

AIR POLLUTION AND HEALTH IN SERBIA



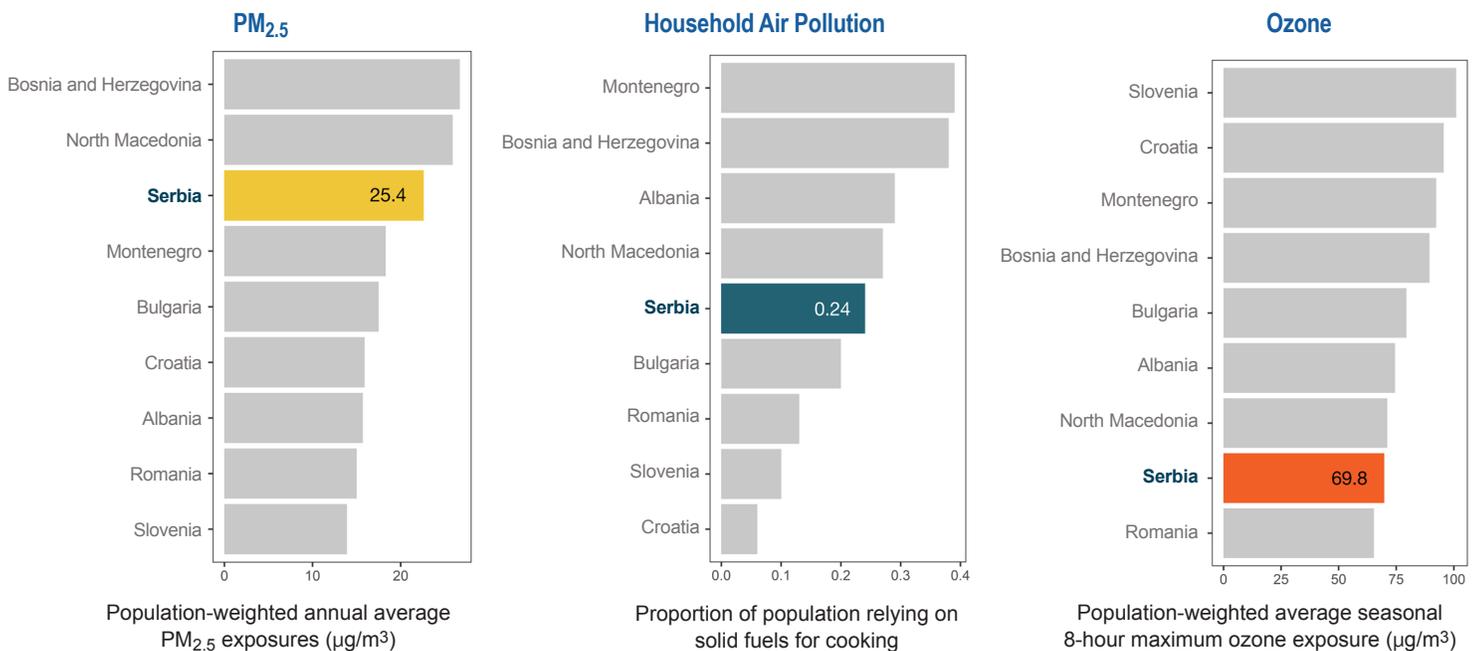
Air pollution continues to be a leading health concern in Serbia and the rest of Southeast Europe,¹ where countries experience PM_{2.5} exposures well above the World Health Organization (WHO) annual guideline value of 5 µg/m³.

Exposure to Air Pollution

Air pollution is a complex mixture of particles and gases, whose sources and composition vary in time and space.

- **100%** of the population in Serbia lives in areas that do not meet the **WHO guideline for PM_{2.5}** (5 µg/m³). However, only 3% of Serbia's population lives in areas **above** the least stringent WHO **Interim Target 1** (35 µg/m³) for PM_{2.5} and less than 1% live above the current annual EU air quality limit value (25 µg/m³).
- **66%** of the population in Serbia lives in areas that do not meet the **WHO guideline for ozone** (60 µg/m³), but none live in areas above the least stringent interim target for ozone (100 µg/m³).
- The annual average PM_{2.5} exposure in Serbia in 2019 was **25.4 µg/m³**.
- **Good News:** PM_{2.5} annual average exposure **decreased** for Serbia by 6 µg/m³ (19%) since 2010, down from 31.4 µg/m³.

Countries in Southeast Europe with the Highest PM_{2.5}, Household Air Pollution, and Ozone Exposures in 2019



How Have Pollutant Exposures Changed Between 2010 and 2019?

