

Testimony of Deborah Hirtz M.D.

House Committee on Natural Resources, Fish and Wildlife

April 13, 2017

Good morning, Chair Deen and members of the committee. Thank you for the opportunity to testify today.

My name is Deborah Hirtz. I am a pediatric neurologist, a doctor for children with various developmental disorders such as autism, attention deficit disorders, and developmental and behavior problems. I am currently on the faculty of UVM but before that I retired from an over 30 -year career as a program director at the National Institute of Neurological Diseases and Stroke at the NIH, where I was involved in scientific policy and clinical research that included epidemiology of development disorders and childhood neurological conditions. I am testifying today in my role as a member of Project TENDR, Targeting Environmental NeuroDevelopmental Risks. This group includes scientific and medical experts as well as childrens' health advocates. I also participated in the ACT 154 Chemical Use working group that developed the policy recommendations this committee is considering.

Today I would like to support passage of the Bill S.103. I believe that this bill will help protect Vermont citizens, including its most vulnerable populations such as pregnant women and young children. Strong support within Vermont is especially important today, when, in spite of the passage in 2016 of updates to the Federal Toxic Substances Control Act, the EPA has refused to ban a chemical as clearly toxic as the pesticide chlorpyrifos, even when its own safety experts believe that it should be outlawed.

The main points I will cover briefly are the following: 1. There are environmental toxins that increase the risk for development disorders. 2. It makes economic sense to reduce exposure to these chemicals in the fetus, infant, and child. 3. There is language in the bill that could be improved to facilitate this goal.

I. Learning, developmental, or intellectual disabilities affect at least one in six children. Developmental disorders such as Autism and Attention Deficit Disorder are increasing in prevalence and the reasons are multifactorial. Increases may be substantially attributed to greater awareness, but this does not completely account for the increase. Multiple factors interact in complex ways during fetal development. Internal factors include heredity, genetic traits and susceptibilities. External factors include exposure to toxins, nutrition, and social environment. Chemicals can cause permanent brain injury in children at low levels of exposure that would not affect an adult. The placenta does not block the passage from the mother to the fetus.

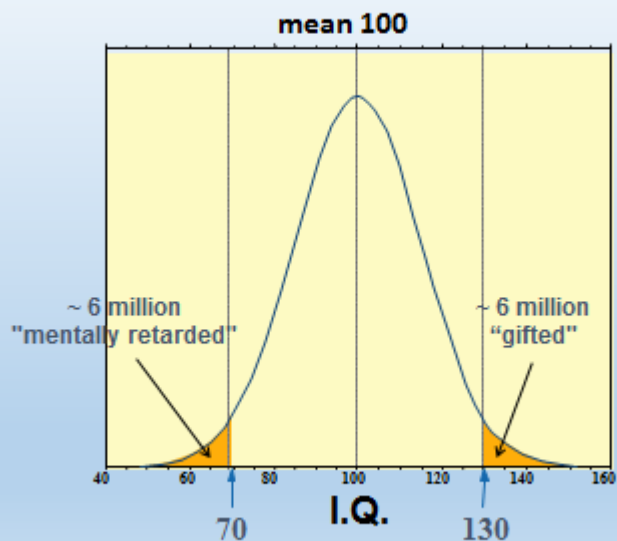
Over 80,000 synthetic chemicals are used in the US; most are untested with little regulatory oversight to assure safety. Over 200 have been reported to be neurotoxic to adults, half of these in high production, and 1000 others are neurotoxic in animals. Some environmental agents that can increase the risk of neurodevelopmental disorders include Lead and Mercury, endocrine disruptors such as bisphenol –A (BPA), phthalates, polybrominated diphenyl ethers (PBDEs), DDT, and dioxins; and organophosphates such as chlorpyrifos. Air pollution creates exposure to other toxic agents, including diesel particulate matter, and polycyclic aromatic hydrocarbons (PAH).

Thyroid hormone that regulates metabolic rate in adults is very important to brain development, and its disruption is one way the PBDEs, phthalates, or BPA can cause brain damage. Studies have found associations between PBDE concentrations in maternal blood during pregnancy and cognitive impairment or behavioral problems in the children. PBDEs are used as flame retardant in electronics, building insulation, wire and cable, some baby products, and polyurethane foam. They persist in the environment and can settle into household dust where babies, through their hand to mouth behaviors, can be exposed. As of 2014, flame retardants are no longer required, but can still be used. Pthalates are used in plasticizers, toys, and personal care products (listed as fragrance). Some pthalates have been provisionally banned. BPA exposure today is primarily through ingestion of canned food and from plastic food containers and water bottles. Both pthalates and BPA have been associated with behavior problems, ADHD, and development impairment.

