Noncommunicable diseases and air pollution

Noncommunicable diseases (NCDs) are currently responsible for 8.8 million deaths in the Region. Air pollution accounts for 20% of all these NCD deaths.

Cardiovascular diseases, respiratory diseases and lung cancer are among the leading causes of mortality, and air pollution is a significant risk factor. This was formally recognized in 2018 by the Third High-Level Meeting of the UN General Assembly on the Prevention and Control of NCDs. Household and outdoor air pollution is the fifth risk factor for NCDs, alongside unhealthy diets, tobacco-smoking, harmful use of alcohol and physical inactivity.

Actions to address air pollution through interventions such as less use of motorized transport have several health co-benefits – not only contributing to cleaner air, but also promoting physical activity.

References

Databases:
Global Health Observatory data repository
Household air pollution
http://apps.who.int/gho/data/node.main.134?lang=en
WHO global ambient air quality database
https://www.who.int/airpollution/data/cities/en/
Joint effects of air pollution
http://apps.who.int/gho/data/node.main.ENVHEALTHJOINTAAPHAP?lang=en

Communication tools:
Infographics:
https://www.who.int/airpollution/infographics/en/
Breathelife
www.breathelife2030.org

Reports:
Ambient air pollution: A global assessment of exposure and burden of disease
This report presents a summary of methods and results of the latest WHO global assessment of ambient air pollution exposure and the resulting burden of disease.

Burning opportunity: Clean household energy for health, sustainable development, and wellbeing of women and children
https://www.who.int/airpollution/publications/burning-opportunities/en/
This global report provides new data on the still-pervasive use of polluting fuels for home cooking, lighting and heating, as well as an in-depth look at the impacts on women and children.

Air pollution and child health: Prescribing clean air
This report summarizes the latest scientific knowledge on the links between exposure to air pollution and adverse health effects in children. It is intended to inform and motivate individual and collective action by health-care professionals to prevent damage to children's health from exposure to air pollution.

Preventing noncommunicable diseases (NCDs) by reducing environmental risk factors
This publication presents the burden of NCDs caused by environmental risks and provides the evidence on why environmental risk reduction is essential in NCD prevention and control strategies.
**Household air pollution – A burning opportunity in the Region**

Of the 3 billion people still relying on polluting fuels for their cooking and heating needs globally, 1.1 billion live in the Region. According to data from 2016, 21% of household air pollution deaths in the Region are attributable to ischaemic heart disease, 19% to stroke, 36% to lung cancer, and 38% to COPD. Women and children are disproportionately affected by household air pollution. It causes half of all pneumonia deaths in children under five, accounting for 15% of all under-five child mortality. Even in the womb, children are not safe. Prenatal and early life exposure to air pollution predispose individuals to cardiovascular diseases later in life, impair lung development, reduce lung function, and increase risk of chronic lung diseases in adulthood.

Access to clean fuels and technologies across the Region ranges from 6%–92%, with Maldives becoming the first Member State to achieve 50% reduction in the percentage of population using solid fuels as the primary source of cooking. More urgent and aggressive reduction in the use of solid fuels is needed to tackle the serious burden on health from household air pollution faced by many countries in the Region.

**Ambient air pollution – Tackling rising air pollution in our cities**

Already home to eight megacities with a combined population of over 150 million, urbanization in the South-East Asia Region is unprecedented and increasing rapidly. And with it, there is an increase in energy consumption, transportation, industrial and construction activities – all contributing to ambient air pollution.

In 2016, the Region accounted for 1.3 million premature deaths due to ambient air pollution (30% of the global total). Workplace exposure to air pollutants, often poorly regulated in informal settings, is also a concern for agricultural and other workers working outdoors.

A global campaign – BreatheLife – already reaching over 290 million people is mobilizing communities around the world to reduce the impact of air pollution on our health and climate. Five cities and settlements are among the first in WHO South-East Asia Region to join BreatheLife to share solutions and experience in reducing ambient air pollution levels.

There is limited air quality data in the Region with only 198 cities and settlements monitoring their air quality on a regular basis. More monitoring of air quality is needed in the Region.

**Air pollution and cardiovascular disease**

While many associate negative impacts of air pollution with the respiratory system, less widely appreciated is the impact on the cardiovascular and other internal systems. The small size (2.5 microns) of the particles allows them to be inhaled, to bypass the nasal, lung, placental, and blood-brain barriers to enter the body and cause systemic effects. It is widely accepted that fine particulate matter exerts many of its biological effects via the generation of reactive oxygen species and induction of oxidative stress responses. Mechanisms for particulate matter-caused cardiovascular disease – the most important environmental risk factor of global mortality and disabling4 include direct toxicity to cardiovascular system or indirect injury through systemic inflammation and oxidative stress in circulation.4

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Note: Remote sensing from satellites combined with modelling is used to assess population exposure at the country level.