Health basis for air quality policies in Europe

Virtual Workshop on Air Pollution and Health in Southeast Europe, 08-09 June 2021
Presentation outline

WHO Air Quality Guidelines

WHA resolution on air pollution and health

WHO estimates of the burden of disease due to air pollution in Bulgaria and Serbia
WHO Air Quality Guidelines (AQG)

- Robust public health recommendations
- Comprehensive assessment of the evidence
- Support informed decision-making
- Intended for worldwide use

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Averaging time</th>
<th>AQG value</th>
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</thead>
<tbody>
<tr>
<td>PM2.5</td>
<td>1 year</td>
<td>10 µg/m³</td>
</tr>
<tr>
<td></td>
<td>24 hour (99ᵗʰ percentile)</td>
<td>25 µg/m³</td>
</tr>
<tr>
<td>PM10</td>
<td>1 year</td>
<td>20 µg/m³</td>
</tr>
<tr>
<td></td>
<td>24 hour 99ᵗʰ percentile</td>
<td>50 µg/m³</td>
</tr>
<tr>
<td>O₃</td>
<td>8 hour, daily max</td>
<td>100 µg/m³</td>
</tr>
<tr>
<td>NO₂</td>
<td>1 year</td>
<td>40 µg/m³</td>
</tr>
<tr>
<td></td>
<td>1 hour</td>
<td>200 µg/m³</td>
</tr>
<tr>
<td>SO₂</td>
<td>24 hour</td>
<td>20 µg/m³</td>
</tr>
<tr>
<td></td>
<td>10 minute</td>
<td>500 µg/m³</td>
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</tbody>
</table>

Levels recommended to be achieved everywhere in order to significantly reduce the adverse health effects of air pollution.
Update of WHO global AQG - guideline development process

1. Systematic review of evidence
2. Grading the evidence
3. Developing recommendations
Systematic reviews of evidence

Long-term exposure:
• PM and all-cause and cause-specific mortality
• O₃ and NO₂ and all-cause and cause-specific mortality

Short-term exposure:
• PM, NO₂ and O₃ and all-cause and cause-specific mortality
• O₃, NO₂ and SO₂ and asthma
• SO₂ and all-cause and cause-specific mortality
• CO and ischaemic heart disease

https://www.sciencedirect.com/journal/environment-international/special-issue/10MTC4W8FXJ
WHO global Air Quality Guidelines (2021)

- Recommendations in the form of numerical concentration values for PM10, PM2.5, NO₂, O₃, SO₂ and CO for relevant averaging times and in relation to critical health outcomes

- Interim targets to support implementation and monitoring

- Good practice statements for:
  - desert dust
  - black carbon
  - ultrafine particles

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Uptake of WHO AQG in air quality policy


on ambient air quality and cleaner air for Europe

The European Parliament and the Council of the European Union,

Considering the Environmental Protection Policy of the European Community;

Noting the opinion of the European Community’s Environmental Committee, the European Economic and Social Committee and the Committee of the Regions;

Considering the requirement for an improvement in ambient air quality, taking into account relevant World Health Organisation standards, guidelines and programmes;

The European Parliament and the Council, Having endorsed the European Commission’s proposal, Considering the Commission, Having decided to conclude an international agreement to be annexed to this Directive in order to protect human health and the environment as a whole, it is particularly important to combat emissions of pollutants at source and to identify and implement the most effective emission reduction measures at local, national and Community level, Therefore, emissions of harmful air pollutants should be avoided, prevented or reduced and appropriate objectives set for ambient air quality taking into account relevant World Health Organisation standards, guidelines and programmes.

City of London Air Quality Strategy
Delivering healthy air in the City of London 2019 – 2024

Our definition of healthy air:
Concentrations of nitrogen dioxide (NO₂) and particulate matter (PM₁₀ and PM₂.₅) that meet health-based Limit Values and World Health Organisation (WHO) Guidelines.

Our Aim
Our Aim For nitrogen dioxide to meet health-based Limit Values and WHO Guidelines in over 90% of the Square Mile by 2025 and support the Mayor of London to meet WHO Guidelines for PM₁₀ and PM₂.₅ by 2030.
Uptake of WHO AQG in air quality policy

EU urban population exposed to air pollutant concentrations above:

WHO air quality guidelines

selected EU air quality standards

First WHA Resolution on Air Pollution and Health (2015)

- Air pollution among the leading avoidable causes of disease and death globally
- The key role of health authorities in raising awareness about the potential to save lives and reduce health costs, if air pollution is addressed
- The need for cooperation between sectors and integration of health concerns into all national, regional and local air pollution-related policies
- Recognizes the role of WHO Air Quality Guidelines in providing recommendations for clean air that protect human health
- Urges Member States to develop air quality monitoring systems and registries to improve surveillance for illnesses related to air pollution
- Urges Member States to strengthen international transfer of expertise, technologies and scientific data in the field of air pollution
Air pollution recognized as a risk factor of non-communicable diseases (2018)
Reducing air pollution in the context of post COVID-19 recovery

Six pillars

• Protect and preserve the source of human health: nature
• Ensure a quick transition to clean renewable sources of energy
• Switch to healthy and sustainable food systems
• Build healthy, liveable cities
• Stop using taxpayers money to fund pollution
• Invest in essential services

Air pollution

• Coherent multi-sectoral policies/actions in transport, industry, power generation, agriculture, housing and land use…
• Policies to ensure clean fuels and technologies for cooking, heating, lighting in households
• Air quality standards in line with WHO AGQ
Air pollution and health in Bulgaria and Serbia – WHO estimates of the burden of disease due to air pollution

<table>
<thead>
<tr>
<th></th>
<th>Bulgaria</th>
<th>Serbia</th>
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<tbody>
<tr>
<td>Concentration of PM2.5 (µg/m³) (annual average)</td>
<td>19.04</td>
<td>24.85</td>
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<tr>
<td>Ambient air pollution attributable deaths</td>
<td>8 613</td>
<td>6 592</td>
</tr>
<tr>
<td>Ambient air pollution attributable death rate (per 100 000 population)</td>
<td>120.8</td>
<td>74.73</td>
</tr>
<tr>
<td>Ischaemic heart disease</td>
<td>4 986</td>
<td>3 111</td>
</tr>
<tr>
<td>Stroke</td>
<td>2 266</td>
<td>1 577</td>
</tr>
<tr>
<td>Chronic obstructive pulmonary disease</td>
<td>667</td>
<td>813</td>
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Based on the data for 2016; central estimates
Thank you