

List of References from the Ozone Workshop Webinar Presentations

Discussion of NAAQS and other causality frameworks and how they are applied to ozone - Julie E. Goodman, Ph.D., DABT, ACE, ATS, Gradient

Goodman, JE; Prueitt, RL; Sax, SN; Bailey, LA; Rhomberg, LR.2013 / " Evaluation of the causal framework used for setting National Ambient Air Quality Standards." Crit. Rev. Toxicol.43(10) : 829-849

Hill, AB.1965 / " The environment and disease: Association or causation?" Proc. R. Soc. Med.58(5) : 295-300

Institute of Medicine (IOM), Committee on Evaluation of the Presumptive Disability Decision-Making Process for Veterans, Board on Military and Veterans Health; Samet, JM; Bodurow, CC; eds..2008 / " Improving the Presumptive Disability Decision-Making Process for Veterans." National Academies Press (Washington, DC)Accessed on October 09, 2009 at http://books.nap.edu/openbook.php?record_id=11908&. 781p

National Research Council.2014" [Review of EPA's Integrated Risk Information System \(IRIS\) Process.](#)" National Academies Press (Washington, DC)Accessed on May 06, 2014 at http://www.nap.edu/catalog.php?record_id=18764 204p.

National Research Council. April 2011. "[Review of the Environmental Protection Agency's Draft IRIS Assessment of Formaldehyde.](#)" National Academies Press (Washington, DC) Accessed on April 08, 2011 at <http://www.nap.edu/catalog/13142.html> 194p.

Rhomberg, LR; Goodman, JE; Bailey, LA; Prueitt, RL; Beck, NB; Bevan, C; Honeycutt, M; Kaminski, NE; Paoli, G; Pottenger, LH; Scherer, RW; Wise, KC; Becker, RA.2013 / " A survey of frameworks for best practices in weight-of-evidence analyses." Crit. Rev. Toxicol.43(9) : 753-784

US EPA, National Center for Environmental Assessment (NCEA).February 2013 / " Integrated Science Assessment for Ozone and Related Photochemical Oxidants (Final)." 1251p

Goodman, JE; Lynch, HN; Prueitt, RL; Tabony, JA; Rhomberg, LR; Beck, NB.2014 / " Evaluation of Study Quality Criteria Frameworks." Presented at Society for Risk Analysis Annual Meeting, Denver, Colorado, December 7-10.

US EPA, National Center for Environmental Assessment (NCEA).January 2015" Integrated Science Assessment for Oxides of Nitrogen–Health Criteria (Second External Review Draft)." Accessed on February 01, 2015 at <http://www.epa.gov/ncea/isa> 1135p

Overview of mode of action and discussion of thresholds- Sabine Lange, Ph.D., Texas Commission on Environmental Quality

Mudway, IS; Blomberg, A; Frew, AJ; Holgate, ST; Sandstrom, T; Kelly, FJ. 1999. "Antioxidant consumption and repletion kinetics in nasal lavage fluid following exposure of healthy human volunteers to ozone." *Eur. Respir. J.* 13:1429-1438.

Mudway, IS; Kelly, FJ. 2004. "An investigation of inhaled ozone dose and the magnitude of airway inflammation in healthy adults: Online data supplement." *Am. J. Respir. Crit. Care Med.* 169:1089-1095.

US EPA. 2013. "Integrated Science Assessment for Ozone and Related Photochemical Oxidants (Final)." National Center for Environmental Assessment (NCEA). EPA/600/R-10/076F. 1251p., February.

Overview of controlled exposure studies and adversity- Sabine Lange, Ph.D., Texas Commission on Environmental Quality

Adams, WC; Savin, WM; Christo, AE. 1981. "Detection of ozone toxicity during continuous exercise via the effective dose concept." *J. Appl. Physiol.* 51:415-422.

American Thoracic Society (ATS). 2000. "What constitutes an adverse health effect of air pollution?" *Am. J. Respir. Crit. Care Med.* 161:665-673.

Goodman, JE; Prueitt, RL; Chandalia, J; Sax, SN. 2014. "Evaluation of adverse human lung function effects in controlled ozone exposure studies." *J. Appl. Toxicol.* 34(5):516-524.

McDonnell, WF; Stewart, PW; Smith, MV; Kim, CS; Schelegle, ES. 2012. "Prediction of lung function response for populations exposed to a wide range of ozone conditions." *Inhal. Toxicol.* 24:619-633.

