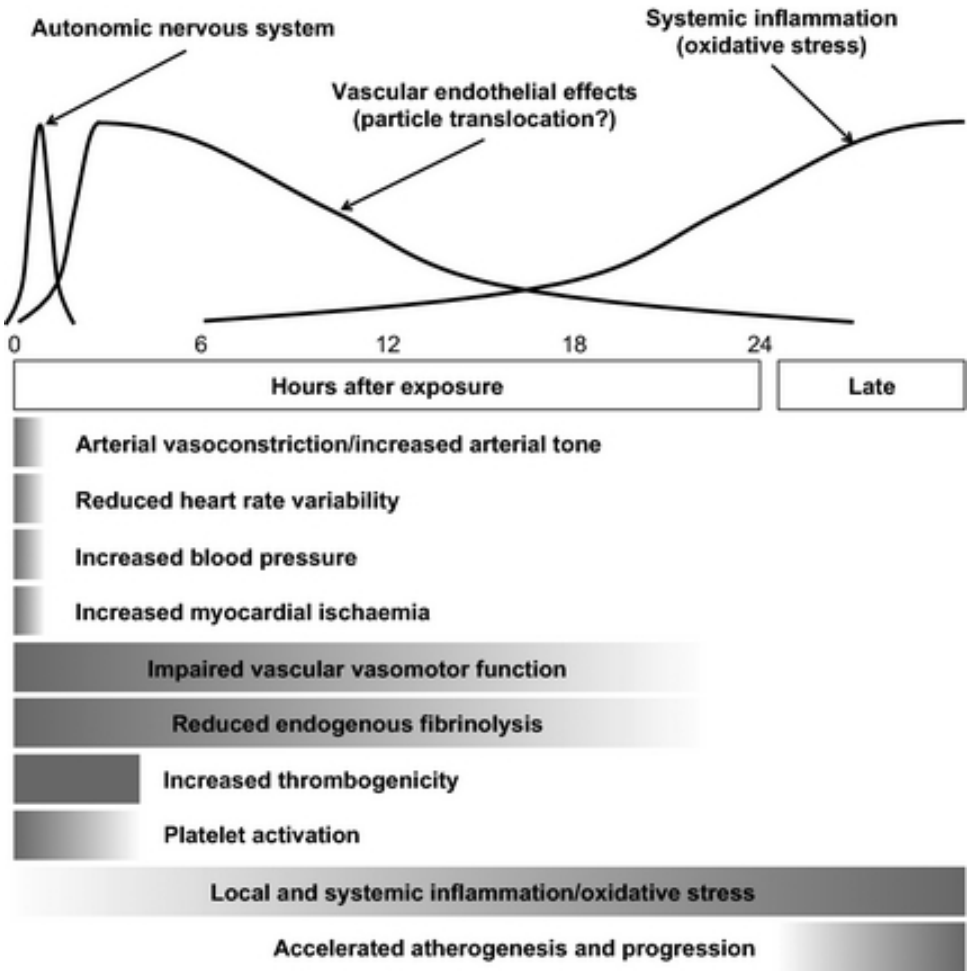
Schultz et al. 2012

Median changes from baseline in FENO in relation to exposure to wood smoke