- PM_{2.5} (presented as population-weighted annual average concentration)
 - **Lower** in 2019 (25.4 µg/m³) than in 2010 (31.4 µg/m³)
 - **Higher** than EU-28 average (11.4 µg/m³)
- Household Air Pollution (% of population relying on solid fuels for cooking)
 - **Lower** in 2019 (24.0%) than in 2010 (31.4%)
- Ozone (presented as population-weighted seasonal average concentration)
 - **Lower** in 2019 (69.8 µg/m³) than in 2010 (86.6 µg/m³)
 - **Lower** than EU-28 average (83.5 µg/m³)

¹ Southeast Europe refers to Albania, Bulgaria, Bosnia and Herzegovina, Croatia, Montenegro, North Macedonia, Romania, Serbia and Slovenia.

Impacts of Air Quality on Health

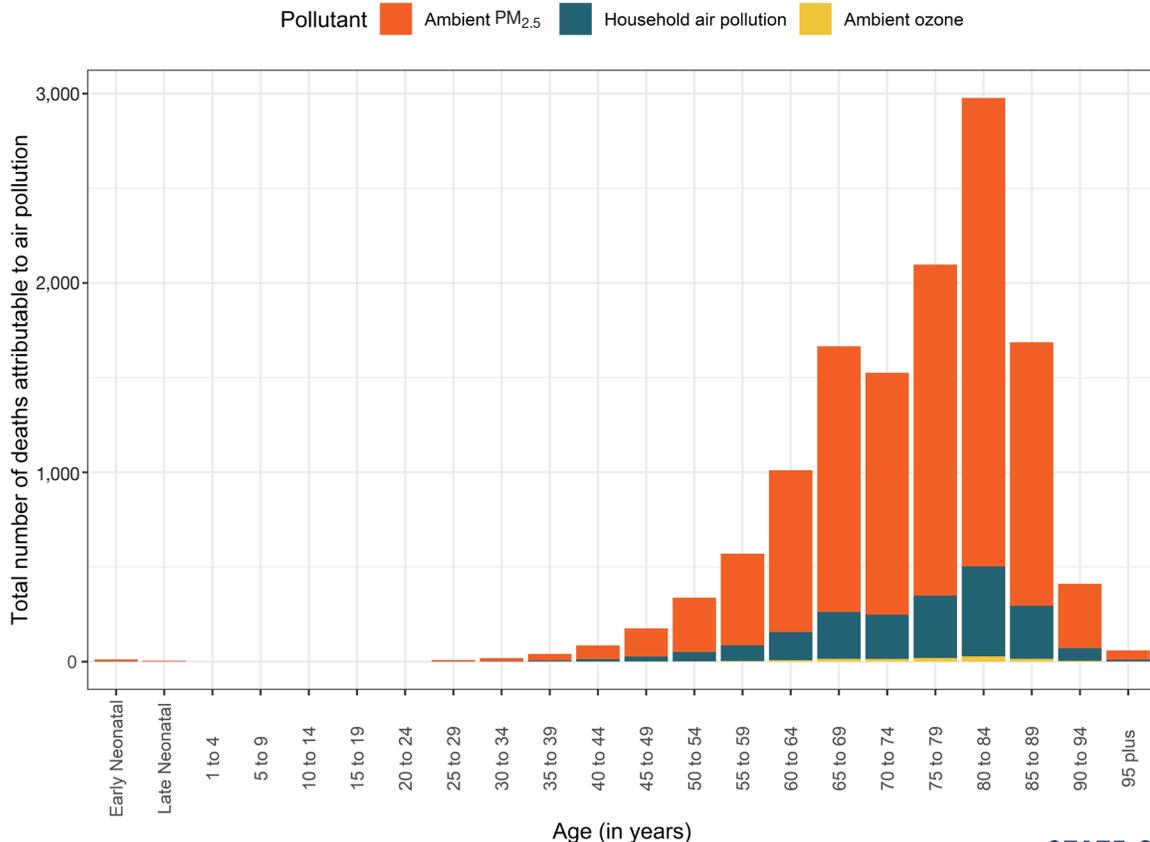
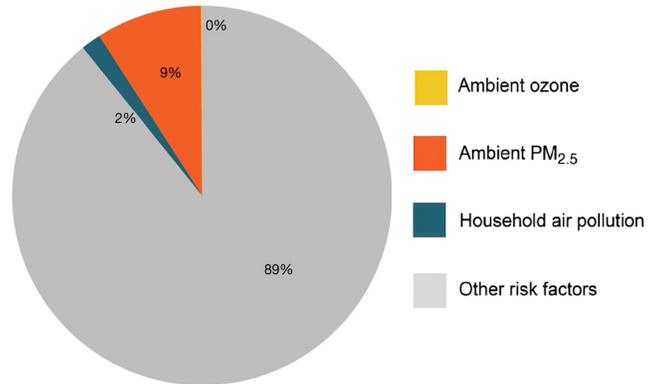
Long-term exposures to air pollution contribute to increased risk of illness and death from chronic noncommunicable diseases, such as ischemic heart disease, lung cancer, chronic obstructive pulmonary disease (COPD), stroke, and type 2 diabetes as well as lower respiratory infections (e.g., pneumonia), especially in children under 5 years of age. Exposure to PM_{2.5} also puts mothers at risk of delivering babies too early and smaller than normal, and these babies are more susceptible to dying from a range of diseases or are considered to be at increased risk for diseases later in life. There is also emerging evidence on the role of air pollution in cognitive disorders, including dementia. [MORE](#).

