

Preventing Toxic Threats to Child Development: The Learning and Developmental Disabilities Initiative



Elise Miller, M.Ed.
Executive Director,
Institute for Children's Environmental Health
National Coordinator,
Learning and Developmental Disabilities Initiative
1646 Dow Road
Freeland, WA 98249
Ph: 360-331-7904; Email: emiller@iceh.org
Website: www.iceh.org



Collaborative on Health and the Environment
Learning and Developmental Disabilities Initiative

1

Concerning Statistics

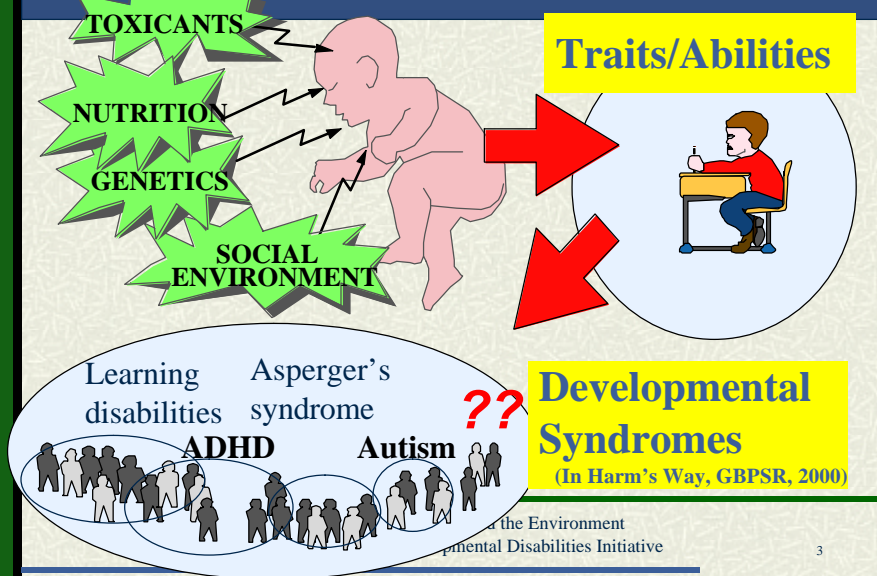
- > **LEARNING AND DEVELOPMENTAL DISABILITIES COMBINED** - est. 12 million children in U.S. suffer from one or more learning, developmental or behavioral disorder (*J. of Pediatrics, 1994*)
- > **MENTAL RETARDATION** - affects 1.4 million children under 18 (*AAMR, 2003*)
- > **AUTISM SPECTRUM DISORDER** - affects 450,000 children under the age of 18 and appears to be 10x more prevalent than in the 1980s (*JAMA, 2003*)



Collaborative on Health and the Environment
Learning and Developmental Disabilities Initiative

2

Framework for understanding contributors to child development



3

Environmental contributors are the least researched and most preventable



- 80,000 chemicals put on the market since the 1940s
- 1.2 to 5 billion tons of chemicals discharged annually in the U.S.
- 1500 to 2500 new chemicals each year
- Of the 15,000 most in use, no toxicity data exists for 43% (EPA)
- Complete neurotoxicity data for only 15 chemicals (EPA)

4

Known neurodevelopmental toxicants

Include certain:

- Pesticides
- Solvents
- Dioxins and PCBs
- Metals (lead, mercury, cadmium, manganese)
- Alcohol
- Nicotine



Collaborative on Health and the Environment
Learning and Developmental Disabilities Initiative

5

Early exposures...

➤ Prenatal

- transplacental
- developmental windows



➤ Postnatal

- pound per pound children eat, drink and breath far more than adults
- prolonged gastric emptying
- increased metabolic rate
- increased time indoors & on floors
- breast milk (*still best to breastfeed, but breast milk now contains many contaminants*)



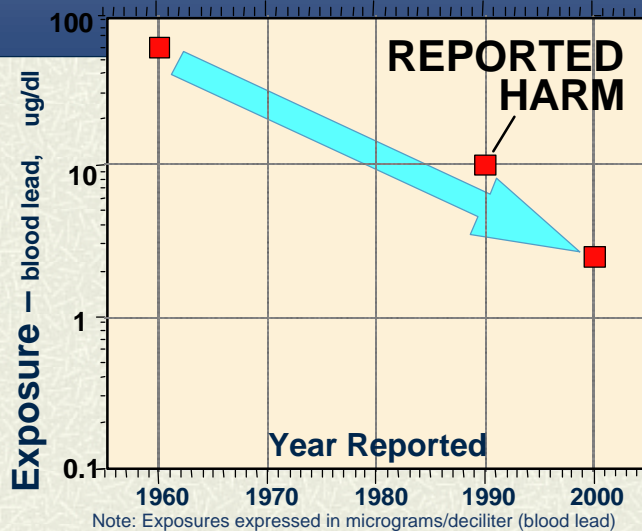
Collaborative on Health and the Environment
Learning and Developmental Disabilities Initiative

