

## THE RISK OF CARDIOPULMONARY DISEASES AND LUNG CANCER MORTALITY IN POLISH CITIES IN 2006-2015 DUE TO PM<sub>2.5</sub> EXPOSURE

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**Objective:** European Environment Agency (Air quality in Europe — 2017 report) estimates that PM exposure above the limit values in the EU cities concerns 7-20% of the population (50-85% according to the WHO guidelines).

**Materials and Methods:** Data on concentrations of PM<sub>2.5</sub> in 11 agglomerations and data on mortality due to lung cancer (LC), cardiopulmonary diseases (CPD), and on total non-violent (TOT) mortality has been used. Based on exposure-response functions defined by Pope et al., JAMA 2002 and Krewski et al., HEI 2009 the burden of diseases attributable to PM<sub>2.5</sub> exposure has been assessed.

**Results:** In the analysed period the annual mean concentration of PM<sub>2.5</sub> ranged from 14.3 mg/m<sup>3</sup> to 52.5 mg/m<sup>3</sup> and in 8 (out of 11) cities the EU reference levels were exceeded. Average population attributable fraction (PAF) varied depending on the year and city from 0.10 to 0.53 for LC mortality, from 0.15 to 0.53 for ischaemic heart disease (IHD) and from 0.07 to 0.39 for CPD mortality. Depending on city, the TOT mortality per 100,000 inhabitants attributable to ambient PM<sub>2.5</sub> varied from 210 (in the most polluted city) to 82 (in the least polluted city) incidences. In case of CPD and LC it was from 136 to 48 and from 22 to 9 cases respectively.

**Conclusion:** Significant part of Polish cities population is exposed to concentrations exceeding the PM limit values and WHO guidelines This results in persistently high and even increasing rates of people dying from lung cancer and cardiopulmonary diseases due to the poor air quality.