

HEALTH IMPACT OF PM₁₀ IN PO-VENETIAN PLAIN

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Background and Aims: Adverse health effects of air pollution from particulate matter are known. Health impact of PM₁₀ has already been studied in the 13 major Italian cities in 2006. A total of 8220 deaths could be avoided if average concentration decreased to 20 micrograms. The aim of the study is to provide an estimate of deaths attributable to PM₁₀ in the Po-venetian valley, where concentrations are known to be high.

Methods: Standard methods were applied for the calculation of attributable deaths. A population over 30 years of 30 cities of the plain and of the whole province of Milan (around 6 million inhabitants) was considered. Long-term mortality for non accidental causes, lung cancer and infarction were studied. Relative risks (Pope et al 2002, and Pope et al, 2004) of, respectively, 1.06, 1.08 and 1.18 per 10µg/m³ PM₁₀ and an Italian average mortality rate were applied to the population. A scenario with a yearly average concentration of 50 micrograms was considered and the health impact was calculated for abatement to 20 (WHO guidelines).

Results: All cause mortality: a total of 8695 deaths are attributable to PM₁₀ concentration over the WHO guideline value. Same calculations done for lung cancer and infarction provide, respectively, 669 and 2644 excess cases.

Conclusions: A substantial number of lives could be saved decreasing the yearly average concentration of particulate matter. Concentrations are high, although slightly decreasing, and integrated and permanent policies are required. These are particularly needed in the Po-Venetian valley, where air stagnation, dense industrial activity and intense traffic still contribute to high level of pollution and therefore to a considerable burden in term of health impact and social costs.

References:

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