- Air pollution was the **seventh highest** risk factor for ill health in Serbia in 2019.
- **11%** of total **deaths** in Serbia (12,700 deaths) were linked to air pollution in 2019. Outdoor PM_{2.5} accounted for the **largest fraction** (10,600 deaths or 9.0% of total deaths) of air pollution-related deaths.
- The PM_{2.5}-linked death rate of 121 deaths/100,000 people exceeded the global rate of 53.5 deaths/100,000 people.
- On average, nearly **23% of all COPD-related deaths** were attributed to air pollution.

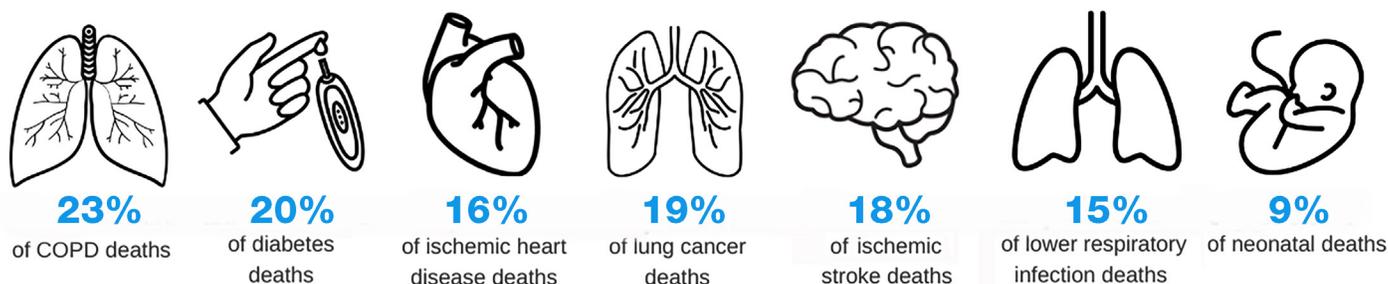
How Does Air Pollution Affect the Young and the Old?

- Across Serbia and the rest of Southeast Europe, the peak in pollution-related deaths occurs in the **older age group** (ages 70 or older). **84%** are related to exposure to ambient **PM_{2.5} exposure**.
- Exposure to air pollution accounted for **9% of infant deaths**.

Percentage of Total Deaths Including Those Linked to Individual Pollutants (Ozone, PM_{2.5}, and Household Air Pollution) in Serbia in 2019



Percentage of Deaths (by Cause) Linked to Air Pollution in Serbia in 2019



Key Sources of PM_{2.5} in Serbia

PM_{2.5} is generated from both natural and anthropogenic (or man-made) sources. Common natural sources include wind-blown dust, sea spray, and wildfires, while anthropogenic sources include fossil fuel and biofuel combustion, industrial processes, agriculture, and waste management. To identify priority actions and the most cost-effective solutions, it is critical to understand the major sources, especially anthropogenic sources, of air pollution.

- Key sources of PM_{2.5} in Serbia include residential combustion, energy production, agriculture, windblown dust, anthropogenic dust, and industry. Important fuel contributors to PM_{2.5} exposures in the region include **coal**, **liquid fuel** and **natural gas**, and **solid biofuels**.
- Use of **fossil fuels** (i.e., coal, oil, and natural gas) is linked to **35.7%** of the total disease burden related to PM_{2.5} in Serbia.
- As individual sources, **energy production** contributed the most (23%) to PM_{2.5}-attributable deaths in 2019, followed by **residential** (19%), **windblown dust** (13%), **agriculture** (11%), and **industry** (5%).

Top Five Sources of Outdoor PM_{2.5} and Associated Disease Burden in Serbia in 2019

	Energy	Residential	Windblown dust	Agriculture	Industry
Contribution to total outdoor PM _{2.5}	23%	19%	13%	11%	5%
Number of PM _{2.5} linked deaths	2,476	2,096	1,369	1,184	521

FOR MORE INFORMATION:

For more information about air pollution and health in Serbia, read the [full report](#).

Explore available evidence on air pollution and health in Southeast Europe [here](#).

To explore and download data, please visit www.stateofglobalair.org.



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