6

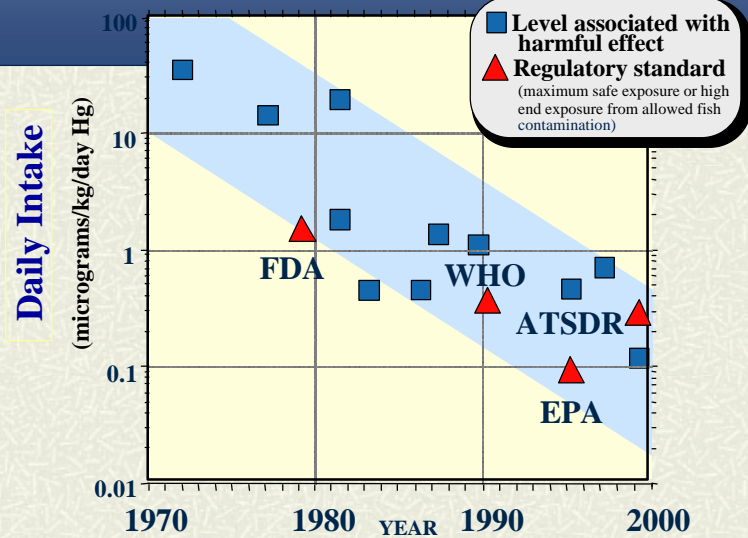
...linked to later health problems

- Fetal mercury exposure may impair learning, memory and attention
- Solvents may adversely impact motor and cognitive skills
- Dioxin and PCBs may affect brain development and function
- Chronic exposure to some pesticides may impede normal learning and development

Lead: Declining threshold of harm



Mercury: Declining threshold of harm



Costs to society

- Illiteracy
- Drop-out rate
- Crime
- Violence & abuse
- Unemployment
- Health care
- Special education



Economic costs of pediatric environmental diseases

Estimated Costs of Pediatric Disease of Environmental Origin,
United States, 1997 (billions)

	Best Estimate	Low Estimate	High Estimate
Lead Poisoning	\$43.4	\$43.4	\$43.4
Asthma	\$2.0	\$0.7	\$2.3
Cancer	\$0.3	\$0.2	\$0.7
Neurobehavioral Disorders	\$9.2	\$4.6	\$18.4
TOTAL	\$54.9	\$48.8	\$64.8

(From "Environmental Pollutants and Disease in American Children," Landrigan, Schechter, et.al., 2002)



Collaborative on Health and the Environment
Learning and Developmental Disabilities Initiative

11

Learning and Developmental Disabilities Initiative (LDDI)

- Educating state and national learning and developmental disabilities (LDD) groups.
- Translating emerging science into information and fact sheets to be used at workshops and on websites for lay audiences.
- Holding meetings nationally and regionally to build collaborative partnerships between LDD groups, researchers, health professionals and environmental health advocates.
- Cultivating opportunities for interested groups to educate policymakers on specific bills that would eliminate neurotoxicants.



Collaborative on Health and the Environment
Learning and Developmental Disabilities Initiative

12

Engaging learning and developmental disabilities groups

Since 2003, LDDI has grown to include over 350 organizational and individual members such as:

- Learning Disabilities Association of America
- American Association on Mental Retardation
- The Arc of the United States
- The Autism Society of America
- SafeMinds
- National Association for the Dually Diagnosed
- Communities Against Violence

And many others...



Collaborative on Health and the Environment
Learning and Developmental Disabilities Initiative

13

LDDI: Specific steps forward

- National and Regional Meetings
- Key national LDD organizations with new enviro health initiatives: LDA, AAIDD, ASA, NADD...
- LDDI Resolution and (soon) Consensus Statement
- Regular conference calls with leading researchers
- CDC biomonitoring report analyses on neurotoxicants
- “Practice Prevention” columns
- State-based initiatives in NY, MN and MI
- Policy opportunities (mercury, lindane, PBDEs, developmental neurotoxicity testing, Kids Safe Chemical Act, etc.)



Collaborative on Health and the Environment
Learning and Developmental Disabilities Initiative

14

How you can get involved

➤ Join CHE - www.healthandenvironment.org

➤ Join the LDDI Working Group

Elise Miller, MEd, Executive Director

Institute for Children's Environmental Health

Ph: 360-331-7904

emiller@iceh.org

www.iceh.org/LDDI.html



Yaqui Indian Study

➤ Effects of pesticide exposure on kids' development

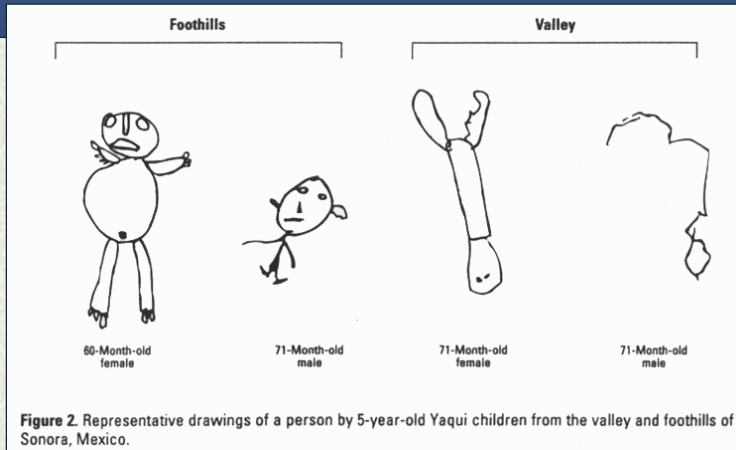
➤ Controlled study of Yaquis using pesticides and those that do not

➤ Exposed kids showed diminished stamina, memory impairment and distortions in drawings

- *Elizabeth Guillette, PhD, University of Arizona*



Chronic Pesticide Exposure



(Guillette, et. al., An Anthropological Approach to the Evaluation of Preschool Children Exposed to Pesticides in Mexico, *Environmental Health Perspectives*, Vol. 106, No. 6, June 1998)



Collaborative on Health and the Environment
Learning and Developmental Disabilities Initiative