Legislative Briefing
What the Science Says: How EPA Matters to Children's Health
April 5, 2017

Infographic Sources and Relevant Articles

EPA and Toxic Chemicals	
Statistic/Information in Infographic	**Source**
30,000 lbs of industrial chemicals produced for each person in the U.S. in 2012 alone	U. S. Environmental Protection Agency. (2014). *Fact Sheet: Chemicals Snapshot*. https://www.epa.gov/sites/production/files/2014-11/documents/2nd_cdr_snapshot_5_19_14.pdf http://prhe.ucsf.edu/sites/prhe.ucsf.edu/files/EPA%20Fact%20Sheet%20Chemicals%20Snapshot%202014.pdf The total reported production volume (domestically manufactured and imported) for 2012 was 9.5 trillion pounds. The U.S. population in 2012 was 314.1 million people = 30,245 pounds per person
Toxic chemicals are contaminating people and undermining health	Di Renzo G. C., Woodruff, T. J., et al. (December 2015). International Federation of Gynecology and Obstetrics opinion on reproductive health impacts of exposure to toxic environmental chemicals. *International Journal of Gynecology and Obstetrics, 131*(3), 219-225. http://www.figo.org/sites/default/files/uploads/News/Final%20PDF_8462.pdf Woodruff, T. J., Zota, A. R., & Schwartz, J. M. (June 2011). Environmental chemicals in pregnant women in the United States: NHANES 2003-2004. *Environmental Health Perspectives, 119*(6), 878-885. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3114826/pdf/ehp-119-878.pdf The American College of Obstetrics and Gynecologists. (October 2013, Reaffirmed 2016). *Committee Opinion: Exposure to Toxic Environmental Agents*, 575. https://www.acog.org/-/media/Committee-Opinions/Committee-on-Health-Care-for-Underserved-Women/co575.pdf?dmc=1&ts=20160721T1449273455 The American College of Obstetrics and Gynecologists. (October 2013). *Companion Piece*: *Exposure to Toxic Environmental Agents.* https://www.acog.org/-/media/Committee-Opinions/Committee-on-Health-Care-for-Underserved-Women/ExposuretoToxic.pdf
Most chemicals in the marketplace have not been tested for safety	Wilson, M. P. & Schwarzman, M. R. (2009). Toward a New U.S. Chemicals Policy: Rebuilding the Foundation to Advance New Science, Green Chemistry, and Environmental Health. *Environmental Health Perspectives, 117*(8), 1202-1209. https://ehp.niehs.nih.gov/wp-content/uploads/117/8/ehp.0800404.pdf Vogel, S. A. & Roberts, J. A. (May 2011). Why The Toxic Substances Control Act Needs An Overhaul, And How To Strengthen Oversight Of Chemicals In The Interim. *Health Affairs, 30*(5), 898-905. http://0-content.healthaffairs.org.ignacio.usfca.edu/content/30/5/898.full.pdf
To a disturbing extent, babies are born 'pre-polluted'	National Cancer Institute. *President's Cancer Panel*. (April 2010). https://deainfo.nci.nih.gov/advisory/pcp/annualreports/pcp08-09rpt/pcp_report_08-09_508.pdf

Phthalates + PBDE flame retardants in 100% of pregnant women	Woodruff, T. J., Zota, A. R., & Schwartz, J. M. (June 2011). Environmental chemicals in pregnant women in the United States: NHANES 2003-2004. *Environmental Health Perspectives, 119*(6), 878-885. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3114826/pdf/ehp-119-878.pdf
44 toxic chemicals in pregnant women, also measured in newborns' umbilical chords	Morello-Frosch, R., Woodruff, T.J., et al. (2016). Environmental Chemicals in an Urban Population of Pregnant Women and Their Newborns from San Francisco. *Environmental Science & Technology, 50,* 12464−12472. http://prhe.ucsf.edu/sites/prhe.ucsf.edu/files/Environmental%20Chemicals%20in%20an%20Urban%20Population.pdf
Teen cancer up 25% since 1975	Burkhamer, J., Kribel, D. & Clapp, R. (October 2017). The increasing toll of adolescent cancer incidence in the US. *PLoS ONE, 12*(2), 1-16. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5325567/pdf/pone.0172986.pdf
Autism has skyrocketed: 1 in 5,000 in 1975, 1 in 68 in 2014	Centers for Disease Control and Prevention. (2014). *Community Report on Autism*. https://www.cdc.gov/ncbddd/autism/states/comm_report_autism_2014.pdf
Yet EPA has banned only 5 chemicals since 1976	Cranor, C. F. (2013). *Legally Poisoned: How the Law Puts Us at Risk from Toxicants.* Cambridge, MA: Harvard University Press. Wilson, M. P. & Schwarzman, M. R. (2009). Toward a New U.S. Chemicals Policy: Rebuilding the Foundation to Advance New Science, Green Chemistry, and Environmental Health. Environmental Health Perspectives, 117(8), 1202-1209. https://ehp.niehs.nih.gov/wp-content/uploads/117/8/ehp.0800404.pdf
Europe has banned > 1000 since 2000	
• The European Union has banned 1,328 chemicals for use in cosmetics	The European Parliament & Council of the European Union. (2009). Regulation (EC) No 1223/2009 of the European Parliament and of the Council of 30 November 2009 on cosmetic products. *Official Journal of the European Union*. See *Annex II: List of Substances Prohibited in Cosmetic Products,* p. L342/83 – L342/127 http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32009R1223&from=EN
• The European Union has banned 64 chemicals for manufacture, placing on market, or use	European Chemical Agency (ECHA). *Substances restricted under REACH: Annex XVII*. https://echa.europa.eu/addressing-chemicals-of-concern/restrictions/substances-restricted-under-reach

