

UPDATED HEALTH IMPACT ASSESSMENT (HIA) OF URBAN AIR POLLUTION IN SEVERAL SPANISH CITIES. APHEKOM PROJECT.

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Background: Great efforts have been invested worldwide to better understand and mitigate the impact of air pollution on human health. However, the debate about safe standards is still open. This study aims to describe the health benefits that would be achieved by meeting the World Health Organization air quality guidelines (WHO-AQG) for PM₁₀, PM_{2.5} and ozone in the Spanish cities of Barcelona, Bilbao, Granada, Malaga, Seville and Valencia.

Methodology: Traditional standard procedure for HIA of urban air pollution updated under the EU-sponsored APHEKOM project was applied in each city. Short-term impacts of ozone and PM₁₀ on mortality and morbidity, as well as the long-term of PM_{2.5} on mortality, life expectancy (LE) and monetary health benefits were quantified based in published concentration-response functions and economic values. Pollutants and health outcome data were recorded for the period 2004-2006. Results were referred to population 30 years of age and older.

Results: Although annual mean of PM₁₀ for the study period did not exceed the legislative limit value in Europe (40 µg/m³) in any of the cities, our findings show that compliance with WHO-AQG of 20 µg/m³ would prevent each year more than 313 deaths, and between 284 and 658 hospital admissions for cardiovascular and respiratory diseases, respectively, in the six cities. Larger health benefits were recorded when considering a decrease in PM_{2.5} concentrations at the long-term. The compliance with WHO-AQG of 10 µg/m³ in annual mean would avoid more than 2732 deaths for the six cities each year, accounting for a monetary health benefit of more than 4,500 millions Euros. This decrease would result in a LE gain that would range between 13.8 and 2.3 months.

Conclusions: Ours findings support the need to revise current air quality legislative limit values, especially in the case of fine particles PM_{2.5}.