

Testimony by Alison Talley
In Support of HB 27 - The Toxic Free Children Act
March 9, 2018

Thank you for this opportunity to speak in support of HB 27 – the Toxic Free Children Act. My name is Alison Talley. I live in Juneau and am the mother of three adopted children, all of them born in Alaska. Two of my children have learning disabilities and I am a volunteer with the Learning Disabilities Association of Alaska.

Here's a shocking statistic: One in six children in the United States has a reported learning or developmental disability - that means autism, attention deficit hyperactivity disorder, and other learning or developmental delays.¹ Learning and developmental disabilities have lasting impacts on children, families and on society. On average, it costs twice as much to educate a child with a learning or developmental disability as it does to educate a child without a disability.²

There is now scientific agreement that toxic chemicals, including PBDE flame retardants, can harm brain development and contribute to learning, behavioral or intellectual deficits. The National Academy of Sciences states that environmental factors, including toxic chemicals, contribute to more than a quarter of all learning and developmental disabilities in U.S. children.³

In July 2016 leading scientists and health professionals published a statement naming PBDEs as examples of toxic chemicals that are increasing children's risks for neurodevelopmental disorders, including ADHD, learning disabilities and autism.⁴ The statement also outlines the scientists' concerns with halogenated flame retardants that are replacing PBDEs, and notes that the replacement flame retardants are similar in structure to PBDEs, and emerging evidence shows they are similarly neurotoxic.⁵

¹ Boyle, CA, Boulet S, Schieve LA, et al. Trends in the prevalence of developmental disabilities in U.S. children, 1997-2008, *Pediatrics*. Jun 2011;127(6):1034-1042.

² Chambers JG, Parris TB, Harr JJ. 2004. What Are We Spending on Special Education Services in the United States, 1999-2000? Washington, DC: American Institutes for Research. Available: <http://www.csef-air.org/publications/seep/national/AdvRpt1.pdf> [accessed 25 May 2016].

³ National Research Council (US) Committee on Developmental Toxicology. *Scientific Frontiers in Developmental Toxicology and Risk Assessment*. 2000; executive summary. Washington (DC): National Academies Press. ISBN-10: 0-309-07086-4

⁴ Bennett D, Bellinger DC, Birnbaum LS, et al; Project TENDR: Targeting Environmental Neuro-Developmental Risks: the TENDR consensus statement. *Environ Health Perspect*. 2016;124(7):A118-A122.

⁵ Bennett D, Bellinger DC, Birnbaum LS, et al; Project TENDR: Targeting Environmental Neuro-Developmental Risks: the TENDR consensus statement. *Environ Health Perspect*. 2016;124(7):A118-A122.

Researchers have also found that halogenated flame retardants can disrupt thyroid function. And thyroid function is essential to healthy brain development! In 2015 researchers with the Endocrine Society concluded that PBDE exposure interferes with thyroid hormone and contributes to neurodevelopmental disorders.⁶ Recent studies of halogenated flame retardants that have replaced PBDEs⁷ show these chemicals can also interfere with thyroid hormone and alter brain development.

The science is in. And science clearly shows that halogenated flame retardants can change babies' brains and can result in lifelong intellectual and developmental impairments.

In September 2017 the U.S. Consumer Products Safety Commission (CPSC) issued a landmark ruling that recognized the need to protect people, especially pregnant women and children, from the entire class of halogenated flame retardants. The CPSC banned the sale or import of furniture, mattresses, children's products and electronics casings if they contain any halogenated flame retardants.

The Commission then took the extraordinary step of warning manufacturers, retailers and consumers to stop making, selling or using products containing any halogenated flame retardant, stating that "the known adverse health effects of these chemicals include...neurological impacts (such as) decreased IQ in children, impaired memory, learning deficits, altered motor behavior and hyperactivity" and concluded, "These chemicals have a disproportionately negative health effect on vulnerable populations, including children."⁸

There is widespread exposure in Alaska to this class of toxic flame retardants, including among pregnant women and children. Nationwide 97% of children have PBDEs in their bodies.⁹

⁶ Bellanger, M. et al. Neurobehavioral deficits, diseases, and associated costs of exposure to endocrine-disrupting chemicals in the European Union. *J Clin Endocrinol Metab.* 2015 Apr; 100(4): 1256–1266. Published online 2015 Mar 5.

⁷ Patisaul H. et al. Accumulation and endocrine disrupting effects of the flame retardant mixture Firemaster 550 in rats: an exploratory assessment. *J Biochem Molecular Toxicology.* 2013; 27(2): 124-136.

