American Thoracic Society

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Testimony of the American Thoracic Society
Presented by Monica Kraft MD
Before the Senate Environment and Public Works, Clean Air and Nuclear Safety Subcommittee
On May 23, 2017
Regarding S. 263 – Ozone Standards Implementation Act &
S. 452 - Ozone Regulatory Delay and Extension of Assessment Length (ORDEAL) Act

Mr. Chairman, Ranking member, my name is Monica Kraft and I am a pulmonologist and Chair of the Department of Medicine at the University of Arizona College of Medicine in Tucson, in the Division of Pulmonary and Critical Care Medicine at University of California San Francisco. On behalf of the American Thoracic Society, I want to thank the Committee for this opportunity to testify regarding S. 263 and S. 452. The American Thoracic Society is a medical professional organization of more than 15,000 professionals and patients dedicated to the prevention, detection, treatment and cure of respiratory disease, critical care illnesses and sleep-disordered breathing.

The ATS is testifying today to register our strong concerns with both S. 263 and S. 452. Both bills would make significant and, in my opinion, unwarranted changes in how EPA establishes and enforces the National Ambient Air Quality Standard for ozone and other criteria pollutants. If enacted, these pieces of legislation would have significant negative impacts on the health of many Americans.

Ozone (O_3) is a potent oxidant that damages the airways and lungs. There are literally hundreds of high quality, peer-reviewed studies that document the adverse health effects that exposure to ozone pollution has on the lungs and other organ systems. The American Thoracic Society strongly supports the current Clean Air Act requirements that the standards must be set solely on the basis of protecting public health and that the reviews of the standards be completed every five years. Current, up-to-date science must be the basis of the protections to public health.

Given the crucial health effects I will describe further, Congress must not delay implementation of the 2015 standard until 2024. Delays in implementing the standard will cost children and adults across the nation the vital protection intended and provided under the Clean Air Act.

Recent studies provide several lines of evidence demonstrating dose-response relationships between ozone exposure in the 60 to 80 ppb range and adverse health effects. These

effects include hospital admissions and emergency room visits for children with asthma [1-4]. A study of younger, pre-school children in Atlanta has documented an increase in emergency department visits for pneumonia; this study showed that a 3 ppb increase in the three-day average of ozone was associated with an eight percent higher risk of pneumonia [5].

A growing body of evidence suggests that exposure to ozone may also induce the development of asthma in children, in addition to provoking attacks in children who already have the condition. A recent study in California compared children who lived in low ozone communities to children who lived in high ozone communities. Young athletes who participated in three or more outdoor sports, who did not have physician-diagnosed asthma at the beginning of the study, were more likely to develop asthma in high ozone communities than those in low ozone communities [6].

While this well constructed study **does not** prove that ozone causes asthma, it does add to a growing body of evidence that suggests ozone plays an important role in its development.

Taken together, the data are persuasive that ozone pollution – even at levels permissible under the current standard – makes children sick. The Congress wisely gave EPA the authority and obligation to set a standard that protects children from the adverse health effects of ozone exposure. But it's not just children -- adults are also at risk.

Research studies of adults have also shown that as ozone levels increase, so do severe asthma exacerbations, emergency room visits, and hospitalizations for asthma [4,7,8]. Similar associations have been found for adult admissions for chronic obstructive pulmonary disease [9,10] and pneumonia [10]. Healthy adults are affected as well. A population-based cohort study of generally healthy adults found that the standard measure of how well the lungs function, FEV_1, was lower after days when ambient ozone ranged from 59 ppb to 75 ppb compared to days with levels under 59 ppb [11]. Healthy individuals have normal lung function. Controlled human exposure studies have re-affirmed lung function decrements in healthy adults after exposure to 60 ppb to 70 ppb of ozone [12,13].

Perhaps of greatest concern, there is now stronger evidence of increased mortality in association with higher ozone levels [14-16], particularly among the elderly and those with chronic disease [17,18]. These large, multi-city studies found strong and consistent associations with increased risk of premature death, particularly in the warmer months when ozone levels are higher.

In sum, there is accumulating evidence that ozone pollution –at levels currently seen in the United States– is damaging to human lungs and contributes to disease. Implementing the cleanup required under the Clean Air Act must not be delayed.

While the evidence on ozone and respiratory effects is comprehensive and compelling, recent studies have shown adverse health effects beyond the lung. The Integrated Science Assessment (ISA) has concluded that, "…the evidence is stronger for most every health endpoint, with causal findings strengthened from 'suggestive' to 'likely causal' for cardiovascular effects and total mortality from short-term exposures." In addition, the ISA noted that ozone affects the central nervous system and brain, and comments that a number of recent toxicological studies revealed various changes in neurologic function or histology with long-term exposure to ozone, including changes similar to those observed in neurodegenerative disorders, such as Parkinson disease and Alzheimer disease. The ISA

concluded that, "…the toxicological evidence for the impact of O3 on the brain and behavior is strong, and suggestive of a causal relationship between O3 exposure and effects on the central nervous system. "[19]

In summary, recent research only reaffirms and deepens our understanding of the health effects of ozone exposure.