Pellegrino, R; Viegi, G; Brusasco, V; Crapo, RO; Burgos, F; Casaburi, R; Coates, A; van der Grinten, CP; Gustafsson, P; Hankinson, J; Jensen, R; Johnson, DC; MacIntyre, N; McKay, R; Miller, MR; Navajas, D; Pedersen, OF; Wanger, J. 2005. "Interpretative strategies for lung function tests." *Eur. Respir. J.* 26(5):948-968.

Samet, JM; Lamber, WE; James, DS; Mermier, CM; Chick, TW. 1993. "Assessment of heart rates as a predictor of ventilation." *Res Rep Health Eff Inst.* 59: 19-55.

Schelegle, ES; Adams, WC; Walby, WF; Marion, MS. 2012. "Modelling of individual subject ozone exposure response kinetics." *Inhal. Toxicol.* 24:401-415.

Texas Commission on Environmental Quality. 2012. "TCEQ guidelines to develop toxicity factors." Revised RG-442, Austin, TX. <http://www.tceq.texas.gov/publications/rg/rg-442.html>.

US EPA. 1994. "Methods for derivation of inhalation reference concentrations and application of inhalation dosimetry." (EPA/600/8-90/066F). Washington DC.

US EPA. 2013. "Integrated Science Assessment for Ozone and Related Photochemical Oxidants (Final)." National Center for Environmental Assessment (NCEA). EPA/600/R-10/076F. 1251p., February.

US EPA. 2014a. "National ambient air quality standards for ozone (Proposed rule)." 40 CFR Parts 50, 51, 52, 53 and 58.

US EPA. 2014b. "Health Risk and Exposure Assessment for Ozone (Final Report)." EPA-452/R-14-004a-e. August.

Zuurbier, M; Hoek, G; van den Hazel, P; Brunekreef, B. 2009. "Minute ventilation of cyclists, car and bus passengers: an experimental study." *Environ Health*. doi: 10.1186/1476-069X-8-48.

Impacts of using ambient ozone concentrations as surrogates for personal exposure - Sonja Sax, Sc.D., Gradient

Chang, LT; Koutrakis, P; Catalano, PJ; Suh, HH. 2000. "Hourly personal exposures to fine particles and gaseous pollutants - Results from Baltimore, Maryland." *J. Air Waste Manag. Assoc.* 50 (7) : 1223-1235. doi: 10.1080/10473289.2000.10464151.

Klepeis, NE; Nelson, WC; Ott, WR; Robinson, JP; Tsang, AM; Switzer, P; Behar, JV; Hern, SC; Engelmann, WH. 2001. "The National Human Activity Pattern Survey (NHAPS): A resource for assessing exposure to environmental pollutants." *J. Expo. Anal. Environ. Epidemiol.* 11:231-252.

Liard, R; Zureik, M; Le Moullec, Y; Soussan, D; Glorian, M; Grimfeld, A; Neukirch, F. 1999. "Use of personal passive samplers for measurement of NO₂, NO, and O₃ levels in panel studies." *Environ. Res.* 81 (4) : 339-348. doi: 10.1006/enrs.1999.3993.

Rhomberg, LR; Chandalia, JK; Long, CM; Goodman, JE. 2011. "Measurement error in environmental epidemiology and the shape of exposure-response curves." *Crit. Rev. Toxicol.* 41 (8) :651-671.

Sarnat, JA; Schwartz, J; Catalano, PJ; Suh, HH. 2001. "Gaseous pollutants in particulate matter epidemiology: Confounders or surrogates?" *Environ. Health Perspect.* 109(10):1053-1061

Sarnat, JA; Brown, KW; Schwartz, J; Coull, BA; Koutrakis, P. 2005. "Ambient gas concentrations and personal particulate matter exposures: Implications for studying the health effects of particles." *Epidemiology* 16 (3) :385-395.

US EPA. 2013. "Integrated Science Assessment for Ozone and Related Photochemical Oxidants (Final)." National Center for Environmental Assessment (NCEA). EPA/600/R-10/076F. 1251p., February.

US EPA. 2014. "Health Risk and Exposure Assessment for Ozone (Final Report)." EPA-452/R-14-004a; EPA-452/R-14-004b; EPA-452/R-14-004c; EPA-452/R-14-004d; EPA-452/R-14-004e. August.

