Russian Federation

Air pollution was the 10th leading risk factor for premature death in the Russian Federation in 2019, accounting for more than 4% of all deaths (more than 77,500). Considered separately, ambient particulate matter (PM$_{2.5}$) ranked as the 11th leading risk factor. Ozone and household air pollution were not in the top 20 risk factors.

**Key Statistics at a Glance**

<table>
<thead>
<tr>
<th>Nearly 77,500 deaths due to air pollution in 2019.</th>
<th>12 µg/m$^3$ population-weighted annual average PM$_{2.5}$ concentration.*</th>
<th>36 ppb average seasonal population-weighted ozone.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 5% of infant deaths attributable to air pollution.</td>
<td>Nearly 74,000 deaths attributable to exposure to outdoor PM$_{2.5}$.</td>
<td>More than 1,300 deaths attributable to exposure to ozone.</td>
</tr>
</tbody>
</table>

**Key Exposure Facts**

**67% of the Russian Federation’s population lives in areas where PM$_{2.5}$ levels are above the WHO guideline for healthy air (10 µg/m$^3$).**

- Between 2010 and 2019, exposures to PM$_{2.5}$, ozone, and household air pollution declined.
- Among the 29 countries in the Central Europe, Eastern Europe, and Central Asia region, the Russian Federation ranks 27th in PM$_{2.5}$ exposure.

**How Have Pollutant Exposures Changed Between 2010 and 2019?**

- PM$_{2.5}$: From 15 µg/m$^3$ in 2010 to 12 µg/m$^3$ in 2019.
- Ozone: From 43 ppb in 2010 to 36 ppb in 2019.
- Household Air Pollution (HAP): From 3% of population relying on solid fuels in 2010 to 2% in 2019.

* Please note that PM$_{2.5}$ concentrations reported here are estimated using a combination of satellite data, ground air quality monitoring data, and chemical transport models. These estimates can be more uncertain in regions where ground monitoring data are limited or not available. In the Russian Federation, the best estimate of the annual average exposure is 12 µg/m$^3$, but it may range from 9 µg/m$^3$ to 15 µg/m$^3$.

**WHO provides an Air Quality Guideline of 10 µg/m$^3$ for PM$_{2.5}$ to minimize health risks to populations, as well as three interim targets (35 µg/m$^3$, 25 µg/m$^3$, and 15 µg/m$^3$) as incremental steps toward the progressive reduction of air pollution.**
Air Pollution Accounts for a Substantial Percentage of Global Deaths from Specific Causes.

Air pollution exposures, including exposure to outdoor PM$_{2.5}$ and HAP, have been linked to increased hospitalizations, disability, and early death from respiratory diseases, heart disease, stroke, lung cancer, and diabetes, as well as communicable diseases like pneumonia. Exposure to ozone is linked to chronic obstructive pulmonary disease (COPD), and in children, especially those under the age of 5, increases susceptibility to lower respiratory tract infections. Exposure to PM$_{2.5}$ also puts mothers at risk of delivering babies too early and smaller than normal, and such babies are more susceptible to dying from a range of diseases.

Percentage of Deaths (by Cause) Attributed to Air Pollution in the Russian Federation in 2019

- 11 percent of COPD deaths
- 10 percent of diabetes deaths
- 7 percent of ischemic heart disease deaths
- 8 percent of lung cancer deaths
- 7 percent of stroke deaths
- 5 percent of lower respiratory infection deaths
- 4 percent of neonatal deaths

Key Health Facts

- Air pollution is the 10th leading risk factor for premature death in the Russian Federation. Leading causes of death in the Russian Federation include ischemic heart disease, stroke, intracerebral hemorrhage, lung cancer, and Alzheimer disease, while leading risk factors include high blood pressure, dietary risks, high LDL cholesterol, tobacco, and high BMI.
- There are 33 deaths per 100,000 people attributable to air pollution in the Russian Federation compared with 86 deaths globally, adjusted for differences in age.
- 2% of total air-pollution-attributable deaths in the Russian Federation are in children under 5, and 5% are in people over 70.

FOR MORE INFORMATION:
For the full report and additional data, please visit www.stateofglobalair.org.

ADDITIONAL RESOURCES:
For open-access, real-time air quality data, visit OpenAQ.

The State of Global Air website is a collaboration between the Health Effects Institute and the Institute for Health Metrics and Evaluation, with expert input from the University of British Columbia.