



cognitive, neurobehavioral, and maturational development of young children. Schwartz, *Low Level Lead Exposure and Children's IQ: A Meta-Analysis and Search for a Threshold*, 65 *Envtl. Res.* 42-55 (1994); Schwartz, *Beyond Loel's P Values and Vote Counting*, 14 *Neurotoxicology* 237-48 (1993).

7. Of all the organs in the body, lead is especially poisonous to the brain, and young children's brains are more vulnerable to the harmful effects of lead than the brains of adults. See U.S. Pub. Health Serv., Agency for Toxic Substances and Disease Registry (ATSDR), *The Nature and Extent of Lead Poisoning in Children in the United States: A Report to Congress* (1988) (ATSDR Report) at 1, 10, III-12, IV-7; Statement of the Centers for Disease Control and Prevention (CDC), U.S. Dep't of Health & Human Serv. (HHS), *Preventing Lead Poisoning in Young Children* (1991) (CDC Statement) at 7-12.

8. When a baby is born, all large neuronal cells – the brain cells that enable us to think and to learn – are in place in the cerebral cortex. The cells are in the baby's brain, but connections among adjacent neurons are sparse. The newborn does not yet have the *billions* of connections, or synapses, that those neurons will ultimately make with each other and which are critical to the way the brain functions. At three months, there are slightly more, at six months, many, and by two years, the cerebral cortex contains a dense tangle of the many branches of the neurons connecting with each other. Actually, the density and synaptic activity at this toddler age is almost twice that of a normal adult. Exposure to lead during this important developmental period can inhibit the growth of the nerve cell branches, resulting in fewer connections, with consequent failure of normal anatomical and functional development. Goldstein, G.W., "Neurologic Concepts of Lead Poisoning in Children," 21:6 *Pediatric Annals* 384-88 (June 1992).

9. At four years of age, the number of connections is reduced (but not like that of the newborn), and the neuron connections begin to look more organized instead of densely and randomly tangled. Thus, the overproduction of connections during the toddler years is followed by a progressive and highly selective pruning, occurring primarily during the years from ages four through six. Which synapses (connections) are retained and which are lost is determined by several factors. One of them is the environmental exposures that include the adverse effects of toxins.

10. At these two stages, the effects of even low levels of lead are adverse and often irreversible interference with the child's cognitive, intellectual abilities. Specifically, even very low levels of lead toxicity cause some irreversible brain damage and reduced IQ. This can produce learning disabilities in areas such as mathematics, spelling, writing, language development, memory, abstract thinking, fine motor skills, and the capacity to sit still, concentrate. It has also been linked to mental retardation and behavioral disturbances such as attention deficit and hyperactivity disorder (ADHD). *See* CDC Statement at 7-15; National Academy of Sciences National Research Council, *Measuring Lead Exposure in Infants, Children, and Other Sensitive Populations* (1993), at 32, 41-72, 89-98.

11. Recently, a new application of magnetic resonance spectroscopy ("MRS")(which allows one to detect the chemical status of the tissue being examined) has demonstrated metabolic changes in brain cells that serve as markers for neuronal activity and for loss of neuronal tissue in the presence of lead in the body. **[citation to be added]**

12. The scientific evidence overwhelmingly reveals that the effect of allowing lead to enter children's bodies is to limit their cognitive development, which can, in turn, limit their lives.

The federal Centers for Disease Control has described lead poisoning as the “most common and societally devastating” environmental disease among children. CDC, *Strategic Plan for the Elimination of Childhood Lead Poisoning* (Feb. 1991) at xi.

13. The proceedings of the New York City Council regarding Local Law 38 of 1999 did not afford adequate time for the Council to receive and evaluate sufficient information on the adverse environmental health effects of lead, the urgent need to protect young children from exposure to lead-based paint and lead-contaminated dust, and the extent to which that local law could lead to such exposure.

Respectfully submitted,

/s/ Evelyn A. Mauss  
EVELYN A. MAUSS, Sc.D.

Subscribed and sworn before me  
this 21<sup>st</sup> day of September, 1999.

/s/ Stella Li Li Liang  
NOTARY PUBLIC  
Stella Li Li Liang  
Notary Public, State of New York  
No. 41-4793392  
Qualified in Nassau County  
Commission Expires October 31, 1999