Thousands of lives would be saved if counties met ATS clean air standards

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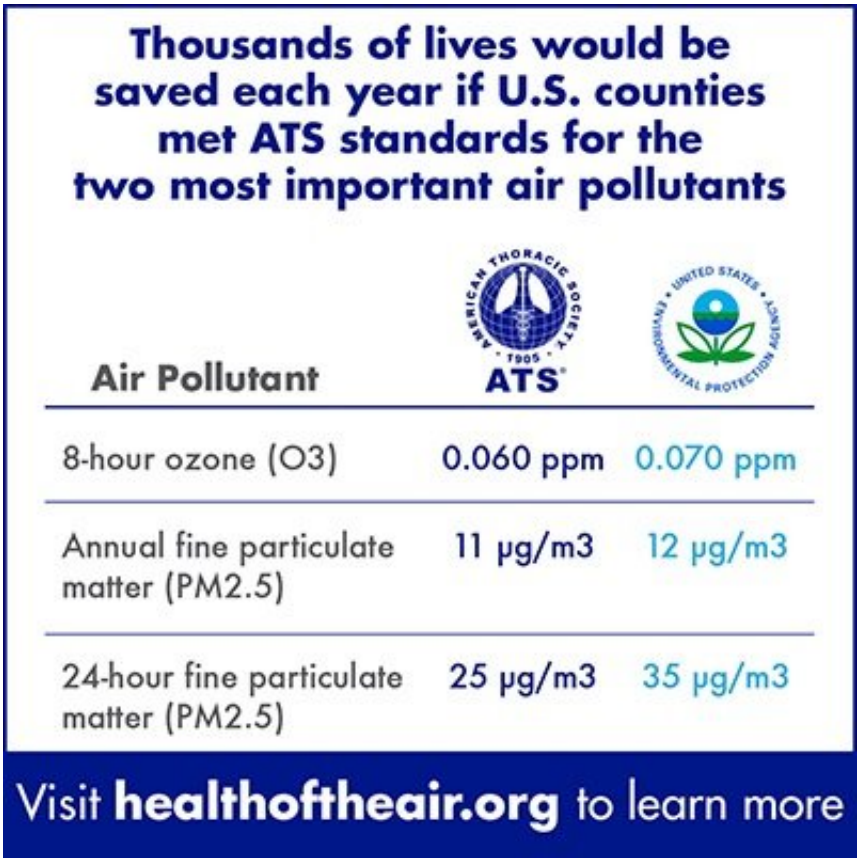

Thousands of lives would be saved and illnesses avoided if U.S counties met more protective ATS clean air standards. Credit: ATS

Thousands of lives would be saved each year, and many more serious illnesses avoided, if U.S. counties met standards set by the American Thoracic Society for the two most important air pollutants, according to

a new report by the ATS and the Marron Institute of Urban Management at New York University.

The ATS's standards for ozone (O3) and fine particulate matter (PM2.5) are more protective than those adopted by the U.S. Environmental Protection Agency. If the ATS's standards were met, each year in the U.S. approximately:

- 6,270 lives would be saved,
- 15,300 instances of serious illness would be avoided and
- 12.7 million missed school and work days would be eliminated.

The "ATS and Marron Institute Report: Estimated Excess Morbidity and Mortality Associated with Air Pollution above ATS-Recommended Standards, 2013-2015" is published online in the *Annals of the American Thoracic Society*. The new report builds on the two organizations' 2016 "Health of the Air Report" by using the latest air quality data available. The latest report includes two new measures—short-term PM2.5 and lung cancer incidence—to give a clearer picture of how air pollution impacts health in the U.S.

The ATS-recommended standards for O3 and PM2.5 are based on scores of national and international epidemiological, animal and human-exposure studies.

These standards are more rigorous than National Ambient Air Quality Standards (NAAQS) for both O3 and PM2.5 that the EPA relies upon.

The ATS recommends:

- A 0.060 parts per million (ppm) 8-hour standard for O3, rather than the EPA's 0.070 ppm standard. Eighty-two percent of monitored counties failed to meet this ATS standard.