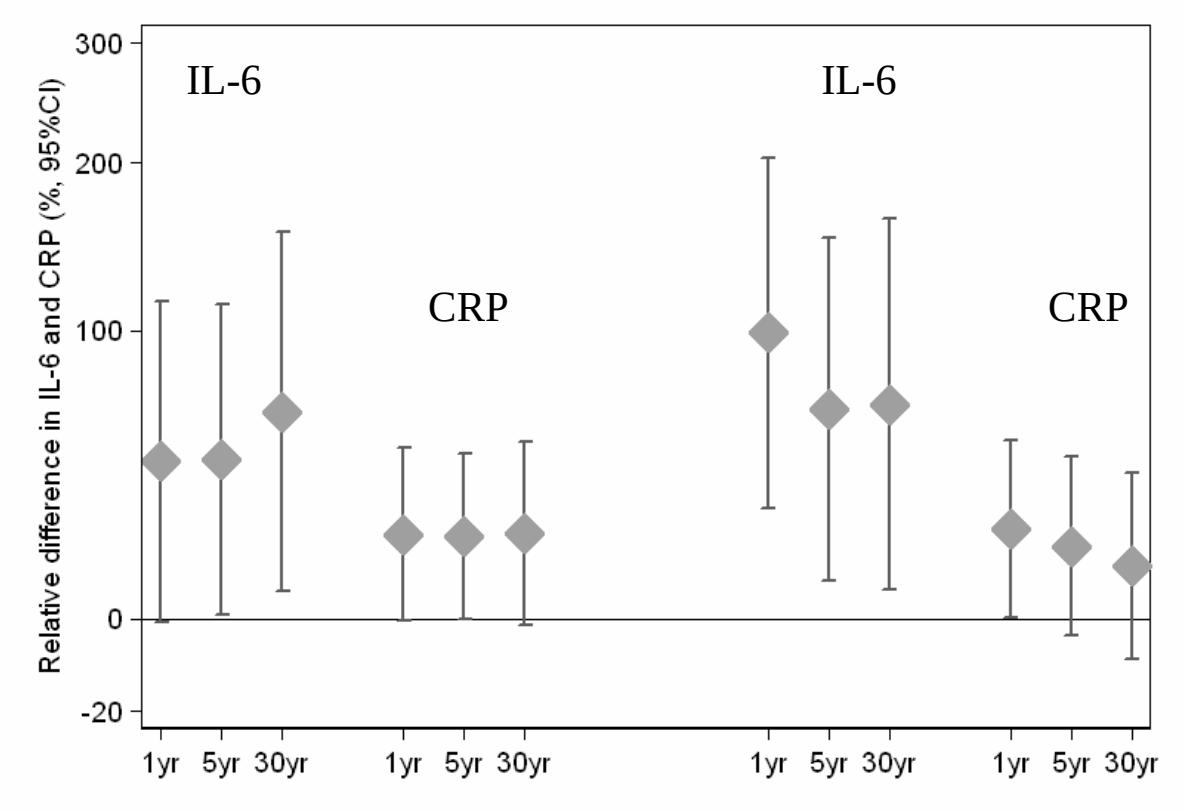
Stockfelt et al. 2012

Cardiovascular effects of particulate air pollution exposure: time course and underlying mechanisms



