World Health Organization

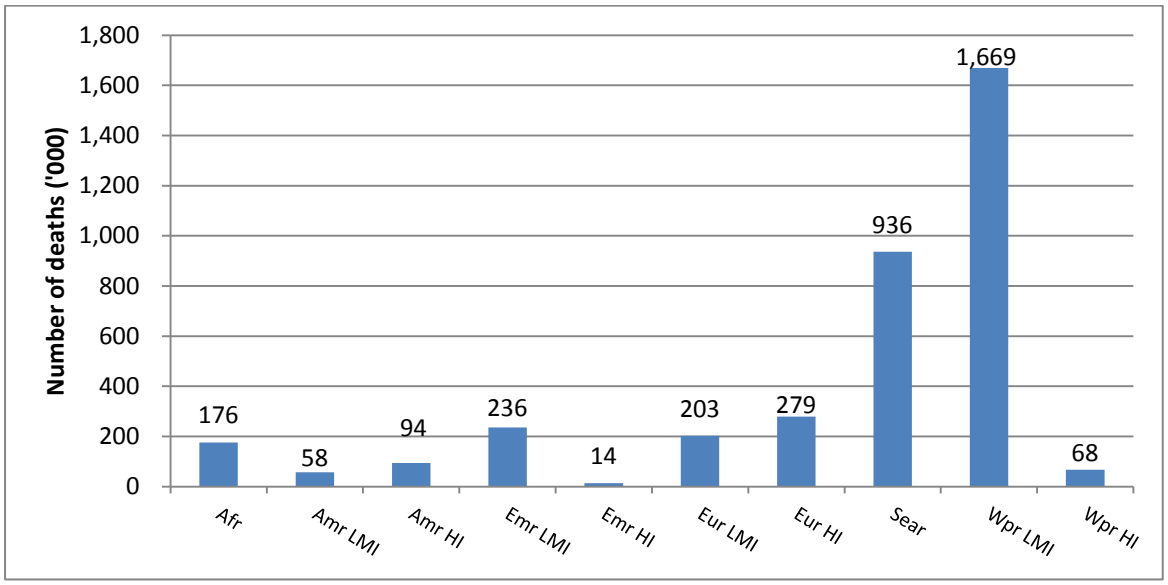
Burden of disease from Ambient Air Pollution for 2012

Summary of results

Globally, 3.7 million deaths were attributable to ambient air pollution (AAP) in 2012. About 88% of these deaths occur in low- and middle-income (LMI) countries, which represent 82% of the world population. The Western Pacific and South East Asian regions bear most of the burden with 1.67 million and 936'000 deaths, respectively. About 236'000 deaths occur in the Eastern Mediterranean region, 200'000 in Europe, 176'000 in Africa, and 58'000 in the Americas. The remaining deaths occur in high-income countries of Europe (280'000), Americas (94'000), Western Pacific (67'000), and Eastern Mediterranean (14'000).

The large increase in burden compared with the previous estimate of 1.3 million deaths from AAP from 2008[1] is due to 1) additional evidence that has become available on the relationship between exposure and health outcomes and the use of integrated exposure-response functions[2]; 2) an increase in non-communicable diseases; 3) the inclusion of the rural population, whereas the previous estimate only covered the urban population; and 4) the use of a lower counterfactual, i.e. the baseline exposure against which the effect of air pollution is measured[3].

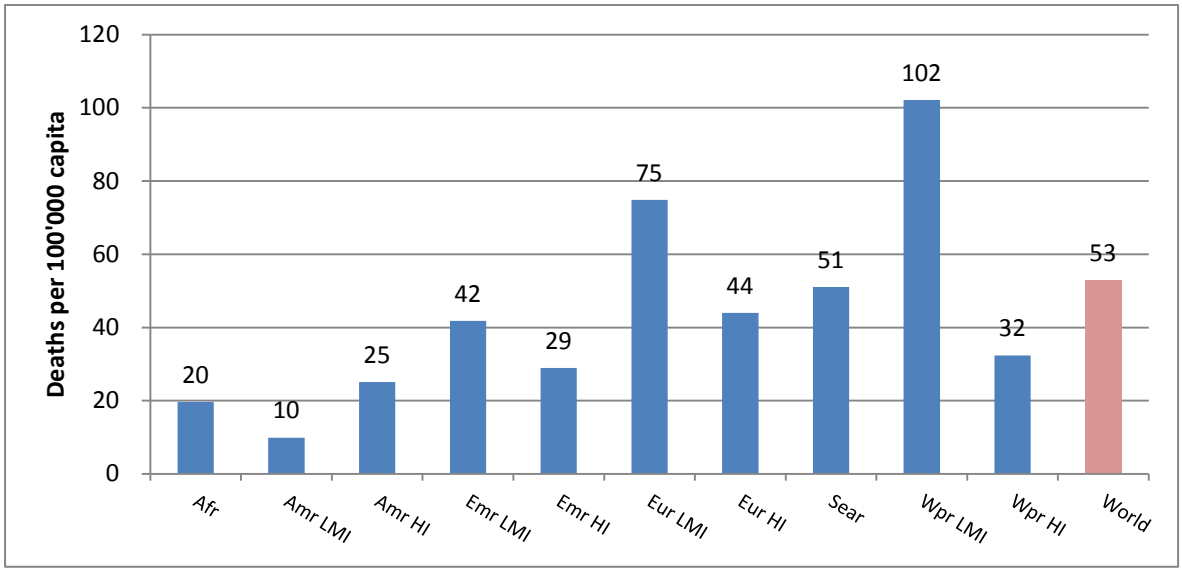
***Figure 1**. Total deaths ('000) attributable to AAP in 2012, by region*



AAP: Ambient air pollution; Amr: America, Afr: Africa; Emr: Eastern Mediterranean, Sear: South-East Asia, Wpr: Western Pacific; LMI: Low- and middle-income; HI: High-income.