Zeger, SL; Thomas, D; Dominici, F; Samet, JM; Schwartz, J; Dockery, D; Cohen, A. 2000. "Exposure measurement error in time-series studies of air pollution: Concepts and consequences." *Environ. Health Perspect.* 108 (5) :419-426

Overview of key epidemiology literature - Julie E. Goodman, Ph.D., DABT, ACE, ATS, Gradient

Jerrett, M; Burnett, RT; Pope, CA; Ito, K; Thurston, G; Krewski, D; Shi, Y; Calle, E; Thun, M. 2009. "Long-term ozone exposure and mortality." *N. Engl. J. Med.* 360 (11) :1085-1095.

Katsouyanni, K; Samet, JM; Anderson, HR; Atkinson, R; Le Tertre, A; Medina, S; Samoli, E; Touloumi, G; Burnett, RT; Krewski, D; Ramsay, T; Dominici, F; Peng, RD; Schwartz, J; Zanobetti, A. October 29, 2009. "Air Pollution and Health: A European and North American Approach (APHENA)." HEI Research Report 142.

Mar, TF; Koenig, JQ. 2009. "Relationship between visits to emergency departments for asthma and ozone exposure in greater Seattle, Washington." *Ann. Allergy Asthma Immunol.* 103:474-479.

Rothman, KJ; Greenland, S; Lash, TL. 2008. "Modern Epidemiology (Third Edition)." Lippincott Williams & Wilkins (Philadelphia, PA)

Smith, RL; Xu, B; Switzer, P. 2009. "Reassessing the relationship between ozone and short-term mortality in U.S. urban communities." *Inhal. Toxicol.* 21 (Suppl. 2) :37-61.

Strickland, MJ; Darrow, LA; Klein, M; Flanders, WD; Sarnat, JA; Waller, LA; Sarnat, SE; Mulholland, JA; Tolbert, PE. 2010. "Short-term associations between ambient air pollutants and pediatric asthma emergency department visits." *Am. J. Respir. Crit. Care Med.* 182(3):307-316

US EPA. December 17, 2014. "National ambient air quality standards for ozone (Proposed rule)." *Fed. Reg.* 79 :75234-75411. 40 CFR Parts 50, 51, 52, 53 and 58.

Zanobetti, A; Schwartz, J. 2008. "Mortality displacement in the association of ozone with mortality: An analysis of 48 cities in the United States." *Am. J. Respir. Crit. Care Med.* 177(2):184-189.

Integrating evidence streams together - Julie E. Goodman, Ph.D., DABT, ACE, ATS, Gradient

Integrating References:

US EPA, 2013. "Integrated Science Assessment for Ozone and Related Photochemical Oxidants (Final)." National Center for Environmental Assessment (NCEA) EPA/600/R-10/076F.

Goodman, JE; Prueitt, RL; Sax, SN; Bailey, LA; Rhomberg, LR. 2013. "Evaluation of the causal framework used for setting National Ambient Air Quality Standards." *Crit. Rev. Toxicol.* 43 (10) :829-849. doi: 10.3109/10408444.2013.837864.

Rhomberg, LR; Goodman, JE; Bailey, LA; Prueitt, RL; Beck, NB; Bevan, C; Honeycutt, M; Kaminski, NE; Paoli, G; Pottenger, LH; Scherer, RW; Wise, KC; Becker, RA. 2013. "A survey of frameworks for best practices in weight-of-evidence analyses." *Crit. Rev. Toxicol.* 43 (9) :753-784. doi: 10.3109/10408444.2013.832727.

Select Asthma Studies:

Controlled human exposure studies

Basha, MA; Gross, KB; Gwizdala, CJ; Haidar, AH; Popovich Jr., J. 1994. "Bronchoalveolar lavage neutrophilia in asthmatic and health volunteers after controlled exposure to ozone and filtered purified air." *Chest* 106:1757-1765.

