Dear Representative Tarr and Members of the House Resources Committee,

The Learning Disabilities Association of Alaska strongly supports HB 27, the Toxic-Free Firefighters and Children Act. We are pleased that this bill has been strengthened to address four categories of toxic flame retardants - organohalogen, organophosphorous, organonitrogen and nanoscale – that can threaten children's health and brain development. Addressing all four categories of flame retardant chemicals helps to ensure that product makers cannot remove one toxic chemical only to replace it with another.

LDA of Alaska is headquartered in Juneau and directed by Alison and Larry Talley, with their son Matthew. Larry was a volunteer fire fighter in Juneau for 12 years. He and Alison are parents of three young adult children, two of whom have problems with learning and attention.

One in six children in the United States has a reported learning or developmental disability including autism, attention deficit hyperactivity disorder, and other learning and developmental delays.[1] Learning and developmental disabilities persist – with lasting impacts on children, families and society. On average, it costs twice as much to educate a child with a learning or developmental disability as to educate a child without a disability.[2]

Flame retardant chemicals are found in pregnant women and in newborn babies. These chemicals cross the placenta to the fetus and are detected in umbilical cord blood and in breast milk.[3]

Flame retardants migrate from products such as furniture, baby and children's products, and mattresses into household dust. The U.S. EPA estimates that children ages 1–5 ingest approximately four to five times more dust than adults.[4] Flame retardants in house dust get on children's hands and objects such as toys, which they then put in their mouths. In Alaska, we spend a lot of time indoors during the long winters, so our children may be more highly exposed to toxic chemicals in dust than children in other parts of the country.

The developing brain, in utero and early childhood, is extremely vulnerable to harm from even low levels of toxic chemicals. 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.[5]

In July 2016, leading scientific and medical experts published a statement naming PBDE flame retardants as examples of toxic chemicals that are increasing children's risks for neurodevelopmental disorders, including ADHD, learning disabilities and autism.[6] The statement also outlines the scientists' concerns with flame retardants that are replacing PBDEs. Some of the replacement flame retardants are similar in structure to PBDEs or to organophosphate pesticides, and emerging evidence shows they are similarly neurotoxic.[7]

In 2015 researchers with the Endocrine Society concluded that PBDE exposure interferes with thyroid hormone and contributes to neurodevelopmental disorders.[8] Recent studies

of halogenated flame retardants that have replaced PBDEs show these chemicals also can interfere with thyroid hormone and alter brain development.[9]

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. CPSC banned the sale or import of furniture, mattresses, children's products and electronics enclosures if they contain any halogenated flame retardants.

The Commission stated, "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."[10]

Organophosphate flame retardants (OPFRs) such as TDCPP and TPP, offer another example of dangerous "replacement" flame retardants. OPFRs are structurally similar to the organophosphate pesticide chlorpyrifos, which can impair brain development, and increase children's risks for learning and attention disorders. Laboratory studies of OPFRs have shown neurobehavioral toxicity, including hyperactivity and impaired exploratory behavior. The effects of OPFRs such as TDCPP on brain development and behavior, are observed at the same doses at which chlorpyrifos affects brain development and behavior.

It is important to understand that even tiny amounts of these toxic chemicals can affect children's brains – at the level of parts per billion. 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.[11],[12]

Consider chemicals that are designed to alter behavior, like Ritalin. 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 found in children.[13] 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.

The scientific evidence is clear. Beginning in utero, children are regularly exposed to toxic flame retardants, in part because these chemicals migrate from products into house dust and are ingested. These flame retardant chemicals are active in children's bodies at levels that can disrupt brain development and function. The resulting harm to our children's minds can be permanent.

LDA of Alaska urges the House to adopt the Toxic Free Fire-Fighters and Children Act, to protect Alaska's vulnerable youngest citizens from toxic flame retardants that put them at higher risk for problems with learning, attention and behavior.

Thank you.

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