

## 2.D. Oral session: Environment-related diseases

### The economic impact of air pollution: a European assessment

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#### Background:

In 2017, the Global Burden of Disease Study estimated that in Europe 0.42 million deaths and 8.9 million disability-adjusted life years were attributable to air pollution. Monetizing this burden is a key step for estimating benefits of exposure reduction strategies. However, robust and synthetic estimates of direct (e.g. due to hospitalizations or medications) and indirect (e.g. due to premature mortality or loss of productivity) health-related costs of air pollution seem to be still lacking. We carried out a systematic review, aimed at identifying evidence from research in Europe.

#### Methods:

We searched 5 electronic databases (MEDLINE, EMBASE, Cochrane Library, SCOPUS, Web Of Science) in which we applied algorithms tracing keywords such as “cost of illness”, “health care costs”, “economics” and synonyms, together with “air pollution” and synonyms. We limited our search to articles written in English and Italian, without date restriction.

#### Results:

The initial search retrieved 2420 records. 200 were classified as relevant, and 38 fulfilled inclusion criteria. Most of them (68%) were published after 2010. 26% were multi-country studies, while the remaining focused on a single country or city. Investigated pollutants were usually particulate matter (79% of the studies) and nitrogen oxides (37%). The approaches to the economic analysis were heterogeneous: estimates could include direct and/or indirect costs. Among the studies, the most comprehensive one (12 countries) estimated that complying with WHO guidelines would avert €31 billion yearly, of which €19 million due to hospitalizations.

#### Conclusions:

Over the last decade, progress has been made in evaluating the economic burden of air pollution. However, estimates based on indirect costs are affected by high levels of uncertainty, while those based on direct costs are more robust and should be further investigated, since they are crucial information for healthcare policy makers.

#### Key messages:

- Air pollution poses a high economic burden on European countries, mainly due to social costs.

- More attention should be devoted to estimating direct healthcare costs of air pollution, in order to properly inform policy makers about the impact on healthcare systems.