STATEMENT OF KATHERINE M. SHEA, MD, MPH, FAAP ON BEHALF OF THE AMERICAN ACADEMY OF PEDIATRICS

BEFORE THE CLEAN AIR SCIENTIFIC ADVISORY COMMITTEE TO THE U.S. ENVIRONMENTAL PROTECTION AGENCY

REGARDING NATIONAL AMBIENT AIR QUALITY STANDARDS FOR PARTICULATE MATTER

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Department of Federal
The Homer Building
601 Thirteenth Street, N.W.
Suite 400 North
Washington, D.C. 20005
202-347-8600 / 800-336-5475 / Fax 202-393-6137

I appreciate this opportunity to present testimony on behalf of the American Academy of Pediatrics (AAP) before the Clean Air Scientific Advisory Committee regarding the U.S. Environmental Protection Agency's (EPA) staff proposal to revise the National Ambient Air Quality Standards (NAAQS) for particulate matter (PM). The American Academy of Pediatrics, a non-profit professional organization of 60,000 primary care pediatricians, pediatric medical sub-specialists, and pediatric surgical specialists dedicated to the health, safety, and well-being of infants, children, adolescents, and young adults, is proud to have a long history of activism in protecting children from environmental health hazards.

Although air quality has improved in many parts of our nation over the past three decades since establishment of the Clean Air Act, significant regions of the United States still experience serious air pollution. Today, approximately 15 million American children live in areas which fail to meet the 1997 National Ambient Air Quality Standards for particulate matter. Furthermore, numerous scientific studies are finding adverse health effects at levels below the current air quality standards.[1] The American Academy of Pediatrics endorses fully the U.S. Environmental Protection Agency's staff scientists' proposal for stronger health standards for $PM_{2.5}$ and the establishment of standards for $PM_{10\text{-}2.5}$ in order to protect the health of infants and children.

Research has firmly established that exposure to high levels of particulate matter impacts the ability of children's lungs to grow.[2] The adverse effects of air pollution on development of lung function is seen in boys and girls, regardless of history of asthma, suggesting that most children are susceptible to the chronic effects of breathing particulate air pollution. When this damage occurs, it is irreversible, and reduced lung function is a strong risk factor for future health consequences as an adult.[3] Particulate matter air pollution is also linked to other adverse respiratory health effects in infants and children, such as asthma exacerbations, chronic cough, and bronchitis symptoms.

Studies have demonstrated that low-birth weight, preterm births, and infant mortality are increased in communities with high levels of particulate air pollution.[2]

A child's rapidly growing and developing lungs are especially susceptible to the adverse effects of ambient air pollutants. In fact, 80 percent of the alveoli, the smallest portion of the lungs where gas exchange occurs, are formed after a child is born, and the lung continues to develop through adolescence. During the early postneonatal period, the developing lung is highly susceptible to damage from exposure to environmental toxicants.[2]

Children also have increased exposure to many air pollutants compared with adults because of their higher minute ventilation (the amount of air breathed into or out of the lungs per minute) and higher levels of physical activity. Because children spend more time outdoors than do adults, they have increased exposure to outdoor air pollution.[2]

Asthma is the number one chronic illness in children. Approximately 12 percent of U.S. children (8.9 million children ages 0 to 17 years) have ever been diagnosed with asthma.[4] The estimated cost of treating asthma in children under 18 years old is approximately $3.2 billion per year.[5] Asthma is also the number one reason for lost school days attributed to chronic conditions, accounting for approximately 14.6 million lost school days in 2002.[4,5] Because asthma is so prevalent, over one million children with asthma live in areas with high particulate pollution and are at risk of asthma exacerbations due to air pollution.[2]

Clearly, air pollution has a significant impact on child health and development. For these reasons, the American Academy of Pediatrics is deeply concerned with the establishment and enforcement of strong national air quality standards.

In December 2004, the American Academy of Pediatrics' Committee on Environmental Health published a policy statement in the journal *Pediatrics* titled "Ambient Air Pollution: Health Hazards to Children." I was proud to be a member of the committee and to play a role in drafting this important document.

This policy statement reviewed the recent scientific literature suggesting that current standards may not be protecting children and concluded that the federal $PM_{2.5}$ and PM_{10} standards "should be lowered to protect public health." More specifically, it recommended, "Because the law requires that the most vulnerable groups be protected when setting or revising the air quality standards, the potential effects of air pollution on the fetus, infant, and child should be evaluated, and all standards should include a margin of safety for protection of children."[2]

The AAP commends the EPA staff highly for a thorough, professional scientific review of the health effects of particulate pollution. The staff document provides sound, evidence-based rationale for proposing more protective ambient air quality standards for particulate matter.

The AAP supports the establishment of tighter annual average and 24-hour standards for $PM_{2.5}$ and stringent new standards for $PM_{10-2.5}$. Given the many studies indicating health effects at the lower ends of the ranges proposed, we urge EPA to adopt an annual average $PM_{2.5}$ standard of 12 $\mu g/m^3$ combined with a 24-hour $PM_{2.5}$ standard of 25 $\mu g/m^3$. These standards would provide an adequate margin of safety for our most vulnerable populations, as required by the Clean Air Act. Further, the AAP favors a 99^{th} percentile form of the 24-hour standard, which would allow fewer high pollution days to occur before a violation is recorded. We see no scientific justification to relax the ranges in the staff report.

In conclusion, the American Academy of Pediatrics would like to express its strong support for the staff recommendations to strengthen the particulate matter standards for $PM_{2.5}$ and to establish standards for $PM_{10\text{-}2.5}$. The special vulnerabilities of infants, children, and adolescents to ambient air pollution compel our nation to craft standards that will safeguard their health against this threat. The science is unambiguous: particulate matter air pollution harms children and can cause irreversible damage with lifelong consequences. We have the ability to reduce this threat and to avert illness and suffering. The American Academy of Pediatrics calls upon the Environmental Protection Agency to finalize the staff recommendations and propose standards at the lower end of the range for both the 24-hour and annual average standards. We thank you for your commitment to improving the health of our nation's children and to safeguarding their futures.

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[1] U.S. EPA The Particle Pollution Report: Current Understanding of Air Quality and Emissions Through 2003.
[2] American Academy of Pediatrics, Committee on Environmental Health, "Ambient Air Pollution: Health Hazards to Children." *Pediatrics* 2004; 114: 1699-1707.
[3] Gauderman WJ, et al. "The Effect of Air Pollution of Lung Development from 10 to 18 years of age." *NEJM* 2004; 351: 1057-1067.
[4] Summary Health Statistics for U.S. Children: National Health Interview Survey, 2003. Vital and Health Statistics 2005; 223.
[5] American Lung Association of Florida fact sheet. "Asthma in Children." http://www.lungfla.org/aspcode/prog_asth_kids_facts.asp.