

Burden of disease from Household Air Pollution for 2012

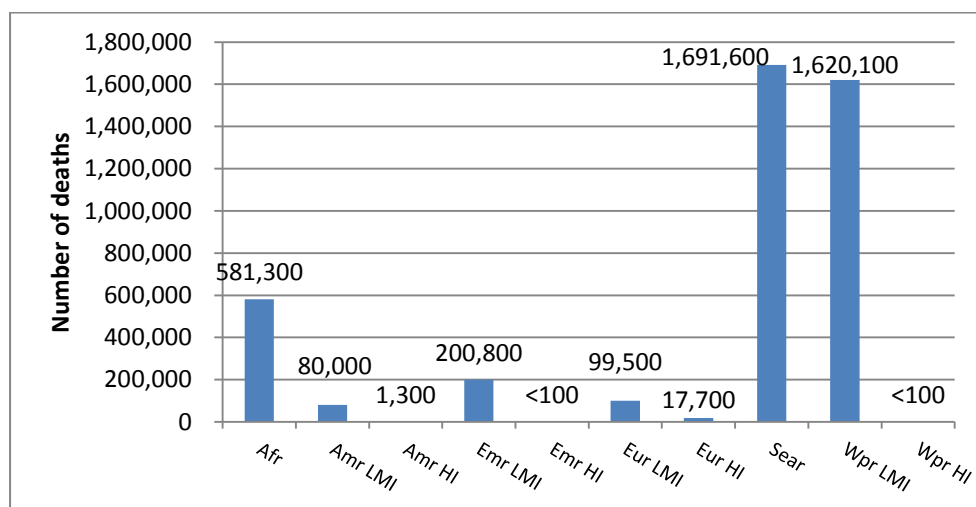
Summary of results

Globally, 4.3 million deaths were attributable to household air pollution (HAP) in 2012, almost all in low and middle income (LMI) countries. The South East Asian and Western Pacific regions bear most of the burden with 1.69 and 1.62 million deaths, respectively. Almost 600'000 deaths occur in Africa, 200'000 in the Eastern Mediterranean region, 99'000 in Europe and 81'000 in the Americas. The remaining 19'000 deaths occur in high income countries.

The large increase in burden compared with the previous estimate of 2 million deaths from HAP from 2004¹ is mainly due to 1) additional health outcomes such as cerebrovascular diseases and ischaemic heart disease included in the analysis²; 2) additional evidence that has become available on the relationship between exposure and health outcomes and the use of integrated exposure-response functions³; and 3) an increase in non-communicable diseases.

Although women experience higher personal exposure levels than men^{2,4} and therefore higher relative risk to develop adverse health outcomes due to their greater involvement in daily cooking activities, the absolute burden is larger in men due to larger underlying disease rates in men.

Figure 1. Total deaths attributable to HAP in 2012, by region



HAP: Household 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 *Global Health Risks*, World Health Organization, Geneva 2009.

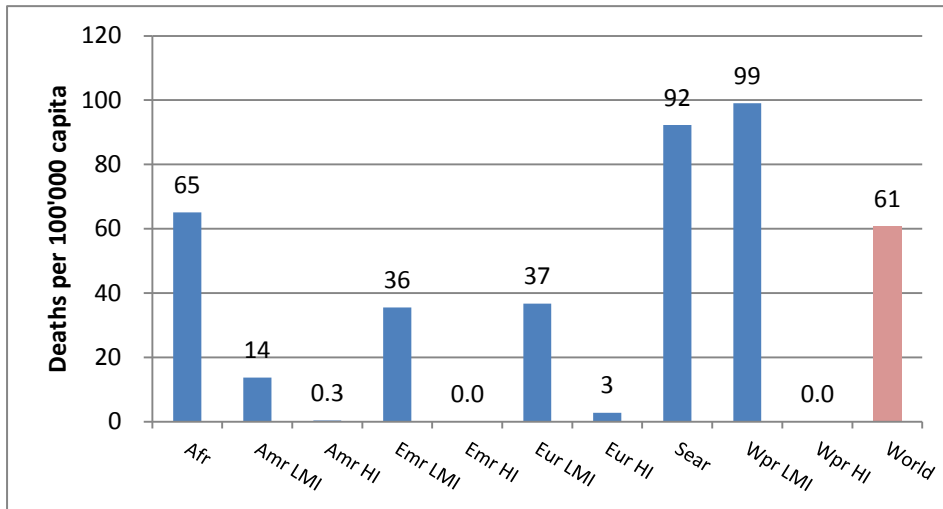
² Smith K, Bruce N et al. (2014). *Annu. Rev. Public Health*, Vol 35.

