



November 29, 2021

Elizabeth A. Sheppard, Chair
Clean Air Scientific Advisory Committee
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue NW
Washington D.C. 20460

Re: Docket No. EPA-HQ-ORD-2014-0859

Dear Dr. Sheppard:

The American Lung Association is the oldest voluntary public health association in the United States, representing the millions of individuals with or at risk of lung disease. The Lung Association is the leading organization working to save lives by improving lung health and preventing lung disease through research, education and advocacy. We appreciate the opportunity to provide comment on the external review draft of the supplement to the 2019 Integrated Science Assessment for Particulate Matter (Docket No. EPA-HQ-ORD-2014-0859).

The Lung Association's interest and engagement in safeguarding the integrity of the Clean Air Act, and the NAAQS review process in particular, goes back decades. As one of the organizations that petitioned EPA for reconsideration of the 2020 National Ambient Air Quality Standards for particulate matter, we applaud the Agency for making the decision to reconsider based on the scientific evidence. The reinstatement of the CASAC PM Panel is a gratifying demonstration of this Administration's commitment to the critical role of science in guiding sound policy decisions.

The current standards are not adequate to protect public health

Taken together, the 2019 Integrated Science Assessment and the recent supplement have provided extensive evidence that strengthens the case for setting more stringent standards for particulate matter.

We agree with EPA's conclusion of a causal determination for premature deaths from both short-term and long-term exposure to particulate matter. We also support the affirmation of previous findings of a linear, no-threshold relationship between long-term PM_{2.5} exposure and all-cause mortality across the range of exposure concentrations well below the current standard of 12 µg/m³. As presented in the Supplement, long-term exposure to PM_{2.5} at concentrations between 5.9 µg/m³ and 11.6 µg/m³ have been found to be associated with mortality. EPA recognizes the abundant evidence from numerous studies that demonstrates beyond question that particle pollution shortens life.

The limits placed on the review methodology are cause for concern

We understand the public health need for a streamlined process for reconsideration, and we believe that there is more than sufficient evidence for strengthening the particulate matter standards in the current draft Supplement to the ISA. However, we have concerns about the precedent being set by limiting the review to only those health endpoints that were identified as having a causal relationship in the 2019 ISA.

For more than a decade, the Lung Association and numerous experts on the respiratory effects of particle pollution have argued that the evidence base is more than sufficient to establish a *causal* relationship. We are disappointed that this reconsideration did not revisit the decision to keep respiratory effects categorized as *likely to be causal*. However, the Clean Air Act explicitly recognizes the uncertainty in scientific research in its requirements to periodically review the air pollution criteria and to err on the side of protection. This precautionary principle requires that EPA set air quality standards to protect against effects suggestive of causality, which currently include respiratory effects and cancer.

Since the 2018 cutoff date for inclusion in the 2019 ISA, there have been a number of important studies published that could have the potential to influence the outcome of this reconsideration if they were included. For example, Kravitz-Wirz et al¹ and Garcia et al² reinforced earlier findings linking exposure to fine particles with the onset of asthma in children. Szyszkowicz et al³ found that short-term exposure to relatively low concentrations of PM_{2.5} resulted in adverse respiratory health effects leading to emergency department visits. Another study from Coleman et al⁴ analyzed more than 8.5 million cases of cancer incidences from U.S. registries and was able to establish a consistent association between the incidence of lung cancer and exposure to PM_{2.5} air pollution.

Research on the impact of PM exposure on reproductive, developmental, neurological and metabolic health is also advancing rapidly and should be taken into account when evaluating the overall public health burden of this deadly air pollutant.

Additional evidence of relationship between PM and COVID-19

The inclusion of a section on the impact of PM_{2.5} on COVID-19 infection and death is an important acknowledgement of the mounting evidence from early ecological studies. An additional study that strengthens the body of evidence is Zhou et al⁵, which examined publicly available daily data on PM_{2.5}, the number of COVID-19 cases and deaths, and other confounders for 92 western U.S. counties that were affected by the 2020 wildfires and found strong evidence of a positive associations between daily increases in PM_{2.5} and increased risks of COVID-19 cases and deaths.

Although the research on COVID-19 is still young, and many uncertainties remain, the findings should also be considered as part of a much larger body of evidence about the ways in which particle pollution increases susceptibility to respiratory infections and the likelihood of worsened outcomes, particularly in communities of color.

Health equity issues should be integrated throughout the ISA

The Lung Association appreciates the inclusion in this review of a closer look at the evidence for disparities in exposure and risk in populations with environmental justice concerns. The evidence base for the disproportionate impact of particulate matter on communities of color is growing rapidly, and the recent findings clearly merit attention.

The health inequities linked to race, ethnicity and socioeconomic status are relevant to all topic areas addressed in the Supplement to the 2019 ISA. Rather than being addressed solely in a stand-alone section, the Lung Association strongly recommends that the evidence of disproportionate impact of exposure and risk on communities with environmental justice concerns be integrated throughout the document and given the weight it deserves under the founding principles of the Clean Air Act.

Based on the scientific evidence included in the 2019 ISA, the Supplement and the additional evidence being submitted by our partners in the public health community, the American Lung Association reiterates our recommendation to revise the annual PM_{2.5} standard to 8 µg/m³ and the 24-Hour PM_{2.5} standard to 25 µg/m³.

The strength of this Supplement to the 2019 Integrated Science Assessment, including a clear-eyed assessment of the evidence for what is needed to protect public health with a margin of safety, has the potential to quite literally be life-saving for many Americans. The American Lung Association urges you to follow the science and act assertively to protect those most vulnerable to illness and death from particle pollution.

Thank you for this opportunity to comment.

Sincerely,



Harold P. Wimmer
National President and CEO

cc. Aaron Yeow, Designated Federal Officer, CASAC

¹ Kravitz-Wirz et al. Early-life air pollution exposure, neighborhood poverty, and childhood asthma in the United States, 1990–2014. *Int. J. Environ. Res. Public Health*. 2018; 15:1114.

² Garcia et al. Association of changes in air quality with incident asthma in children in California, 1993-2014. *JAMA*. 2019; 321(19):1906-1915.

³ Szyszkowicz et al. Air pollution and emergency department visits for respiratory diseases: A multi-city case crossover study. *Environ Res*. 2018; 163:263–269

⁴ Coleman et al. Fine particulate matter exposure and cancer incidence: analysis of SEER cancer registry data from 1992–2016. *Environ Health Perspec*. 2020; 128(10).

⁵ Zhou et al. Excess of COVID-19 cases and deaths due to fine particulate matter exposure during the 2020 wildfires in the United States. *Sci Adv*; 7(33).