

Bronchitis and COPD

Burden of selected respiratory diseases in 11 Polish cities - preliminary screening assessment

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75% of Europeans live in cities. The European Environment Agency estimates that exposure to concentrations of PM₁₀ and PM_{2.5} above the limit values in cities of the EU concerns 10-30% of the population (and 64-93%, when taking into account the WHO guidelines).

Data from the Polish State Environmental Monitoring on concentrations of PM_{2.5} and PM₁₀ in 11 urban areas (with over 250,000 inhabitants) from years 2006-2011 and data on mortality due to lung cancer, cardiopulmonary diseases, and on total non-violent mortality has been used. Using the exposure-response functions defined by Pope et al., JAMA 2002; 287:1132-1141 and Krewski et al., HEI 2009 (research report) the burden of diseases attributable to exposure to ambient PM pollution has been assessed.

In the analysed period the annual mean concentration of PM₁₀ exceeded the EU reference levels in 7 (out of 11) cities (in 8 the PM_{2.5} level was exceeded). Due to the relatively high concentrations of PM in Polish cities (one of the largest in the EU) population attributable fraction (PAF) is also relatively high. Average PAF varied depending on the year and city from 0.10 to 0.53 for mortality due to lung cancer, from 0.15 to 0.53 for ischaemic heart diseases and from 0.07 to 0.39 for all cardiopulmonary diseases.

A significant part of Polish cities population is exposed to concentrations exceeding the allowable PM level. This results in persistently high and even increasing rates of people dying from lung cancer and cardiopulmonary diseases due to the poor air quality.