- An 11 micrograms per cubic meter (μg/m3) annual standard for PM2.5, rather than the EPA's 12 μg/m3. Eight percent of monitored counties failed to meet this ATS standard.
- A 25 μg/m3 short-term (24 hours) standard for PM2.5 rather than the EPA's 35 μg/m3. Twenty-one percent of monitored counties failed to meet this ATS standard.

"In addition to highlighting the benefits of strengthening the NAAQS, this report can help guide local and regional air quality management decisions," said report co-author Gary Ewart, MHS, chief of the ATS advocacy and government relations program. "The report's local health estimates can inform help public officials make difficult decisions regarding how aggressively to adopt new technologies or, alternatively, how aggressively to restrict high-polluting sources."

Lead report author Kevin Cromar, PhD, director of the Air Quality Program at the Marron Institute and associate professor of population health and environmental medicine at the NYU School of Medicine, added, "Metropolitan areas and states with large populations and elevated concentrations of one or both air pollutants would realize the biggest improvements in public health by meeting the more protective standards."

The 10 metropolitan areas that would benefit the most from meeting the ATS O3 and PM2.5 standards are:

- Los Angeles (Long Beach-Glendale), CA: 941 lives saved, 2,670 fewer morbidities, and 2,250,000 fewer impacted days
- Riverside (San Bernardino-Ontario), CA: 609 lives saved, 1,250 fewer morbidities, and 1,100,000 fewer impacted days
- Bakersfield, CA: 369 lives saved, 513 fewer morbidities, and 247,000 fewer impacted days
- Fresno, CA: 244 lives saved, 458 fewer morbidities, and 359,000

fewer impacted days
- Pittsburgh, PA: 205 lives saved, 382 fewer morbidities and 197,000 fewer impacted days
- Phoenix (Mesa-Scottsdale), AZ: 178 lives saved, 432 fewer morbidities, and 453,000 fewer impacted days
- New York (Jersey City-White Plains), NY-NJ: 166 lives saved, 626 fewer morbidities, and 492,000 fewer impacted days
- Houston (The Woodlands-Sugar Land), TX: 163 lives saved, 508 fewer morbidities and 476,000 fewer impacted days
- Visalia (Porterville), CA: 144 lives saved, 199 fewer morbidities and 109,000 fewer impacted days
- Philadelphia, PA: 132 lives saved, 218 fewer morbidities and 136,000 fewer impacted days

On a state-wide basis, California alone is responsible for half the total estimated deaths, while the next highest impacted states—Pennsylvania, Texas, Arizona, Michigan, Ohio, New York and New Jersey—contribute nearly 30 percent of the total mortality impact.

According to the authors, the study adopts the approach used by the EPA to determine air pollution levels. Current PM2.5 and O3 air pollution concentrations were estimated for each county with a valid design value for 2013-2015 (available at https://www.epa.gov/air-trends/air-quality-design-values). A design value is the three-year average of pollution concentrations measured at each monitoring location and is used to determine whether a county is in attainment with federal air quality standards.

For O3, the design value represents the three-year average of the fourth highest daily 8-hour maximum ozone concentration. PM2.5 has both long- and short-term design values: the annual, long-term design value is the three-year average of the annual mean concentration, while the daily, short-term value is the three-year average of the 24-hour 98th percentile.

Because air quality has been improving across the U.S., the authors said that the Health of the Air Report will be updated regularly.

"Air quality in the U.S. has benefitted from more protective federal standards in response to evidence from health studies, and there are likely further benefits to be gained by standards even lower than those now recommended by the ATS," said ATS President Marc Moss, MD, who is Roger S. Mitchell Professor of Medicine in the Division of Pulmonary Sciences and Critical Care Medicine at the University of Colorado School of Medicine.

Dr. Moss added that extensive research has not identified an air pollution threshold below which there are no health benefits. "We would encourage cities that can improve their air quality further after meeting the ATS guidelines to do so. Their residents will live healthier lives," he said.

A searchable online tool for city- and county-specific health estimates to aid in quality management decisions at the local level can be found at http://www.HealthoftheAir.org.

Provided by American Thoracic Society