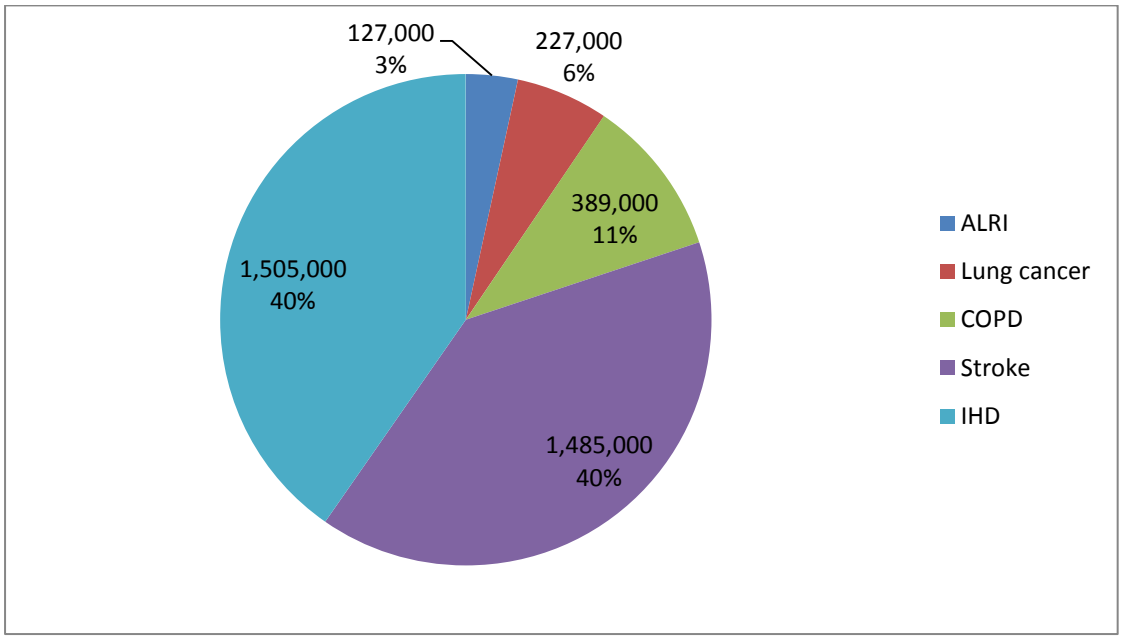
[1] *Burden of disease attributable to outdoor air pollution*, World Health Organization, Geneva 2011, www.who.int/phe/health_topics/outdoorair/databases/burden_disease/en/.
[2] Burnett R et al. (2014), EHP, http://dx.doi.org/10.1289/ehp.1307049.
[3] Previously, the 1.3 million deaths represented the health gains if the WHO Air Quality Guideline levels were reached.

***Figure 2**. Deaths per capita attributable to AAP in 2012, by region*



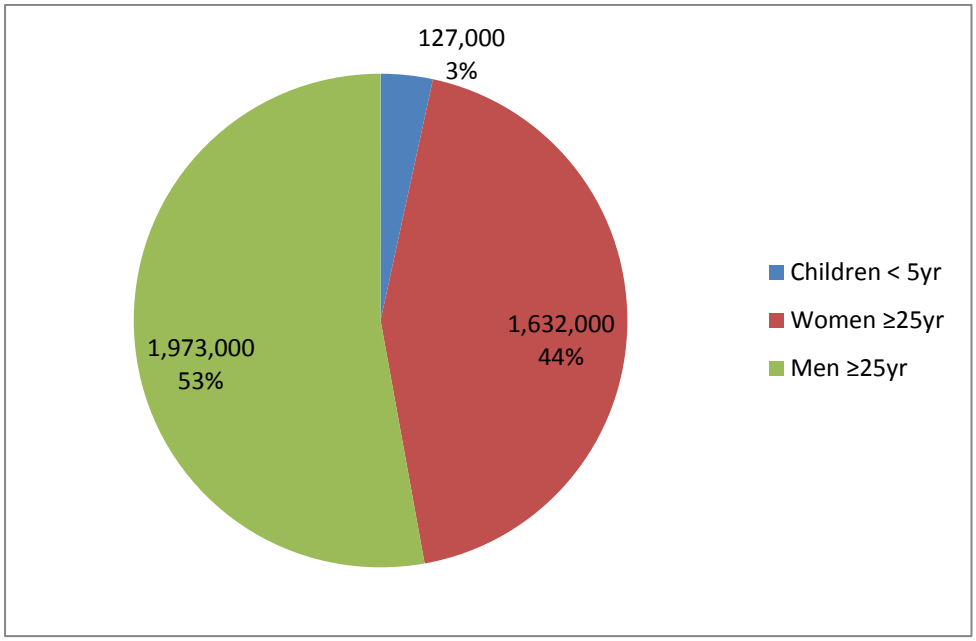
AAP: Ambient air pollution; Amr: America, Afr: Africa; Emr: Eastern Mediterranean, Sear: South-East Asia, Wpr: Western Pacific; LMI: Low- and middle-income; HI: High-income.

***Figure 3**. Deaths attributable to AAP in 2012, by disease*



Percentage represents percent of total AAP burden (add up to 100%).
AAP: Ambient air pollution; ALRI: Acute lower respiratory disease; COPD: Chronic obstructive pulmonary disease; IHD: Ischaemic heart disease.

***Figure 4**. Deaths attributable to AAP in 2012, by age and sex*



Percentage represents percent of total AAP burden (add up to 100%).
AAP: Ambient air pollution; yr: year.

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