AMERICAN LUNG ASSOCIATION.

Harold P. Wimmer
National President and
CEO

August 27, 2018

The Honorable Andrew Wheeler
Acting Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20004

Submitted via Regulations.gov.
RE: Review of the National Ambient Air Quality Standards for Ozone: Call for Scientific and Policy-Relevant Information. Docket ID: EPA-HQ-ORD-2018-0274

Dear Acting Administrator Wheeler:

The American Lung Association is pleased to share with you some of the significant new research on the health effects of ozone as the U.S. Environmental Protection Agency begins its work to review the National Ambient Air Quality Standards for ozone last established in 2015.

The research on ozone continues to grow. As the nation has reduced the overall burden of ozone under the strength of measures required under the Clean Air Act, researchers are uncovering the harms to health that can be found even when levels are much lower than had been previously available to study. In addition, the scope of investigations extends well beyond the respiratory system and shows evidence of harm to many of the body's systems, including cardiovascular and reproductive, as well as developmental harm. Most crucial of all are the recent studies confirming the increased risk of premature death, even under lower levels of ozone pollution.

The attached list of studies is not and should not be considered comprehensive; it merely serves to highlight some of the growing evidence for more protective ozone standards.

Please let us know if you have questions.

Sincerely,

Harold Wimmer

Harold P. Wimmer
National President and CEO

Advocacy Office:
1331 Pennsylvania Avenue NW, Suite 1425 North
Washington, DC 20004-1710
Ph: 202-785-3355 F: 202-452-1805

Corporate Office:
55 West Wacker Drive, Suite 1150 | Chicago, IL 60601
Ph: 312-801-7630 F: 202-452-1805 info@Lung.org

Selected Scientific and Policy Relevant Information for Docket ID No. EPA-HQ-ORD-2018-0274

Mortality

Association of Short-term Exposure to Air Pollution with Mortality in Older Adults.
Di Q, Dai L, Wang Y, Zanobetti A, Choirat C, Schwartz JD, Dominici F.
JAMA. 2017 Dec 26;318(24):2446-2456. doi: 10.1001/jama.2017.17923.

Air Pollution and Mortality in the Medicare Population.
Di Q, Wang Y, Zanobetti A, Wang Y, Koutrakis P, Choirat C, Dominici F, Schwartz JD.
N Engl J Med. 2017 Jun 29;376(26):2513-2522. doi: 10.1056/NEJMoa1702747.

Ozone and survival in four cohorts with potentially predisposing diseases.
Zanobetti A, Schwartz J.
Am J Respir Crit Care Med. 2011 Oct 1;184(7):836-41. doi: 10.1164/rccm.201102-0227OC.

Multicity study of air pollution and mortality in Latin America (the ESCALA study).
Romieu I, Gouveia N, Cifuentes LA, de Leon AP, Junger W, Vera J, Strappa V, Hurtado-Díaz M, Miranda-Soberanis V, Rojas-Bracho L, Carbajal-Arroyo L, Tzintzun-Cervantes G; HEI Health Review Committee.
Res Rep Health Eff Inst. 2012 Oct;(171):5-86.

Long-Term Ozone Exposure and Mortality in a Large Prospective Study.
Turner MC, Jerrett M, Pope CA 3rd, Krewski D, Gapstur SM, Diver WR, Beckerman BS, Marshall JD, Su J, Crouse DL, Burnett RT.
Am J Respir Crit Care Med. 2016 May 15;193(10):1134-42. doi: 10.1164/rccm.201508-1633OC.

Seasonal variation in the acute effects of ozone on premature mortality among elderly Japanese.
Ng CF, Ueda K, Nitta H, Takeuchi A.
Environ Monit Assess. 2013 Oct;185(10):8767-76. doi: 10.1007/s10661-013-3211-6. Epub 2013 Apr 21.

Asthma

Critical review of long-term ozone exposure and asthma development.
Zu K, Shi L, Prueitt RL, Liu X, Goodman JE.
Inhal Toxicol. 2018 Feb;30(3):99-113. doi: 10.1080/08958378.2018.1455772.

Note: This list is not intended to be inclusive of all studies that should be included.

Selected Scientific and Policy Relevant Information for Docket ID No. EPA-HQ-ORD-2018-0274

Association Between Asthma Hospital Visits and Ozone Concentration in Maricopa County, Arizona (2007-2012).
Mohamed A, Goodin K, Pope R, Hubbard M, Levine M.
J Environ Health. 2016 May;78(9):8-13.

Spatio-temporal ozone variation in a case-crossover analysis of childhood asthma hospital visits in New York City.
Shmool JL, Kinnee E, Sheffield PE, Clougherty JE.
Environ Res. 2016 May;147:108-14. doi: 10.1016/j.envres.2016.01.020. Epub 2016 Feb 6.

Ambient ozone exposure and children's acute asthma in New York City: a case-crossover analysis.
Sheffield PE, Zhou J, Shmool JL, Clougherty JE.
Environ Health. 2015 Mar 18;14:25. doi: 10.1186/s12940-015-0010-2.