EPA and the Economy	
Statistic/Information	**Source**
EPA has cleaned the environment while the U.S. economy has grown	U.S. Environmental Protection Agency & Office of Air and Radiation. (2016). *Our Nation's Air: Status and Trends Through 2015*. https://gispub.epa.gov/air/trendsreport/2016/ http://prhe.ucsf.edu/sites/prhe.ucsf.edu/files/EPA%20Trends%20Report%202016.pdf
Comparison of Growth Areas and Emissions 1970-2015 graph	U.S. Environmental Protection Agency & Office of Air and Radiation. (2016). *Our Nation's Air: Status and Trends Through 2015*. https://gispub.epa.gov/air/trendsreport/2016/ Graphs: http://prhe.ucsf.edu/sites/prhe.ucsf.edu/files/EPA%20GrowthAndEmissions.pdf; http://prhe.ucsf.edu/sites/prhe.ucsf.edu/files/EPA%20GrowthAndEmissions2.pdf

When EPA helps clean up cities they revitalize; When contaminated areas are cleaned up it's good for business	U.S. Environmental Protection Agency. (2016). Brownfields Program. https://www.epa.gov/ok/oklahoma-city-revitalization http://prhe.ucsf.edu/sites/prhe.ucsf.edu/files/brownfields-federal-programs-guide-2013.pdf
Clean Air Act prevented 13 million lost work days in 2010	U.S. Environmental Protection Agency & Office of Air and Radiation. (March 2011). *The Benefits and Costs of the Clean Air Act from 1990 to 2020.* Summary Report. https://www.epa.gov/sites/production/files/2015-07/documents/summaryreport.pdf http://prhe.ucsf.edu/sites/prhe.ucsf.edu/files/EPA%20Benefits%20and%20Costs%20Clean%20Air%20Act%201990-2020.pdf
Benefits of Clean Air Act exceeded costs by 30:1; $2 trillion benefits; $65 billion costs; $1.5 trillion net gain	U.S. Environmental Protection Agency. (October 1997). *The Benefits and Costs of the Clean Air Act from 1970 to 1990.* Summary Report. https://www.epa.gov/sites/production/files/2015-06/documents/contsetc.pdf http://prhe.ucsf.edu/sites/prhe.ucsf.edu/files/EPA%20Benefits%20and%20Costs%20Clean%20Air%20Act%201970-1990.pdf
More productive workers; each 10 ppb decrease in ozone concentrations increases agricultural worker productivity 5.5%	Zivin, J. G. & Neidell, M. (December 2012). The Impact of Pollution on Worker Productivity. *American Economic Review, 102*(7), 3652-3673. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4576916/pdf/nihms700188.pdf

EPA and Children's Health

Statistics/Information	Sources
Children are extremely susceptible to damaging effects of environmental pollutants: • ADHD, Asthma, Autism, Cancer, Depression, Lower IQ, Heart and Lung Disease, Low Birth Weight, Obesity, and Premature Death	Burkhamer, J., Kribel, D. & Clapp, R. (October 2017). The increasing toll of adolescent cancer incidence in the US. *PLoS ONE, 12*(2), 1-16. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5325567/pdf/pone.0172986.pdf Di Renzo G. C., Woodruff, T. J., et al. (December 2015). International Federation of Gynecology and Obstetrics opinion on reproductive health impacts of exposure to toxic environmental chemicals. *International Journal of Gynecology and Obstetrics, 131*(3), 219-225. http://www.figo.org/sites/default/files/uploads/News/Final%20PDF_8462.pdf Grandjean, P. et al. (2007). The Faroes Statement: Human Health Effects of Developmental Exposure to Chemicals in Our Environment. *Basic & Clinical Pharmacology & Toxicology, 102*, 73-75. http://onlinelibrary.wiley.com/doi/10.1111/j.1742-7843.2007.00114.x/epdf Johnson, P. I., Woodruff, T. J., et al. (October 2014). The Navigation Guide – Evidence-Based Medicine Meets Environmental Health: Systematic Review of Human Evidence for PFOA Effects on Fetal Growth. *Environmental Health Perspectives, 122*(10), 1028-1039. https://ehp.niehs.nih.gov/wp-content/uploads/122/10/ehp.1307893.alt.pdf Project TENDR: Targeting Environmental Neuro-Developmental Risks. The TENDR Consensus Statement. Environmental Health Perspectives, 124(7), A118-A122. http://projecttendr.com/wp-content/uploads/2016/07/EHP358.alt_.pdf Perera, F. P., et al. (November 2014). Early-Life Exposure to Polycyclic Aromatic Hydrocarbons and ADHD Behavior Problems. *PLoS ONE, 9*(11). https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4221082/pdf/pone.0111670.pdf Perera, F. P., et al. (June 2012). Prenatal Polycyclic Aromatic Hydrocarbon (PAH) Exposure and Child Behavior at Age 6-7 Years. Environmental Health Perspectives, 120(6), 921-926. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3385432/pdf/ehp.1104315.pdf