Jenkins, HS; Devalia, JL; Mister, RL; Bevan, AM; Rusznak, C; Davies, RJ. 1999. "The effect of exposure to ozone and nitrogen dioxide on the airway response of atopic asthmatics to inhaled allergen: Dose- and time-dependent effects." *Am. J. Respir. Crit. Care Med.* 160 :33-39.
200114-F-3.0/070

Newson, EJ; Krishna, MT; Lau, LC; Howarth, PH; Holgate, ST; Frew, AJ. 2000. "Effects of short-term exposure to 0.2 ppm ozone on biomarkers of inflammation in sputum, exhaled nitric oxide, and lung function in subjects with mild atopic asthma." *J. Occup. Environ. Med.* 42(3):270-277. doi: 10.1097/00043764-200003000-00007

Scannell, C; Chen, L; Aris, RM; Tager, I; Christian, D; Ferrando, R; Welch, B; Kelly, T; Balmes, JR. 1996. "Greater ozone-induced inflammatory responses in subjects with asthma." *Am. J. Respir. Crit. Care Med.* 154:24-29. Jenkins et al. (1999)

Stenfors, N; Bosson, J; Helleday, R; Behndig, AF; Pourazar, J; Törnqvist, H; Kelly, FJ; Frew, AJ; Sandstrom, T; Mudway, IS; Blomberg, A. 2010. "Ozone exposure enhances mast-cell inflammation in asthmatic airways despite inhaled corticosteroid therapy." *Inhal. Toxicol.* 22(2):133-139. doi: 10.3109/08958370903005736

Vagaggini, B; Cianchetti, S; Bartoli, M; Ricci, M; Bacci, E; Dente, FL; Di Franco, A; Paggiaro, P. 2007. "Prednisone blunts airway neutrophilic inflammatory response due to ozone exposure in asthmatic subjects." *Respiration* 74 (1) :61-68. doi: 10.1159/000096078.

Epidemiology Studies

Burnett, RT; Smith-Doiron, M; Stieb, D; Cakmak, S; Brook, JR. 1999. "Effects of particulate and gaseous air pollution on cardiorespiratory hospitalizations." *Arch. Environ. Health* 54 :130-139.

Gent, JF; Triche, EW; Holford, TR; Belanger, K; Bracken, MB; Beckett, WS; Leaderer, BP. 2003. "Association of low-level ozone and fine particles with respiratory symptoms in children with asthma." *JAMA* 290 (14) :1859-1867.
203050-E-3.0/002

Jalaludin, B; Khalaj, B; Sheppard, V; Morgan, G. 2008. "Air pollution and ED visits for asthma in Australian children: A case-crossover analysis." *Int. Arch. Occup. Environ. Health* 81 (8) :967-974.

Mortimer, KM; Neas, LM; Dockery, DW; Redline, S; Tager, IB. 2002. "The effect of air pollution on inner-city children with asthma." *Eur. Respir. J.* 19 :699-705.

O'Connor, GT; Neas, L; Vaughn, B; Kattan, M; Mitchell, H; Crain, EF; Evans, R III; Gruchalla, R; Morgan, W; Stout, J; Adams, GK; Lippman, M. 2008. "Acute respiratory health effects of air pollution on children with asthma in US inner cities." *J. Allergy Clin. Immunol.* 121 (5) :1133-1139.

Romieu, I; Meneses, F; Ruiz, S; Huerta, J; Sienna, JJ; White, M; Etzel, R; Herjuandez, M. 1997. "Effects of intermittent ozone exposure on peak expiratory flow and respiratory symptoms among asthmatic children in Mexico City." *Arch. Environ. Health* 52 :368-376.
200114-F-3.0/117

Silverman, RA; Ito, K. 2010. "Age-related association of fine particles and ozone with severe acute asthma in New York City." *J. Allergy Clin. Immunol.* 125 (2) :367-373.

Schildcrout, JS; Sheppard, L; Lumley, T; Slaughter, JC; Koenig, JQ; Shapiro, GG. 2006. "Ambient air pollution and asthma exacerbations in children: An eight-city analysis." *Am. J. Epidemiol.* 164 (5) :505-517.

Animal Studies

Chhabra, SK; Yasir, A; Chaudhry, K; Shah, B. 2010. "Effect of ozone on response to ovalbumin & its modulation by vitamins C & E in sensitized guinea pigs." *Indian J. Med. Res.* 132 :87-93.

Larsen, ST; Matsubara, S; McConville, G; Poulsen, SS; Gelfand, EW. 2010. "Ozone increases airway hyperreactivity and mucus hyperproduction in mice previously exposed to allergen." *J. Toxicol. Environ. Health A* 73 (11) :738-747. doi: 10.1080/15287391003614034.

Schlesinger, RB; Cohen, MD; Gordon, T; Nadziejko, C; Zelikoff, JT; Sisco, M; Regal, JF; Menache, MG. 2002. "Ozone differentially modulates airway responsiveness in atopic versus nonatopic guinea pigs." *Inhal. Toxicol.* 14 (5) :431-457. do