<http://www.annualreviews.org/doi/abs/10.1146/annurev-publhealth-032013-182356>.

³ Burnett R et al. (2014), *Environmental Health Perspectives*, advanced publication 7 February 2014, <http://dx.doi.org/10.1289/ehp.1307049>.

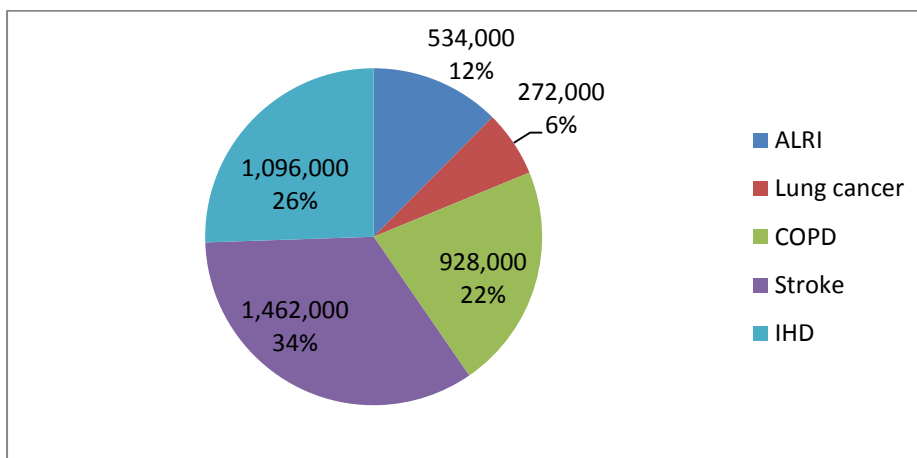
⁴ Balakrishnan K et al. (2013). *Environmental Health*, 12:77 <http://www.ehjournal.net/content/12/1/77>

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



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

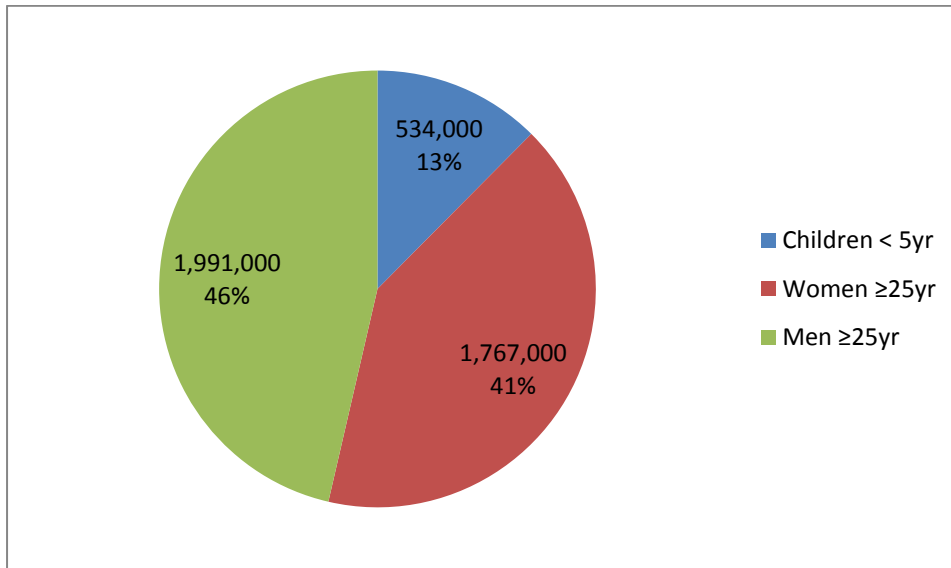
Figure 3. Deaths attributable to HAP in 2012, by disease



Percentage represents percent of total HAP burden (add up to 100%).

HAP: Household air pollution; ALRI: Acute lower respiratory disease; COPD: Chronic obstructive pulmonary disease; IHD: Ischaemic heart disease.

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



Percentage represents percent of total HAP burden (add up to 100%).

HAP: Household air pollution; yr: year.

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