	Rich, D. Q., Woodruff, T. J., et al. (September 2015). Differences in Birth Weight Associated with the 2008 Beijing Olympic Air Pollution Reduction: Results from a Natural Experiment. *Environmental Health Perspectives, 123*(9), 880-887. http://prhe.ucsf.edu/sites/prhe.ucsf.edu/files/Differences%20in%20Birth%20Weight%20Associated%20with%20the%202008%20Beijing.pdf Rosa et al. (June 2011). Prenatal exposure to polycyclic aromatic hydrocarbons, environmental tobacco smoke and asthma. *Respir Med, 105*(6), 869-867. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3081952/pdf/nihms-259937.pdf Rundle, A. et al. (April 2012). Association of Childhood Obesity With Maternal Exposure to Ambient Air Polycyclic Aromatic Hydrocarbons During Pregnancy. *American Journal of Epidemiology, 175*(11). https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3491973/pdf/kwr455.pdf The American College of Obstetrics and Gynecologists. (October 2013, Reaffirmed 2016). *Committee Opinion: Exposure to Toxic Environmental Agents*, 575. https://www.acog.org/-/media/Committee-Opinions/Committee-on-Health-Care-for-Underserved-Women/co575.pdf?dmc=1&ts=20160721T1449273455 The American College of Obstetrics and Gynecologists. (October 2013). *Companion Piece*: *Exposure to Toxic Environmental Agents.* https://www.acog.org/-/media/Committee-Opinions/Committee-on-Health-Care-for-Underserved-Women/ExposuretoToxic.pdf Wang, A., Padula, A., Sirota, M., & Woodruff, T. J. (2016). Environmental influences on reproductive health: the importance of chemical exposures. *Fertility and Sterility, 106*(4), 905-929. http://prhe.ucsf.edu/sites/prhe.ucsf.edu/files/Environmental%20Influences%20on%20Reproductive%20Health.pdf
$22 trillion in benefits (avg mean)	U.S. Environmental Protection Agency. (October 1997). *The Benefits and Costs of the Clean Air Act from 1970 to 1990.* Summary Report. https://www.epa.gov/sites/production/files/2015-06/documents/contsetc.pdf http://prhe.ucsf.edu/sites/prhe.ucsf.edu/files/EPA%20Benefits%20and%20Costs%20Clean%20Air%20Act%201970-1990.pdf
In 2020, Clean Air Act will prevent 230,000 early deaths; 2.4 million asthma attacks; 5.4 million lost school days	U.S. Environmental Protection Agency & Office of Air and Radiation. (March 2011). *The Benefits and Costs of the Clean Air Act from 1990 to 2020.* Summary Report. https://www.epa.gov/sites/production/files/2015-07/documents/summaryreport.pdf http://prhe.ucsf.edu/sites/prhe.ucsf.edu/files/EPA%20Benefits%20and%20Costs%20Clean%20Air%20Act%201990-2020.pdf
Before only 33% of U.S. waters safe for fishing/swimming; After 65% of U.S. waters healthy for fishing/swimming (by 2011)	U.S. Environmental Protection Agency. (2016). *EPA History of Clean Water Act.* https://www.epa.gov/laws-regulations/history-clean-water-act
Blood lead levels dropped > 90% and severe child lead poisonings greatly reduced	U. S. Environmental Protection Agency. (January 2013). *America's Children and the Environment, 3rd Edition.* https://www.epa.gov/sites/production/files/2015-06/documents/ace3_2013.pdf http://prhe.ucsf.edu/sites/prhe.ucsf.edu/files/EPA%20Americas%20Children%20Environment%20Report%203rd%20Ed.pdf
Lead banned in 1976; gasoline 1990	U. S. Environmental Protection Agency. (January 2013). *America's Children and the Environment, 3rd Edition.* https://www.epa.gov/sites/production/files/2015-06/documents/ace3_2013.pdf http://prhe.ucsf.edu/sites/prhe.ucsf.edu/files/EPA%20Americas%20Children%20Environment%20Report%203rd%20Ed.pdf