Associations between ozone, PM2.5, and four pollen types on emergency department pediatric asthma events during the warm season in New Jersey: a case-crossover study.
Gleason JA, Bielory L, Fagliano JA.
Environ Res. 2014 Jul;132:421-9. doi: 10.1016/j.envres.2014.03.035. Epub 2014 May 21.

Cardiovascular Harm

Susceptibility to short-term ozone exposure and cardiovascular and respiratory mortality by previous hospitalizations.
Raza A, Dahlquist M, Lind T, Ljungman PLS.
Environ Health. 2018 Apr 13;17(1):37. doi: 10.1186/s12940-018-0384-z

Ozone exposure and cardiovascular-related mortality in the Canadian Census Health and Environment Cohort (CANCHEC) by spatial synoptic classification zone.
Cakmak S, Hebbern C, Vanos J, Crouse DL, Burnett R.
Environ Pollut. 2016 Jul;214:589-599. doi: 10.1016/j.envpol.2016.04.067. Epub 2016 Apr 29.

Cardiovascular function and ozone exposure: The Multicenter Ozone Study in oldEr Subjects (MOSES).
Rich DQ, Balmes JR, Frampton MW, Zareba W, Stark P, Arjomandi M, Hazucha MJ, Costantini MG, Ganz P, Hollenbeck-Pringle D, Dagincourt N, Bromberg PA.
Environ Int. 2018 Jun 29;119:193-202. doi: 10.1016/j.envint.2018.06.014. [Epub ahead of print]

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Pregnancy and Development

Ambient air pollution, birth weight and preterm birth: a systematic review and meta-analysis.
Stieb DM, Chen L, Eshoul M, Judek S.
Environ Res. 2012 Aug;117:100-11. doi: 10.1016/j.envres.2012.05.007. Epub 2012 Jun 21.
Review.

Investigating the association between birth weight and complementary air pollution metrics: a cohort study.
Laurent O, Wu J, Li L, Chung J, Bartell S.
Environ Health. 2013 Feb 17;12:18. doi: 10.1186/1476-069X-12-18.

Assessing the impact of race, social factors and air pollution on birth outcomes: a population-based study.
Gray SC, Edwards SE, Schultz BD, Miranda ML.
Environ Health. 2014 Jan 29;13(1):4. doi: 10.1186/1476-069X-13-4.

Ambient air pollution and birth weight in full-term infants in Atlanta, 1994-2004.
Darrow LA, Klein M, Strickland MJ, Mulholland JA, Tolbert PE.
Environ Health Perspect. 2011 May;119(5):731-7. doi: 10.1289/ehp.1002785. Epub 2010 Dec 14.

Ambient air pollution and adverse birth outcomes: Differences by maternal comorbidities.
Lavigne E, Yasseen AS 3rd, Stieb DM, Hystad P, van Donkelaar A, Martin RV, Brook JR, Crouse DL, Burnett RT, Chen H, Weichenthal S, Johnson M, Villeneuve PJ, Walker M.
Environ Res. 2016 Jul;148:457-466. doi: 10.1016/j.envres.2016.04.026. Epub 2016 Apr 30.

Associations between ozone and preterm birth in women who develop gestational diabetes.
Lin YT, Jung CR, Lee YL, Hwang BF.
Am J Epidemiol. 2015 Feb 15;181(4):280-7. doi: 10.1093/aje/kwu264. Epub 2015 Feb 3.

Evaluating narrow windows of maternal exposure to ozone and preterm birth in a large urban area in Southeast Texas.
Symanski E, McHugh MK, Zhang X, Craft ES, Lai D.
J Expo Sci Environ Epidemiol. 2016 Mar-Apr;26(2):167-72. doi: 10.1038/jes.2015.32. Epub 2015 May 6.

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Cognitive Functions

The effects of ozone exposure and associated injury mechanisms on the central nervous system.
Martínez-Lazcano JC, González-Guevara E, del Carmen Rubio M, Franco-Pérez J, Custodio V, Hernández-Cerón M, Livera C, Paz C.
Rev Neurosci. 2013;24(3):337-52. doi: 10.1515/revneuro-2012-0084. Review

Association of Low-Level Ozone with Cognitive Decline in Older Adults.
Cleary EG, Cifuentes M, Grinstein G, Brugge D, Shea TB.
J Alzheimers Dis. 2018;61(1):67-78. doi: 10.3233/JAD-170658.

Components of air pollution and cognitive function in middle-aged and older adults in Los Angeles.
Gatto NM, Henderson VW, Hodis HN, St John JA, Lurmann F, Chen JC, Mack WJ.
Neurotoxicology. 2014 Jan;40:1-7. doi: 10.1016/j.neuro.2013.09.004. Epub 2013 Oct 19.

Ambient ozone exposure and mental health: A systematic review of epidemiological studies.
Zhao T, Markevych I, Romanos M, Nowak D, Heinrich J.
Environ Res. 2018 Aug;165:459-472. doi: 10.1016/j.envres.2018.04.015. Epub 2018 May 1. Review.

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