Organophosphates may directly damage the nervous system, and the fetus and young child have lower levels of detoxifying proteins. These chemicals are banned for indoor use, but residues on food and agricultural drift still provide sources of exposure. Exposure during fetal development has been associated with higher risk in childhood of intellectual deficits, motor and memory problems, and hyperactivity, and in a few studies with Autism.

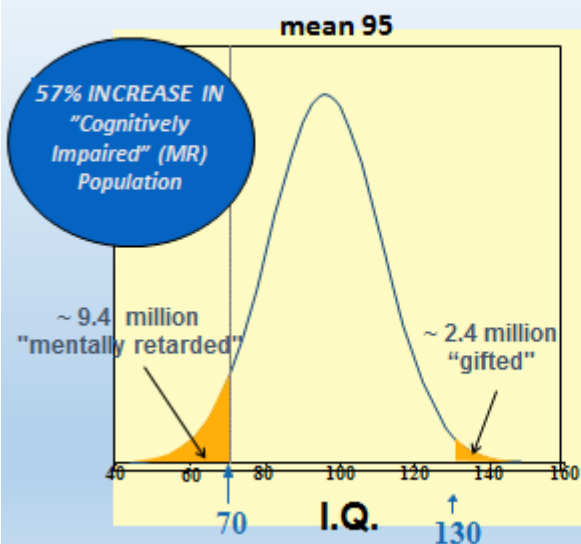
2. Developmental disorders take a tremendous toll economically, in school, and throughout the lifetime. In addition, medical costs are typically higher for children, with Autism or hyperactivity, and clearly, emotional costs to the impaired individuals and their families is very high. In a few cases, toxic exposures are egregious and clearly damaging to health. However, I would like to be clear that in the majority of cases, exposure to toxic chemicals is a contributing factor rather than a direct cause of developmental disability. Reduction of exposures may decrease the risk of developing these disorders. This is very important from a public health perspective. For example, the effects of small shifts in IQ in a population, as illustrated below, create differences that are very important within the community in the number of individuals categorized as mentally retarded or gifted.

The Significance of Small Effects: IQ Points



Example: population of 260 million

The Significance of Small Effects: 5 point decrease in Mean IQ



Example: population of 260 million

FIVE point IQ decline
means high costs to
society:

**Less innovative genius,
More special ed needs**

The cost of special education Grades K-12 in Vermont for FY 16 was \$308,488,639. Reduction in toxic environment exposures may be one way to help reduce or keep these costs from increasing.

3. I would request that the committee consider adding a few additional provisions to strengthen the bill. As a member of the Chemical Use Working Group this fall, we discussed and I supported a range of recommendations to reduce Vermonters' exposure to toxic chemicals. These include improving the Toxics Use Reduction program and updating Act 188, the reporting program for chemicals of high concern in children's products. In Act 188, **the language from current law is:**

(1) The Commissioner, upon recommendation of the Chemicals of High Concern to Children's Working Group may adopt a rule to regulate the sale or distribution of a children's product containing a chemical of high concern to children upon determination that:

(A) Children will be exposed to a chemical of high concern to children in the children's product; and

(B) There is a probability that, due to the degree of exposure or frequency of exposure of a child to a chemical of high concern to children in a children's product, exposure could cause or contribute to one or more of the adverse health impacts listed under subdivision (b)(1) of this section. (*cancer, genetic damage, reproductive harm, disrupts the endocrine system, damages the nervous system, immune system, or organs or causes other systemic toxicity.*)

I would request that language to be changed to something like:

(A) The Commissioner, after consultation with the Chemicals of High Concern to Children Working Group, may adopt a rule to regulate the sale or distribution of a children's product containing a chemical of high concern to children upon a determination that: there is a potential exposure to children to a chemical of high concern (because of animal or epidemiological data linking exposure to increase in risk of effects on health and brain development) in the children's product; and

(B) That there not be substitution of an alternative chemical for the chemical of high concern unless there is adequate safety data available for the substituted chemical.

This revised language will make the Commissioner of Health and stakeholder group's work to consider regulation of toxic chemicals in children's products to protect children's health – more feasible, given the available scientific data .

Overall, I encourage you to support S.103 and improvements suggested by the Chemical Use Working Group to reduce the risks to Vermonters' health posed by toxic chemicals and save the state and Vermont families from the costs of increased developmental disorders.

Thank you very much for allowing me the time to present this testimony, and I'd be happy to answer any questions.

