



The Project TENDR Policy Resolution to Reduce Exposures to Toxic Chemicals to Protect the Developing Brains of Children

Neurodevelopmental disorders in children have become far too common. One in six children in the United States has a learning disability, ADHD, autism, intellectual impairment, or behavior disorder. Toxic chemicals contribute to the high prevalence of these neurodevelopmental disorders in children. Children's brains are exquisitely vulnerable to neurotoxicants – chemicals that disrupt the brain. Harm can result from neurotoxic exposures occurring anytime beginning prior to conception, during the periods of embryonic and fetal development, as well as during childhood and throughout life. Effects can be lifelong. Researchers have measured over 200 industrial chemical pollutants in umbilical cord blood of newborn babies, including neurotoxic agents such as flame retardants, polycyclic aromatic hydrocarbons (PAHS), phthalates, PCBs, lead, mercury, perchlorate, and pesticides, demonstrating their presence in the fetal circulation.

Neurodevelopment is a tightly coordinated process of rapid cellular division, growth, differentiation, migration, networking, and maturation. Scientists describe the period of early development of the brain and nervous system as a 'critical window' of increased sensitivity to toxic chemicals, during which even low dose or transient exposure to neurotoxic chemicals may result in measurable harm.

Children who live in adverse social and economic circumstances are often more heavily exposed to toxic chemicals, including from air pollution, lead contamination, and pesticides such as chlorpyrifos. Hardest hit are often families living in poverty or in communities of color. In disadvantaged communities, there are disproportionately high exposures and higher susceptibility, resulting in greater harm to the brains of children. To truly protect over-burdened communities and families, we must pursue prevention strategies, including addressing the racist social structures that lock children of color and children in poverty into greater harm from neurotoxicants. These disparities are entirely preventable by changing policies, practices and social structures that create and maintain health inequities throughout our society.

Project TENDR (Targeting Environmental Neuro-Development Risks) is an alliance of over 50 leading scientists, health professionals, and advocates focused on reducing exposures to chemicals that contribute to neurodevelopmental disorders in children, such as ADHD, autism and intellectual impairments. Project TENDR has unanimously concluded that widespread exposures to toxic chemicals, such as lead, brominated flame retardants, air pollution, organophosphate pesticides, mercury, and phthalates, among many others, increase the risks for cognitive, behavioral, and/or social impairment in children. Numerous other chemicals are suspected of being toxic to the developing brain. The crisis of climate change has dangerously amplified the risk from many of these exposures.

PROJECT TENDR calls on our nation to prevent harm from neurotoxic chemicals using existing and innovative approaches including but not limited to: enforcing and strengthening the policies that govern chemicals and pollutants in the U.S., identifying and addressing classes of chemicals toxic to child brain development, incentivizing the safe disposal, remediation and elimination of neurotoxic chemicals, and fostering safe alternatives.

To inform this goal, Project TENDR urges federal agencies to undertake the following actions, with new funding provided for each aspect of this work:

- ✚ The National Institute of Environmental Health Sciences (NIEHS) should:
 - Identify key characteristics of chemicals with potential to impair brain development,
 - Expand research on synergistic effects of social stressors and neurotoxicants, and on chemical mixtures,
 - Increase systematic reviews of the evidence linking toxic chemicals with learning disabilities, ADHD, autism and other brain-based disorders,
 - Expand its own and partners' research, translation and communication of the contribution of environmental exposures to neurodevelopmental disorders in children.

- ✚ The Centers for Disease Control and Prevention should:
 - Expand ongoing monitoring and surveillance for all neurodevelopmental disorders,
 - Address the gaps in its biomonitoring program related to neurotoxicant exposures of pregnant women and children of all ages.

- ✚ The cross-agency President's Task Force on Environmental Health Risks and Safety Risks to Children (Executive Order 13045) should:
 - Convene relevant stakeholders to develop and implement a specific plan of action to ensure that exposure to neurotoxicants concentrated in communities of color and low wealth communities is reduced, with specific attention to structural racism and inequalities that sustain these risks,
 - Include stakeholders from leaders of communities of color, environmental justice and health equity advocacy organizations, parents, teachers, child health advocates, local health departments, and regulators.

- ✚ Regulatory agencies at all levels of government must use their authority to protect human brain development from toxic chemicals. *

*See Appendix A for Project TENDR policy recommendations specific to regulatory agencies and several exemplar chemicals and pollutants toxic to human brain development.