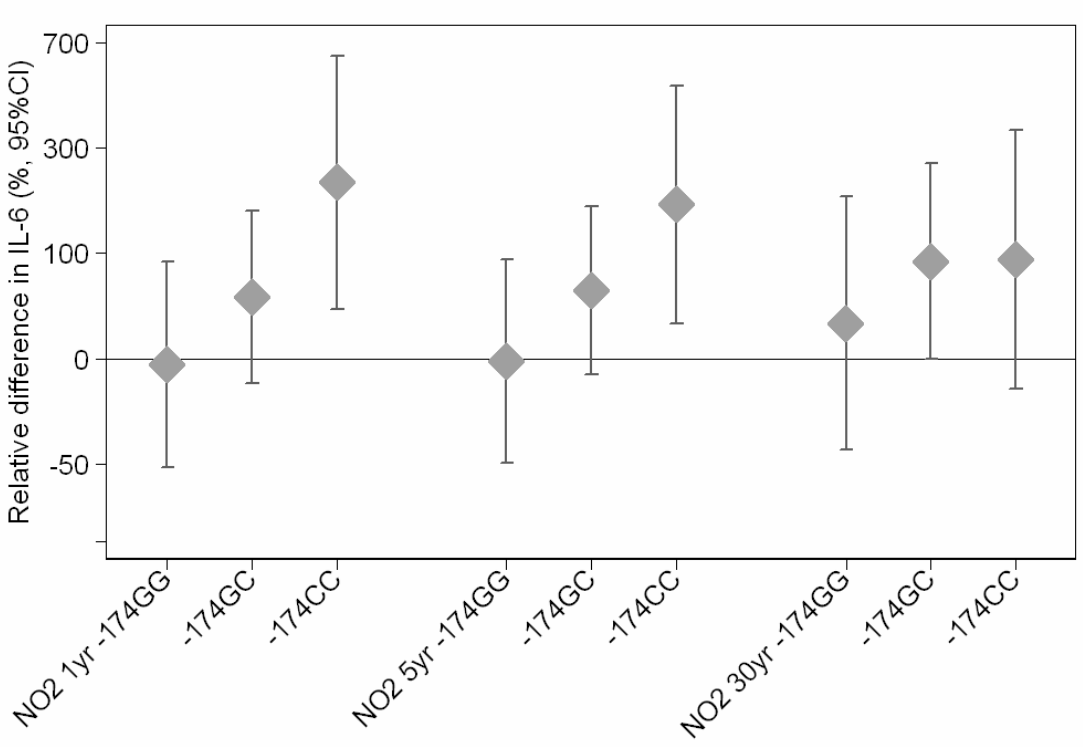
Langrish et al. 2012

Long-term exposure to air pollution in relation to IL-6 and CRP levels among adults from Stockholm



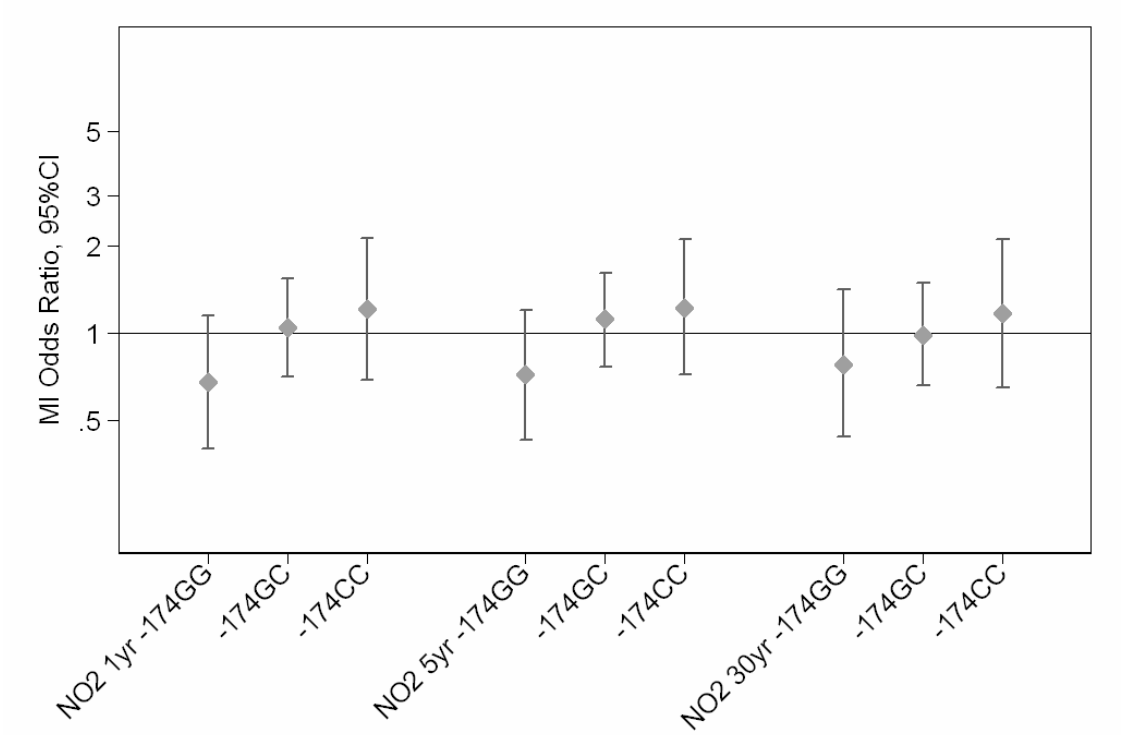
Panasevich et al. 2009

IL-6 levels in relation to genotype (*IL6*-174G/C) and exposure to traffic-NO_2 in Stockholm



