

Children's Health Protection Advisory Committee

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March 23, 2007

Stephen L. Johnson, Administrator
 United States Environmental Protection Agency
 1200 Pennsylvania Avenue, N.W.
 Washington, D.C. 20460

RE: Review of the NAAQS for Ozone: Policy Assessment of Scientific and Technical Information

Dear Administrator Johnson:

The Children's Health Protection Advisory committee (CHPAC) appreciates this opportunity to provide comments to you on the EPA staff paper that has been prepared in advance of determining the proposed revisions to the National Ambient Air Quality Standard (NAAQS) for ozone. The committee commends the EPA scientists for a very thorough analysis of the literature on ozone health effects. CHPAC supports lowering the 8 hour ozone standard and setting the level of precision of the standards at the thousandths of parts per million (ppm). We further recommend setting the proposed standard at the lowest value of the range offered by the staff paper (0.060 ppm), a level which is supported by the scientific literature. We also express our concerns about the decisions to exclude the consideration of certain risks and certain subpopulations of children from the risk analysis, which results in an underestimation of the full impacts of ozone exposure.

Children have higher exposures to air pollutants than adults in the same setting as they are more physically active, have higher ventilation rates, and more frequently play outdoors. The lung grows extensively after birth, with about 80% of the alveoli developing during childhood and adolescence. Thus, the developing lung is more susceptible to damage from air pollutants like ozone than the mature lung¹. A number of epidemiological studies of children have associated adverse respiratory effects with exposure to ozone, even at levels below the current standard. Asthmatic children, who now number over six million², are particularly vulnerable and have been frequently studied for adverse effects from ozone exposure. These effects include exacerbation of asthma^{3,4,5} and increased emergency department visits for asthma.^{6,7,8} Higher ozone exposures have also been associated with increased school absenteeism.⁹ Adverse health impacts have been noted in children under 5, including infants^{10,11}. One cohort study of children reported

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induction of asthma in active children in high ozone communities.¹² A few studies have found decreased lung capacity in young adults growing up in higher ozone communities.^{13,14,15} Chamber studies in healthy young adults demonstrate exposure to as low as 0.06 ppm ozone for 6.6 hours results in decrements in lung function in some individuals,¹⁶ while 0.08 ppm produces both statistically significant lung function decrement^{17,18} and airway inflammation¹⁸. In contrast to these healthy young adults, children with asthma would be expected to be more susceptible to ozone. Children with severe asthma are especially sensitive to ozone, experiencing shortness of breath and needing additional asthma rescue medication at levels of ozone below the current standard.¹⁹

Therefore, our recommendations are:

1. We urge that the lower- and more child protective- value of 0.060 ppm be selected from the range suggested by the CASAC.

The CHPAC is in full agreement with the Clean Air Scientific Advisory Committee (CASAC) and the EPA staff paper that the current form and level of the ozone standard is not adequately protective of public health, either for children or for adults. As noted above, children are especially vulnerable to asthma exacerbation and stunted lung development from ozone exposures. The scientific literature demonstrates that susceptible children experience significant adverse health effects well below the current standard, and even at levels below the range of standards under consideration.^{5,10,19} Therefore, in order to be more protective of the respiratory health of susceptible children, the committee recommends that the EPA choose a standard of 0.060 ppm, the low end of the range offered in the staff paper.

2. We support the form of the new standard to be specified to the thousandths of ppm.

Under the current form of the standard, rounding of the thousandths digit of monitoring data allows populations to be exposed to levels of 0.084 ppm without exceeding the standard. The new ozone standard should be specified to the thousandths, in keeping with the precision of the monitors themselves, to prevent this overexposure.

3. Children experience a wide variety of health impacts from ozone exposure that should be recognized in considering benefits from lowering the 8 hour ozone standard.

A number of specific outcomes have been omitted from the risk assessment in the Staff Paper, including school absences, doctor visits, medication use, and decreased resistance to infections. In addition, risks to children under 5 are not considered, with the exception of respiratory symptoms in one city only. These endpoints, as well as the risks experienced by children under 5, contribute to the physical, emotional and economic burden associated with children's exposure to ozone. Their exclusion underestimates the true benefits of reducing ozone exposure. This tendency towards underestimation of the health benefits should be appropriately recognized in setting the standard and emphasizes the need to be more protective.

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Conclusions and recommendations

In summary, in order to afford greater protection to children, we strongly recommend setting the proposed standard at 0.060 ppm, the lowest value of the range offered by the staff paper, and a level which is supported by the scientific literature. We thank you in advance for considering these comments and would be happy to discuss them with you or your staff.

Sincerely,



Melanie A. Marty, Ph.D., Chair
Children's Health Protection Advisory Committee

Cc: William Wehrum, Designated Assistant Administrator, Office of Air and Radiation
Steven Page, Office of Air Quality Planning and Standards
Lydia Wegman, Office of Air Quality Planning and Standards
Dr. William Sanders, Interim Director, Office of Children's Health Protection

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