⁸ U.S. Consumer Product Safety Commission. Guidance document on hazardous additive non-polymeric organohalogen flame retardants in certain consumer products. Federal Register. 2017 Sept 28.
<https://www.federalregister.gov/documents/2017/09/28/2017-20733/guidance-document-on-hazardous-additive-non-polymeric-organohalogen-flame-retardants-in-certain>

⁹ Sjodin A, Wong L, Jones RS, et al. Serum concentrations of polybrominated diphenyl ethers (PBDEs) and polybrominated biphenyl (PBB) in the United States population: 2003-2004. *Environ Science & Tech.* 2008; 42(4), 1377-84. doi: 10.1021/es702451p

Halogenated flame retardants cross the placenta to the fetus and are detected in umbilical cord blood and in breast milk.¹⁰ Halogenated flame retardants migrate from products such as furniture, baby and children's products, electronics casings and mattresses into household dust. The EPA estimates that children ages 1–5 ingest approximately four to five times more dust than adults.¹¹

Toddlers get flame retardants in house dust on their hands, and then put their hands in their mouths. They can also put objects that contain flame retardants into their mouths. Here in Alaska our children spend a lot of time indoors during the winters, so our children may be even more highly exposed to toxic chemicals in house dust than children in other parts of the country.

But maybe those levels are so low they don't matter much – after all, we're talking about parts per billion. Here's what is important to understand: Researchers have identified "critical windows of vulnerability" during fetal development and early childhood when the brain is especially at risk from toxic chemicals, even at extremely low exposure levels.^{12,13}

Parts per billion sounds deceptively small. But consider chemicals, like Ritalin, that are designed to alter behavior. The prescribed dose of Ritalin for a child with ADHD affects the child's brain at about the same level as the level of flame retardants that are found in children.¹⁴ Both the prescribed behavior-altering chemical, Ritalin, and the behavior-altering toxic flame retardant chemicals are active in the child's body and brain at levels of parts per billion.

Here is what we know: We know that infants and children (even before they are born) are regularly exposed to halogenated flame retardants, in part because these chemicals migrate from products into house dust and are ingested. We know that halogenated flame retardants are active in children's bodies at levels that can disrupt thyroid hormone, which in turn

¹⁰ U.S. Environmental Protection Agency. Flame retardant alternatives for Hexabromocyclododecane. 2014 June; p. 2-12. Available at: http://www.epa.gov/sites/production/files/2014-06/documents/hbcd_report.pdf

¹¹ U.S.EPA. Child Specific Exposure Factors Handbook. WD, editor. National Center for Environmental Assessment. 2002. EPA-600-P-00- 002B.

¹² Zoeller RT, Brown TR, Doan LL, Gore AC, Skakkebaek NE, Soto AM, Woodruff TJ, Vom Saal FS. Endocrine-disrupting chemicals and public health protection: a statement of principles from The Endocrine Society. *Endocrinology*. 2012 Sep;153(9):4097-110.

¹³ Rice D, Barone S, Jr. Critical periods of vulnerability for the developing nervous system: evidence from humans and animal models. *Environ Health Perspect*. 2000; 108(suppl 3):511-33.

¹⁴ Lanphear BP. The impact of toxins on the developing brain. *Annu Rev Public Health*. 2015 Mar 18;36:214.

disrupts brain development and function. And we know that the resulting harm to children's brains is permanent.

As an advocate for children and adults with learning disabilities and as a parent, what I cannot understand is this: Based on everything we know, why would our state allow this class of toxic chemical to continue to be used in products that are in our homes, our schools and our child care centers?

I urge the House to adopt the Toxic Free Children Act and to protect Alaska's children from these toxic flame retardants that put them at higher risk for problems with learning, attention and behavior.

Thank you again for this opportunity to testify.

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LEARNING

ABOUT LEARNING DISABILITIES

**Do you have a
learning disability?**

**Does someone in
your family?**

**Do you teach students
with learning disabilities?**

**TOGETHER WE CAN
MAKE A DIFFERENCE!**

HOW TO IDENTIFY A LEARNING DISABILITY

Most frequent symptoms:

- Short attention span
- Distractibility
- Poor memory
- Difficulty following directions
- Inability to discriminate between/among letters, numbers, or sounds
- Poor reading and/or writing ability
- Problems with eye-hand coordination, poor coordination in general
- Difficulties with sequencing
- Disorganization
- Other sensory difficulties

Often also present:

- Performs differently from day to day
- Responds inappropriately in many instances
- Is restless, impulsive
- Says one thing, but means another
- Is difficult to discipline
- Doesn't adjust well to change
- Has difficulty listening and remembering
- Has difficulty telling time and/or knowing left from right
- Reverses letters/numbers or places them in incorrect sequence
- Has difficulty understanding words or concepts
- Has delayed speech development or immature speech

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