

I am Neil Mac Intyre MD, Chief Professor of Critical Care Medicine and Director of the Pulmonary Rehabilitation program at Duke. I am also a member of the American Thoracic Society. I am here today to present the views the American Thoracic Society on EPA Staff Paper on the review of the National Ambient Air Quality Standards for Particulate Matter.

As background, the American Thoracic Society founded in 1905, is an independently incorporated, international professional and scientific society which focuses on respiratory and critical care medicine. Today, the Society has approximately 13,500 members, 25 percent of whom are from outside the U.S. The Society's members help prevent and fight respiratory disease around the globe, through research, education, patient care and advocacy. The American Thoracic Society publishes the American Journal of Respiratory and Critical Care Medicine, which is one of leading scientific journals for reporting finding on the health effects of air pollution.

Before I provide specific comment on the EPA staff paper, I would like to make two over-arching comments that I think should guide CASAC and the EPA staff as it continues its work determining whether the current particulate standards should be changed. First, the science is sound and compelling. Both in its quality and its quantity, the vast preponderance of studies show that fine particle air pollution is dangerous for public health at current levels. Secondly, it is time to move forward with decision-making. We certainly don't know all we want to know about some specific issues, but we do know enough to be confident in moving forward to resolve this review of the science to protect public health.

**Overall the American Thoracic Society believes that the EPA staff paper does an excellent job of reviewing and summarizing research on particulate air pollution.** The paper emphasizes that new scientific findings since the last review have supported the adverse health effects of particulate matter, have better defined dose-response relationships, and support possible tightening of the standard. The ATS endorses the overall findings of the EPA staff paper. In particular, the tables and graphs summarizing multiple epidemiological studies are quite helpful in demonstrating the consistency of findings of studies by many investigators in many locations.

However, one statement made deserves reconsideration. On page 101 the EPA staff document states that mechanisms between particle exposures and specific health outcomes have not been demonstrated.

While the above statement was true at the time the last criteria document was drafted, it does not adequately reflect the large body of recent research that has begun to demonstrate mechanisms. Recent work supports epidemiological findings (for example, with regard to multiple causes of death during high particle episodes). This body of work includes a study EPA staff cited later (A. Peters, *Epidemiology* 2000; 11:11-17) which shows that ambient particles are associated

with an increase in the occurrence of dangerous arrhythmias in patients with life-threatening cardiac arrhythmias who have implanted cardiac defibrillators. This is the strongest of many studies indicating such a specific mechanism.

The EPA staff might refer for one current summary of mechanistic research to Lippmann M et al., "The US EPA Particulate Matter Health Effects Research Centers Program: A Midcourse Report of Status, Progress, and Plans, published in Environmental Health Perspectives in June 2003 (11:1074-92). This summary became recently available. While much remains to be learned about mechanisms, the knowledge base has become extensive in a surprisingly short time.

As I said that the science is strong and we knew enough to act to protect public health. The ATS recommends that CASAC and EPA take the following policy actions to protect public health:

**The ATS supports the creation of the annual average Coarse PM and the 24-hour Coarse PM .** Research has demonstrated that fine particles and coarse particles react differently in the body and should be regulated as two distinct pollutants. The ATS supports creation of two distinct pollution standards for fine and coarse particles.

**The ATS recommends a lowering of both the upper threshold and the lower threshold for the annual average Fine PM standard, the 24-hour Fine PM standard, the Annual Average Coarse PM and the 24-hour Coarse PM standard.** A growing body of evidence documents the adverse health effects of both fine and coarse PM pollution at levels significant below the current standards. The standards should be revised to reflect this growing body of evidence.

**The ATS recommends EPA staff and CASAC re-evaluate the appropriateness of spatial averaging. averaging.** By allowing the emissions from "hotspots" to be averaged out over a large area, the EPA is failing to provide adequate protection for the people who live near areas of high PM concentration. The ATS strongly recommends EPA staff and CASAC to re-examine the appropriateness of spatial averaging.

**The ATS recommends EPA staff and CASAC consider alternatives to the 98<sup>th</sup> percent rule.** The ATS is concerned that the 98<sup>th</sup> percent rule requires the public suffer too many exceedence days before triggering the 24-hour standard. As the standard is calculated now, three weeks of unlimited high particle pollution levels are ignored in the three-year period, an extraordinary amount of exemptions from a standard that is designed to provide protection from those very short-term peaks.

On behalf of the ATS, I would like to thank CASAC for listening to our views. I additionally would like to compliment the EPA staff for preparing what we feel is an excellent paper. I would be pleased to respond to questions.