

Health and the environment – addressing the health impact of air pollution

Report by the Secretariat

HEALTH IMPACTS OF EXPOSURE TO AIR POLLUTION

1. Air pollution is strongly associated with stroke, heart and respiratory diseases and cancer, and with maternal and child health. For example, over 50% of pneumonia deaths in children under 5 years of age are due to particulate matter inhaled from burning of solid fuels in the home, and one fifth of deaths from stroke and ischaemic heart disease have air pollution as the main risk factor.
2. IARC has recently identified air pollution as a whole, as well as the fine particles that are present in air pollution (PM_{2.5}), as a cause of lung cancer. IARC had already classified diesel exhaust and coal smoke (two main components of ambient and indoor air pollution) as carcinogens.
3. Air pollution poses risks to health even at relatively low levels, and in view of the large number of people exposed to this risk, it causes significant loss of life and ill-health in countries at all levels of development.
4. New and extensive evidence indicates that air pollution is now one of the main avoidable causes of disease and death globally. Household (indoor) air pollution accounts for approximately 4.3 million deaths each year, while 3.7 million deaths are attributed to ambient (outdoor) air pollution. Many people are exposed to both indoor and outdoor air pollution. Because of this overlap, mortality attributed to the two sources cannot simply be added together, hence the total estimate of around 7 million deaths in 2012.
5. While all populations are affected by air pollution regardless of income status, the poor and disempowered, for example urban slum dwellers, are often exposed to higher levels of air pollution and are by far the most heavily affected. Today levels of air pollution and associated mortality are highest in rapidly industrializing countries.

THE BROADER CONTEXT AND OPPORTUNITIES FOR ACTION

6. Fine particle air pollution (PM₁₀ and PM_{2.5}) travels thousands of kilometers and does not respect national boundaries, with pollution produced in one country potentially affecting others. Solutions therefore require concerted action across countries.

7. The sources of air pollution (combustion of fossil fuels and biomass) are also sources of greenhouse gases. Measures that address these sources have significant benefits for health, both in terms of the direct impacts of air pollution on strokes, heart disease, cancers and pneumonias, and in terms of the indirect health impacts of climate change (such as extreme weather events, water scarcity, lower agricultural productivity and malnutrition or changes in disease vectors). For example, more widespread use of clean fuels and cooking stoves in the home can reduce black carbon (a short-lived climate pollutant) and prevent child pneumonia and noncommunicable diseases, thereby also contributing to attainment of several of the health-related millennium development goals.

8. Growing international interest is accordingly being shown in interventions that improve air pollution, climate change and health, such as the Climate and Clean Air Coalition, as well as in scaling up access to clean, modern and sustainable energy technologies. The United Nations Secretary-General's initiative on Sustainable Energy for All, for instance, offers significant potential to catalyse improvements in air quality and health, particularly for the 2.8 billion households in developing countries that rely on "dirty" fuels for cooking and heating (who are the specific target of the Global Alliance for Clean Cookstoves).

9. Several successful country and regional initiatives to reduce air pollution already exist and could serve as platforms for intersectoral action on air quality and health. For example, air pollution has been included in the South-East Asia Region's Regional Action Plan for the Prevention and Control of Noncommunicable Diseases (2013–2020), a health task force has been established under the Convention on Long-Range Transboundary Air Pollution (for which the United Nations Economic Commission for Europe provides the secretariat), and the Transport, Health and Environment Pan-European Programme has been under way since 2002.

10. A substantial research effort into the health impacts of air pollution was synthesized in the 2005 update of WHO's air quality guidelines,¹ which serve as a benchmark for setting air quality goals in many countries. A more recent focus on evidence of effective interventions has led to the elaboration of WHO indoor air quality guidelines for household fuel combustion, which will include health-based recommendations on household fuels and technologies. This evidence can be used to provide authoritative advice about the health benefits of policy options aimed at addressing specific sources of air pollution.

