

**MINNESOTA PUBLIC HEALTH ASSOCIATION
POLICY RESOLUTION**

**A COMPREHENSIVE APPROACH TO PROTECTING HUMAN HEALTH FROM HARMFUL
EFFECTS OF LEAD IN THE ENVIRONMENT, 2017**

WHEREAS, a large and growing body of scientific evidence demonstrates adverse effects on neurodevelopment among children with blood lead concentrations above 5 µg/dL, including lower IQ, reduced cognitive ability and academic aptitude, as well as attention deficit/hyperactivity disorder (ADHD) and conduct disorder (CD)^{1 2 3 4 5 6 7 8 9 10 11}; and

WHEREAS, an alliance of 48 leading scientists, health professionals and advocates agree that environmental toxins, including lead, are putting children at risk for adverse effects on neurodevelopment¹²; and

WHEREAS, MPHA's 2009 resolution entitled *Protecting Children from Harmful Effects of Lead in the Environment* presents the scientific evidence for adverse effects on brain development and behavior at blood lead levels of 5 ug/dL and supports policies that set a blood lead level of concern at 5 ug/dL to protect the health and brain development of children; and

WHEREAS, the Centers for Disease Control and Prevention (CDC)¹³ and the Minnesota Department of Health (MDH)¹⁴ now recognize 5 ug/dL as a reference blood lead level to identify children whose blood lead levels are higher than most children; and

WHEREAS, 1.1 % of Minnesota children tested by 3 years of age had blood lead levels of 5 ug/dL or higher¹⁵ and African-American children as a group and children from lower-income families (of any racial or ethnic background) are subject to disproportionately high exposures¹⁶; and

WHEREAS, lead is still found in the soil, especially in urban areas, and in paint in 75% of the homes built before 1978¹⁷; and

WHEREAS, lead in drinking water can be a significant source of exposure for children due to the presence of lead in older (pre-1930) water pipes, lead-based solder and brass components in pre-1985 plumbing¹⁸; and

WHEREAS, lead is also found in recycled waste tires used as playground mulch and synthetic turf athletic field infill¹⁹, exposing children and athletes when they play; and

WHEREAS, MDH has identified lead as a priority chemical under the Toxic Free Kids Act, indicating a key exposure for children²⁰; while the U.S. Consumer Product Safety Commission bans lead in most toys and child care articles for younger children, it is still found in many consumer products, including imported pottery and candy, antique or imported toys, crafts and jewelry materials, wheel weights, and fishing tackle, batteries, and some products for older children and pets; and

WHEREAS, lead-based ammunition is one of the greatest unregulated sources of lead discharged into the environment and the second largest annual use of lead in the U.S., accounting for over 60,000 metric tons in 2012, and lead-based ammunition poses significant health risks to humans, especially gun users and people who consume wild game,^{21 22 23 24 25} including pregnant women and children;^{26 27} and

WHEREAS, banning lead in ammunition reduces wildlife²⁸ and human exposure to lead for people who consume wild game^{29 30} and banning lead in paint and gasoline has resulted in significant reductions in blood lead levels³¹: These interventions demonstrate the value of public policy in reducing human exposure to lead; and

WHEREAS, investment in lead exposure prevention can yield great economic returns: Decades after the phase-out of lead from gasoline and paint, children's lead exposure from other sources still costs the U.S. economy an estimated \$50.9 billion per year in lost productivity when children become adults of working age³²; MDH estimates the cost in Minnesota alone is \$1.9 billion in 2014 dollars³³.

THEREFORE, BE IT RESOLVED, that the Minnesota Public Health Association:

1. Urges state and federal regulators to restrict the remaining uses of lead in consumer products and urges businesses to eliminate lead from their supply chains and products.
2. Recommends that health professionals integrate knowledge about all sources of lead exposure into patient care and public health practice.
3. Urges policymakers to accelerate the clean-up of past uses of lead, such as in paint and water pipes and better regulate industrial uses of lead to prevent future discharges.
4. Recommends a moratorium on new uses of recycled waste tire mulch and crumb rubber in playgrounds and athletic fields to prevent children's exposure to lead and other toxicants.
5. Recommends a comprehensive approach to reducing the use of lead-based ammunition and fishing tackle - including public policy and education - to reduce risks to humans and wildlife.

¹ Canfield RL, Henderson CR Jr, Cory-Slechta DA, Cox C, Jusko TA, Lanphear BP. Intellectual impairment in children with blood lead concentrations below 10 µg/dL. *New England Journal of Medicine*. 2003;348(16):1517-26.

² Jusko TA, Henderson CR, Lanphear BP, Cory-Slechta DA, Parsons PJ, Canfield RL. Blood lead concentrations <10 µg/dL and child intelligence at 6 years of age. *Environmental Health Perspectives*. 2008;116(2):243-8.

³ Lanphear BP, Hornung R, Khoury J, Yolton K, Baghurst P, Bellinger DC, Canfield RL, Dietrich KN, Bornschein R, Greene T, Rothenberg SJ, Needleman HL, Schnaas L, Wasserman G, Graziano J, Roberts R. Low-level environmental lead exposure and children's intellectual function: an international pooled analysis. *Environmental Health Perspectives*. 2005;113(7):894-9.

⁴ Surkan PJ, Zhang A, Trachtenberg F, Daniel DB, McKinlay S, Bellinger DC. Neuropsychological function in children with blood lead levels <10 µg/dL. *Neurotoxicology*. 2007;28(6):1170-7.

⁵ Téllez-Rojo MM, Bellinger DC, Arroyo-Quiroz C, Lamadrid-Figueroa H, Mercado-García A, Schnaas-Arrieta L, Wright RO, Hernández-Avila M, Hu H. Longitudinal associations between blood lead concentrations lower than 10 µg/dL and neurobehavioral development in environmentally exposed children in Mexico City. *Pediatrics*. 2006;118(2):e323-30.