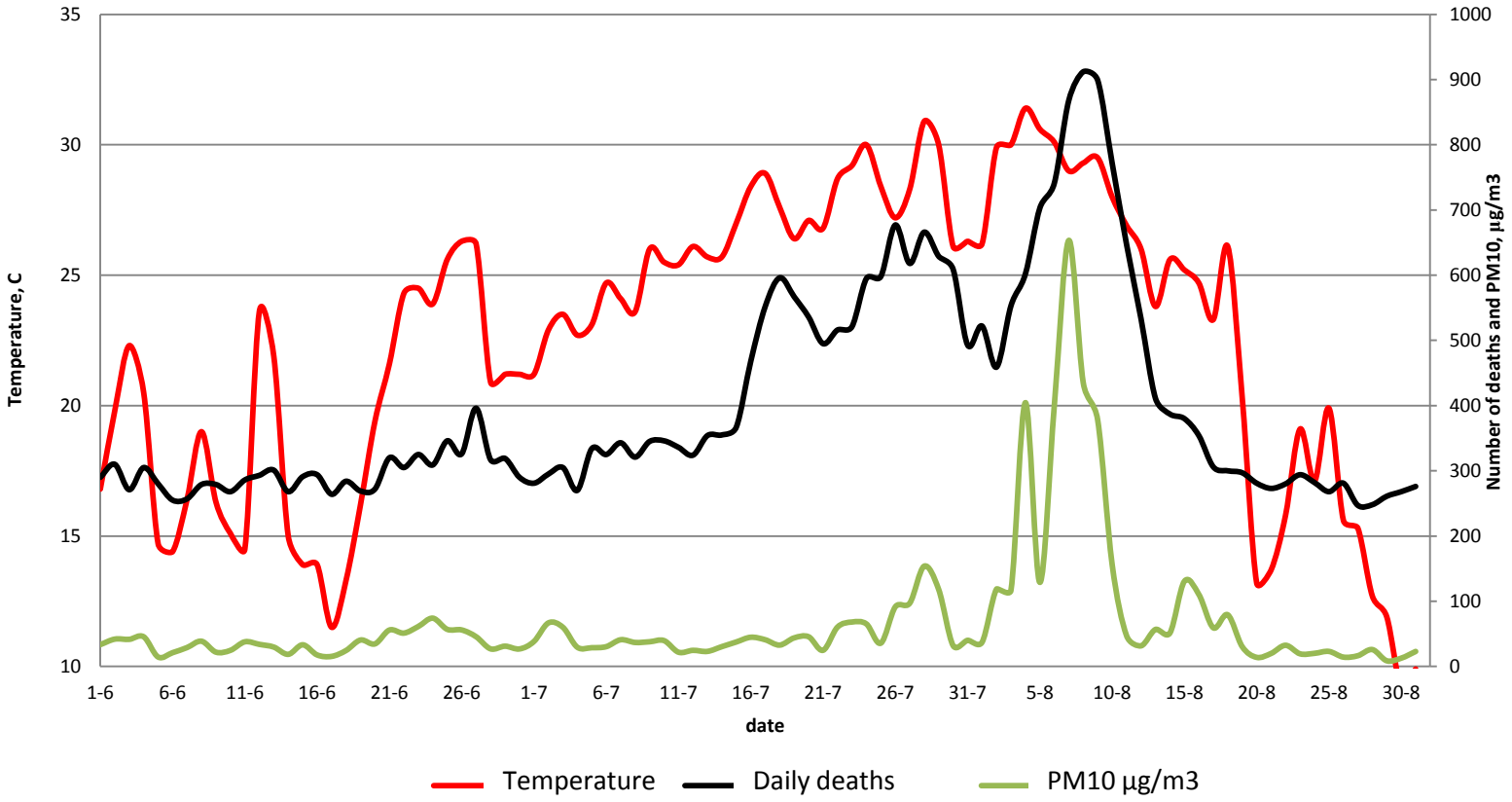
Panasevich et al. 2013

Risk of myocardial infarction in relation to genotype (*IL6*-174G/C) and exposure to traffic-NO_2



Panasevich et al. 2013

Daily non-accidental deaths, 24h mean temperature and PM_{10} levels in Moscow in the summer of 2010



Shaposhnikov et al. 2013

Conclusions

- Exposure to air pollution from road traffic during infancy contributes to asthma, allergic sensitization and lung function disturbances in children
- Experimental studies indicate mechanisms of adverse health effects of traffic related air pollution and wood smoke
- Genetic variants may modify effects by air pollution on levels of systemic inflammation markers and myocardial infarction risk
- Interactions between air pollution from wildfires and prolonged high temperatures during heat waves must be taken into consideration in assessments of health risks associated with climate change