

Translating Exposure Science for Decision-makers and the Informed Public: An Opportunity for Collaboration

**EPA Exposure Science Community of Practice
Conference Call
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**Collaborative on Health and the Environment
Learning and Developmental Disabilities Initiative**

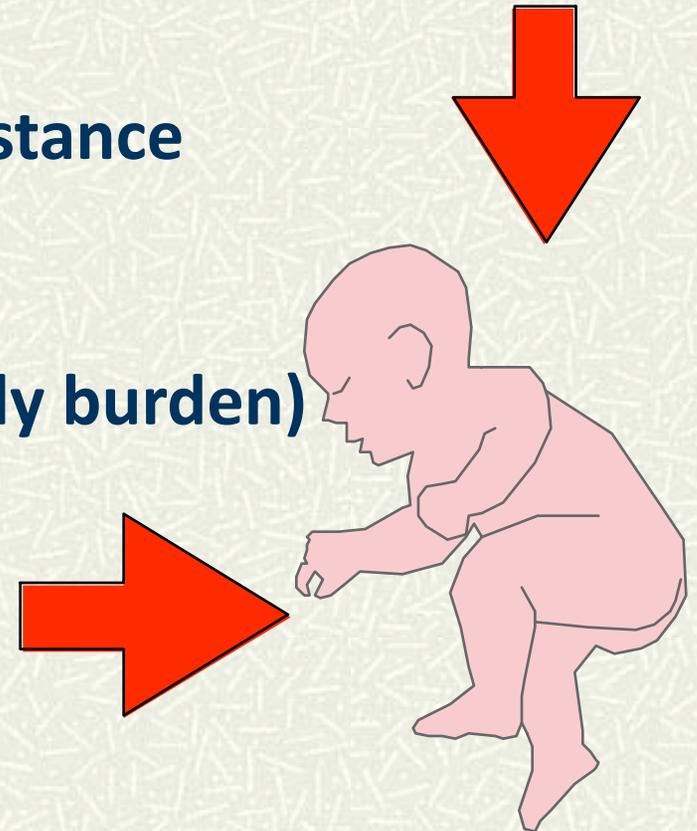
Interacting factors that influence health and development

- **Heredity**
- **Gene-environment interactions**
- **Exposures to toxic chemicals**
- **Pharmaceuticals**
- **Infectious disease**
- **Socioeconomic status**
- **Nutrition**
- **Stress**



Environmental exposures

- **Timing of exposure**
- **Bioaccumulation and persistence**
- **Mechanisms of disruption**
- **Variable sensitivity**
- **Evidence of exposures (body burden)**
- **Mixtures**



Child Health 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 (*hand-to-mouth actions*)
- breast milk (*still best to breastfeed, but breast milk now contains many contaminants*)



Environmental agents

Environmental agents that are known or suspected to interfere with healthy development:

Lead

Mercury

PCBs

PBDEs

BPA

Phthalates

Arsenic

Solvents

PAHs

Pesticides

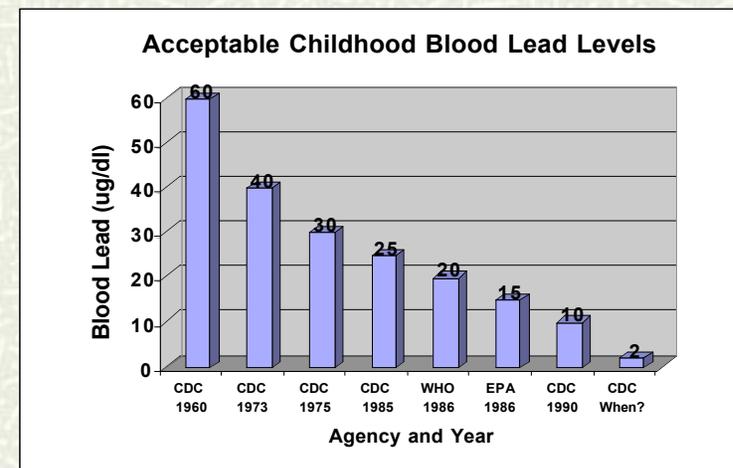
Manganese

Dioxins



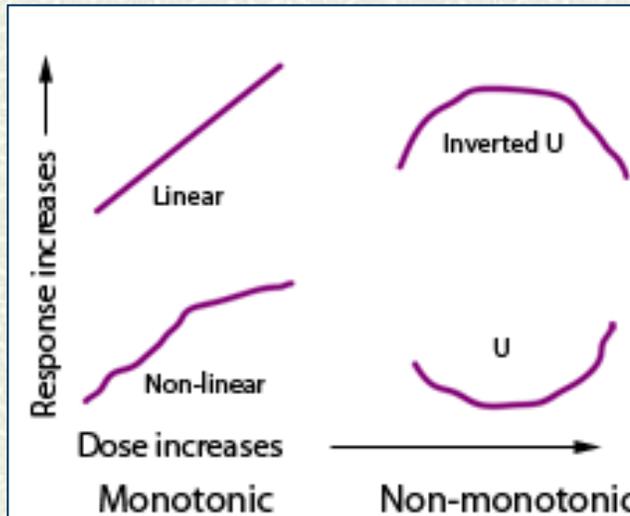
Lead

- What was considered a “safe” threshold for exposure to lead continues to drop
- There is no safe level of lead exposure for children
- Global markets
- Environmental justice



Endocrine disrupting chemicals

Dose does NOT make the poison –
Laboratory experiments show that exposure to EDCs can have impacts at levels far lower than had been considered possible in traditional toxicology.



Endocrine Society's Statement

Released June 2009

“...The evidence for adverse reproductive outcomes (infertility, cancers, malformations) from exposure to endocrine disrupting chemicals is strong, and there is mounting evidence for effects on other endocrine systems, including thyroid, neuroendocrine, obesity and metabolism, and insulin and glucose homeostasis....”



Collaborative on Health and the Environment (CHE)

- **Disease database**
- **Consensus statements, white papers and fact sheets**
- **10 Working groups**
- **National calls with experts on specific topics**
- **Conferences and workshops**



CHE Fertility and Reproductive Health Working Group

- **Vallombrosa Consensus statement**
- **“Shaping our Legacy” summit**
- **“Girl, Disrupted” report**
- **“Navigating the Science” conference**
- **Resource database**
- **Working group calls**
- **New: Science trainings for advocates**



CHE 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.**



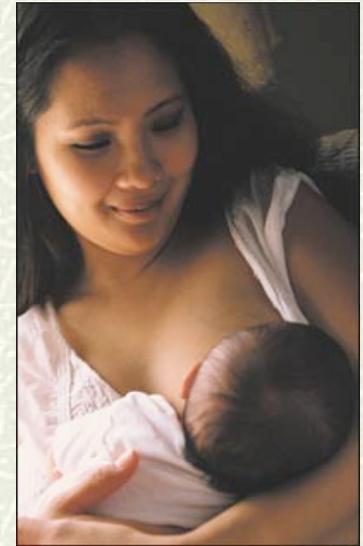
LDDI: Specific Steps Forward

- **LDA, AAIDD, ASA, NADD initiatives**
- **“Practice Prevention” columns**
- **LDDI Scientific Consensus Statement**
- **LDDI Policy Statement**
- **Bi-weekly e-bulletins**
- **National calls**
- **New: LDDI Biomonitoring Project**



LDDI Biomonitoring Project

- **First biomonitoring study on a health-affected group**
- **11 participants**
- **Tested over 60 substances in blood and urine**
- **Media release**
- **Congressional briefing**



CHE Cancer Working Group

- **Scientific consensus statement**
- **Presentations for President's Cancer Panel**
- **Fact sheets**
 - **Industrial Manufacturing**
 - **Agricultural Exposures**
 - **Indoor/Outdoor Air Pollution and Water Contamination**
 - **Nuclear Fallout, Electromagnetic Fields, and Radiation Exposure**



Science-based Policy

- **Some current relevant policies under consideration:**
 - **TSCA reform**
 - **Endocrine Disrupting Chemicals Act**
 - **Safe Cosmetics (phthalates)**
 - **BPA**
 - **PBDEs**



Some stakeholder concerns

- **Continue to improve CDC NHANES - many chemicals not yet tested, e.g., those with shorter half-lives**
- **Address exposures to mixtures and impact on vulnerable populations**
- **Include nonlinear and low dose-response assessments**
- **Make conscious design formulation decisions early in risk assessment process**
- **Ensure exposure information is user-friendly**



For more information

➤ **Join CHE - www.healthandenvironment.org**

➤ **Contact me:**

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