⁶ Lanphear BP, Dietrich K, Auinger P, Cox C. Cognitive deficits associated with blood lead concentrations <10 µg/dL in US children and adolescents. *Public Health Reports*. 2000;115(6):521-9.

⁷ Miranda ML, Kim D, Galeano MA, Paul CJ, Hull AP, Morgan SP. The relationship between early childhood blood lead levels and performance on end-of-grade tests. *Environmental Health Perspectives*. 2007;115(8):1242-7.

⁸ Braun JM, Kahn RS, Froehlich T, Auinger P, Lanphear BP. Exposures to environmental toxicants and attention deficit hyperactivity disorder in U.S. children. *Environmental Health Perspectives*. 2006;114(12):1904-9.

⁹ Chiodo LM, Covington C, Sokol RJ, Hannigan JH, Jannise J, Ager J, Greenwald M, Delaney-Black V. Blood lead levels and specific attention effects in young children. *Neurotoxicology and Teratology*. 2007;29(5):538-46.

¹⁰ Nigg JT, Knottnerus GM, Martel MM, Nikolas M, Cavanagh K, Karmaus W, Rappley MD. Low blood lead levels associated with clinically diagnosed attention-deficit/hyperactivity disorder and mediated by weak cognitive control. *Biological Psychiatry*. 2008;63(3):325-31.

¹¹ Braun JM, Froehlich TE, Daniels JL, Dietrich KN, Hornung R, Auinger P, Lanphear BP. Association of environmental toxicants and conduct disorder in U.S. children: NHANES 2001-2004. *Environmental Health Perspectives*. 2008;116(7):956-62.

¹² Project TENDR: Targeting Environmental Neuro-Developmental Risks. The TENDR Consensus Statement. *Environ Health Perspectives* 2016;124(7):A118-A122.

¹³ Centers for Disease Control, Update on Blood Lead Levels in Children

https://www.cdc.gov/nceh/lead/acclpp/blood_lead_levels.htm accessed July 26, 2016.

¹⁴ Minnesota Department of Health, Blood Lead Screening Guidelines for Pregnant and Breastfeeding Women in Minnesota (August 2015) <http://www.health.state.mn.us/divs/eh/lead/guidelines/> accessed July 26, 2016.

¹⁵ Minnesota Department of Health, https://apps.health.state.mn.us/mndata/lead_level accessed July 26, 2016.

¹⁶ U.S. Environmental Protection Agency, Office of Children's Health Protection. *America's Children and the Environment: Measures of Contaminants, Body Burdens, and Illnesses, 2nd Edition*. EPA Pub. No. 240-R-03-001. Washington, DC, February 2003.

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- ¹⁷ Minnesota Department of Health, <http://www.health.state.mn.us/divs/eh/lead/homes/> accessed July 26, 2016.
- ¹⁸ Minnesota Department of Health, <http://www.health.state.mn.us/divs/eh/lead/fs/common.html#food> accessed July 26, 2016.
- ¹⁹ Brown DR, Artificial Turf - Exposures to Ground-Up Rubber Tires, Environment & Human Health Inc., 2007.
- ²⁰ Minnesota Department of Health, Toxic Free Kids Act Priority Chemicals <http://www.health.state.mn.us/divs/eh/hazardous/topics/toxfreekids/priority.html#chemicals> accessed July 26, 2016.
- ²¹ Bellinger DC, Bradman A, Burger J, Cade TJ et al. Health Risks from Lead-Based Ammunition in the Environment – A Consensus Statement of Scientists. *Environ Health Perspectives* 2013;121:A178-A179.
- ²² Pain DJ, Cromie RL, Newth J, Brown MJ et al. Potential hazard to human health from exposure to fragments of lead bullets and shot in the tissues of game animals. *PLoS One*. 2010;5(4):e10315.
- ²³ Grainger Hunt W, Watson RT, Oaks JL, Parish CN et al. Lead bullet fragments in venison from rifle-killed deer: potential for human dietary exposure. *PLoS One*. 2009;4(4):e5330.
- ²⁴ Iqbal S, Blumenthal W, Kennedy C, Yip FY et al. Hunting with lead: association between blood lead levels and wild game consumption. *Environ Res*. 2009;109(8):952-9.
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- ²⁷ Green RE, Pain DJ. Potential health risks to adults and children in the UK from exposure to dietary lead in gamebirds shot with lead ammunition. *Food Chem Toxicol*. 2012;50(11):4180-90.
- ²⁸ Legagneux P, Suffice P, messier JS, Lelievre F et al. High risk of lead contamination for scavengers in an area with high moose hunting success. *PLoS One*. 2014;9(11):e111546
- ²⁹ Mateo R, Vallverdu-Coll N, Lopez-Anita A, Taggart MA et al. Reducing Pb poisoning in birds and Pb exposure in game meat consumers: the dual benefit of effective Pb shot regulation. *Environ Int*. 2014;63:163-8.
- ³⁰ Couture A, Levesque B, Dewailly E, Muckle G et al. Lead exposure in Nunavik: from research to action. *Int J Circumpolar Health*. 2012;17:18591.
- ³¹ Centers for Disease Control <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5608a1.htm#tab1>
- ³² Trasande L, Liu Y. Reducing the staggering cost of environmental disease in children, estimated at \$76.6 billion in 2008. *Health Affairs* 2011;30(5):863-70.
- ³³ Minnesota Department of Health, The Economic Burden of the Environment on Two Childhood Diseases: Asthma and Lead Poisoning in Minnesota, December 2014. <http://www.health.state.mn.us/tracking/pubs/BurdenReport.pdf>