

PREVENTING DISEASE THROUGH HEALTHY ENVIRONMENTS

Towards an estimate of the
environmental burden of disease

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HOW MUCH DISEASE CAN BE PREVENTED THROUGH HEALTHIER ENVIRONMENTS?

This question lies at the heart of our global efforts to address the root causes of ill health through improved preventive health strategies - using the full range of policies, interventions and technologies in our arsenal of knowledge.

Previous World Health Organization studies have examined the aggregate disease burden attributed to key environmental risks globally and regionally, quantifying the amount of death and disease caused by factors such as unsafe drinking-water and sanitation, and indoor and outdoor air pollution.

Building from that experience, this present study examines how *specific diseases and injuries* are impacted by environmental risks, and which regions and populations are most vulnerable to environmentally-mediated diseases and injuries.

This report confirms that approximately one-quarter of the global disease burden, and more than one-third of the burden among children, is due to modifiable environmental factors. The analysis here also goes a step further, and systematically analyzes how different diseases are impacted by environmental risks... and by 'how much.' Heading that list are diarrhoea, lower respiratory infections, various forms of unintentional injuries, and malaria. This 'environmentally-mediated' disease burden is much higher in the developing world than in developed countries - although in the case of certain non-communicable diseases, such as cardiovascular diseases and cancers, the per capita disease burden is larger in developed countries. Children bear the highest death toll with more than 4 million environmentally-caused deaths yearly, mostly in developing countries. The infant death rate from environmental causes is 12 times higher in developing than in developed countries, reflecting the human health gain that could be achieved by supporting healthy environments.

This analysis details the health impacts of environmental risks across more than 80 diseases and injuries. Findings are particularly relevant to health care policymakers and practitioners. Our evolving knowledge about environment-health interactions can support the design of more effective preventive and public health strategies that reduce corresponding risks to health.

These estimates involved not only a systematic literature review in all of the disease categories addressed, but also a survey of more than 100 experts worldwide. As such, this analysis represents the result of a systematic process for estimating environmental burden of disease that is

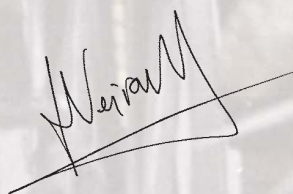
unprecedented in terms of rigor, transparency and comprehensiveness. It incorporates the best available scientific evidence on population risk from environmental hazards currently available. While not an official WHO estimate of environmental burden of disease, as such, it is an important input. More immediately, findings can be used to highlight the most promising areas for immediate intervention, and also gaps where further research is needed to establish the linkages and quantify population risk (burden of disease) for various environmental risk factors.

Many measures can indeed be taken almost immediately to reduce this environmental disease burden. Just a few examples include the promotion of safe household water storage and better hygiene measures, the use of cleaner fuels and safer, more judicious use and management of toxic substances in the home and workplace. At the same time, actions by sectors such as energy, transport, agriculture, and industry are urgently required, in cooperation with the health sector, to address the root environmental causes of ill health.

There is good news in this report, however. These findings underline the fact that environment is a platform for good health that we all share in common.

Acting together on the basis of coordinated health, environment and development policies, we can strengthen this platform, and make a real difference in human well-being and quality of life.

Coordinated investments can promote more cost-effective development strategies with multiple social and economic co-benefits, in addition to global health gains, both immediate and long term. Repositioning the health sector to act more effectively on preventive health policies, while enhancing intersectoral partnerships, is thus critical to addressing the environmental causes of disease and injury, meeting the Millennium Development Goals, and achieving better health for all.



Dr. Maria Neira
Director
Public Health and Environment
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EXECUTIVE SUMMARY

PREVENTING DISEASE THROUGH HEALTHY ENVIRONMENTS

This global assessment provides quantitative estimates of 'burden of disease' from environmental factors across the major categories of reported diseases and injuries.

By focusing on the disease endpoint, and how various kinds of diseases are impacted by environmental influences, the analysis forges new ground in an understanding of interactions between environment and health. The estimates, in effect, reflect how much death, illness and disability could realistically be avoided every year as a result of reduced human exposures to environmental hazards.

Specifically considered here are "modifiable" environmental factors realistically amenable to change using available technologies, policies, and preventive and public health measures. These environmental factors include physical, chemical and biological hazards that directly affect health and also increase unhealthy behaviours (e.g. physical inactivity).

The analysis builds upon the Comparative Risk Assessment coordinated by WHO in 2002, which looked at the total burden of disease attributable to some of the most important environmental hazards, and upon other quantitative surveys of health impacts from the environment. When quantitative data were too scarce for meaningful statistical analysis, experts in environmental health and health care provided estimates. More than 100 experts from around the world contributed with reference to 85 categories of diseases and injuries. Estimates are quantified in terms of mortality from the attributable environmental fraction of each disease condition, and in terms of 'disability adjusted life years' (DALYs) – a weighted measure of death, illness and disability. While there are gaps in the reporting of many diseases at country level, this analysis makes use of the best available data on overall disease

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