Reducing Pollution Improves Health

In the midst of all this concerning research documenting the adverse health effects of air pollution there is good news. The good news is that as pollution is reduced, health improves. We know this from studies around the Atlanta and Beijing Olympics – where the respective host cities took steps to reduce air pollution emissions during the Olympics.

Not only did those efforts result in air pollution reductions, they resulted in improved health as measured by changes in biomarkers (20,21), reduced morbidity and consumption of health resources (22-24).

Studies on Steubenville, OH and Salt Lake City, UT provide other real world examples showing that reduced industrial air pollution emissions lead to measurable improvements in morbidity and mortality (25, 26). Two recent publications based on a 20-year multi-cohort study of children in southern California demonstrated improvements in lung-function development in children as air quality improved. These were observed in girls and boys, in children with and without asthma, and across multiple ethnicities – suggesting all children benefit from improvements in air quality (27, 28).

Concerns with S. 263 and S. 452

The ATS has several grave concerns with both S. 263 and S.452. If enacted, these bills would:

Delay implementation of the EPA ozone standard until 2025 – delaying the ozone pollution reductions called for in the EPA rule. As noted above, the delay in reducing ozone pollution will lead to avoidable adverse health effects, including asthma attacks, COPD exacerbations, missed school and work days, emergency room visits, hospitalizations, and premature death.

Delay Review and Revision of Other All Criteria Pollutants –in addition to delaying the ozone standard, both S. 263 and S. 452 would also rewrite current law to delay revision of all the criteria pollutants under the Clean Air Act. Instead of reviewing National Ambient Air Quality Standards every 5 years – as called for under current law – this bill would call for revision of standards every 10 years. This means that the American people would not receive the benefits of up-to-date science in identifying and protecting them from harmful health effects of these pollutants. This means pollutants like lead, particulate matter and carbon monoxide will remain in the air longer – needlessly exposing the American public to dangerous pollution and their adverse health effects.

Delaying improvements in air quality, be it ozone or another criteria pollutant, is not a trivial matter. In the 10-year review lag called for in this bill, a child will grow from a newborn to a 10 year old. In that time, the lungs, like the rest of the body, will see tremendous changes that will determine life-long health prospects of that child. We know that pre-natal and youth

exposure to air pollution creates adverse development of the lungs in ways that impact adult disease. By delaying improvements in air quality, we are literally burdening children with life-long health issues.

In addition, the ATS has additional concerns with S. 452, a sweeping bill that would weaken the Clean Air Act in additional, fundamental ways.

S. 452 fundamentally changes the role of the EPA scientific review committee from evaluating the science that documents the health effects of ozone air pollution, to a committee that is supposed to adjudicate many interests of "public health, welfare, social, economic, or energy effects" when discussing options to set and maintain the National Ambient Air Quality Standard for ozone. Congress has already resolved this issue when it stated clearly in the 1990 Clean Air Act that the EPA Administrator shall set National Ambient Air Quality standards to protect the public health, irrespective of costs.

Lastly, the bill fundamentally rewrites the Clean Air Act by directing the EPA Administrator to consider technical feasibility when setting National Ambient Air Quality Standards. The Clean Air Act currently requires the EPA Administrator to set Clean Air standards to whatever level is necessary to protect the public health. This requirement means that the standards should accurately reflect the current health science. Not only does this drive air pollution cleanup to levels that are safer to breathe, it also allows patients to have access to accurate information about how the quality of their air may impact their health. The national standards are the basis for the air quality index that many of my patients rely on to determine whether the air outside will harm their health on a given day, which allows them to plan their activities accordingly. If these standards were no longer solely based on the science, patients could be told that the air outside is safe on a day when it actually isn't. This could have dangerous consequences.

Technological feasibility considerations are rightly considered later during the implementation and enforcement process, but they have no place in the setting of the national air quality standards. That health should be the sole requirement for setting a standard has been affirmed by the U.S. Supreme Court in a majority opinion written by the late Justice Scalia.

Mr. Chairman, research shows air pollution is bad for health. More importantly, research shows reducing air pollution improves health. If enacted, these bills would delay improvements in air quality and contribute to respiratory harm including asthma exacerbations and premature deaths that could have been avoided. The American Thoracic Society respectfully urges the committee to reject S. 263 and S. 452.

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