

Lives may be saved by implementing ATS-recommended air quality standards

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Air quality standards recommended by the American Thoracic Society (ATS) have the potential to prevent more illness and death than standards adopted by the U.S. Environmental Protection Agency (EPA), according to research presented at the ATS 2021 International Conference.

Laura Gladson, MS, a research scholar with the Air Quality Program at the Marron Institute of Urban Management, New York University (NYU) and colleagues from NYU and the ATS assessed differences between the potential public health protections provided by EPA air quality standards and the more stringent standards proposed by the ATS. Comparing real-world air pollution to hypothetical situations of cleaner air, the authors estimated the number of harmful health events that might be avoided each year if levels stayed below ATS recommendations vs. EPA standards for air quality. Two common types of air pollution were examined in this study: fine particulate matter (PM_{2.5}) and ozone (O₃).

The researchers estimated that by meeting ATS recommendations throughout the U.S., an estimated 14,650 deaths; 2,950 cases of lung cancer; and 33,000 additional illnesses would be prevented, while 39.8 million days of missed school and work would be eliminated. Compared with the EPA standards, 11,850 more deaths; 2,580 more lung cancer incidences; and 25,400 more illnesses would be prevented, and 27.2 million more impacted days would be saved.

"Our findings present an opportunity for U.S. communities to prevent tens of thousands of deaths and major health events and tens of millions of work and school loss days each year by working to meet ATS-recommended air quality standards," said Mrs. Gladson. "In particular, this year's 'Health of the Air' report has identified additional health benefits under scenarios meeting the new ATS recommendation for long-term PM_{2.5} (8 micrograms per cubic meter, or 8 $\mu\text{g}/\text{m}^3$), supporting the push towards lowering the annual PM_{2.5} federal standard."

During the Trump Administration, the EPA decided to retain previous standards for long- and short-term PM_{2.5} at 12 $\mu\text{g}/\text{m}^3$ and 35 $\mu\text{g}/\text{m}^3$, respectively, and for ozone at 70 parts per billion (ppb). Over the past year, the ATS, led by its Environmental Health Policy Committee, also reviewed the most current air quality epidemiological evidence and

decided to revise their recommendations to $8 \mu\text{g}/\text{m}^3$ for long-term PM_{2.5}, while keeping the recommendations for short-term PM_{2.5} at $25 \mu\text{g}/\text{m}^3$ and ozone at 60 ppb.

In both the EPA standards and ATS recommendations, "long-term" is synonymous with "annual." The annual PM_{2.5} standard (based on the annual average over three years) is a reflection of a population's long-term exposure. In contrast, the PM_{2.5} daily standard (based on the 98th percentile of the 24-hour average) reflects short-term exposure.

The researchers used the 2017-2019 federal ground monitor measurements reported by the EPA excluding exceptional events. They calculated health estimates with the EPA's Environmental Benefits and Mapping (BenMAP) tool, using the differences in pollution concentrations detected by these monitors vs. concentrations that were adjusted in order to meet the ATS recommendations or EPA standards. Estimates reflect how many additional negative health outcomes could have been avoided had the ATS or EPA standards been met in all monitored counties.

Mrs. Gladson concluded, "We hope that local air quality managers will take advantage of the immense opportunity identified in the 'Health of the Air' report to reduce local [health](#) burdens, and that these results will help motivate the EPA to revise federal air quality standards to reflect the latest science."

More information: conference.thoracic.org/program/search.php?sid=P5434

Provided by American Thoracic Society

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