11. A global platform for air quality and health is being established by WHO to support the monitoring of air pollution and related health impacts worldwide, engaging numerous agencies worldwide and expanding the population coverage of WHO databases on air quality. Not only will this provide an important source of data (because of the potential to harmonize and enhance the quality and coverage of data collected and reported), it can also enable trends in air pollution and health to be monitored and facilitate assessment of the impacts of global, regional and national interventions to address air pollution.

THE ROLE OF THE HEALTH SECTOR, INCLUDING MINISTRIES OF HEALTH

12. Air pollution is closely linked with several thematic areas being discussed in the context of the post-2015 development agenda, including sustainable energy, transport, cities and health. This creates

¹ Air quality guidelines global update 2005: particulate matter, ozone, nitrogen dioxide and sulfur dioxide. Copenhagen: WHO Regional Office for Europe; 2006.

an opportunity for the health sector to influence the framing of policy responses to air pollution, advocating those most favourable to public health. Air pollution health impacts also illustrate the nexus between these dimensions of sustainable development.

13. Preventing air pollution and its related health impacts depends on effective action across sectors, including the health sector. Air pollutant emissions originate from policy choices in economic sectors such as transport, construction, power generation and agriculture, as well as with regard to household energy for cooking and heating. Some sectoral policies reduce air pollution and lead to health benefits, whereas others provide no health benefit and in some cases increase health risks. The health sector needs to be effectively engaged in and contribute to different sectors' policy processes, at national, regional and international levels, and to provide authoritative advice about policy options that will yield the greatest benefits to health.

14. While the health sector has already been engaged in action to address air pollution (the WHO air quality guidelines being a notable example), this engagement is not occurring in a systematic and coordinated fashion. There is a need for a more coherent and coordinated overall response that also takes into account and addresses relevant linkages with existing health priorities and concerns, including the noncommunicable disease agenda, the attainment of the health-related millennium development goals, in particular those related to maternal and child health, and the promotion of universal health coverage. Similarly linkages with other relevant objectives, such as the enactment of health in all policies, need to be articulated.

15. Actions envisaged as part of such a response include:

- systematically engaging in relevant sectors' debates about air quality, for example in relation to urban development, transport or energy, so as to ensure that health issues are adequately addressed as part of global, regional and national efforts to tackle air pollution and its sources, including as part of the development of national and regional action plans;
- advocating for the inclusion of health goals and the use of health-based guidelines in the development of national, regional or sector-specific air quality policies or standards;
- using decision support instruments such as health impact assessment to identify health risks and benefits associated with policies and interventions aimed at addressing air pollution, influencing specific sectoral policies so as to protect health, and facilitating the identification of potentially disadvantaged or disproportionately affected population groups;
- supporting the establishment or designation of national health institutions capable of conducting research on and monitoring and reporting on health impacts from air pollution and its sources;
- strengthening the capacity of health systems – in terms of skills, knowledge tools and resources – to work with other sectors, monitor and evaluate air pollution and related health impacts, and deal with acute air pollution episodes and emergency events;
- shaping the research agenda and promoting relevant research initiatives (such as on the effectiveness of interventions and experience with their implementation), so as to enrich the evidence base about the health risks and benefits associated with different policies and interventions put forward to address air pollution;

- developing and updating guidelines that inform norms and standards and thereby influence national, regional and global benchmarks and targets with regard to indoor and outdoor air quality;
- strengthening monitoring and evaluation, including through the development of relevant indicators (health indicators related to air pollution), and strengthening links between relevant existing monitoring systems (such as those used for weather, health, climate and air quality).

THE WORK OF WHO

16. Given the public health importance of air pollution, in view of the fact that action on the social, economic and environmental determinants of health is already a leadership priority in the Twelfth General Programme of Work 2014–2019, and because of the scale of the response required, the Secretariat’s programmatic activities in the area of air pollution and health may need to be scaled up. This includes updating, disseminating and implementing WHO guidelines on air quality and interventions to address this risk to health; monitoring, evaluating and reporting on air quality and related health impacts; strengthening the evidence base for policy action and applied research; and building capacity in the health sector to engage with other sectors and contribute to preventive action in countries.

ACTION BY THE EXECUTIVE BOARD

17. The Board is invited to consider the report and give further guidance.

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