Children's Environmental Health Network

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Statement of Nsedu O. Witherspoon, MPH
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To the Maryland State Senate

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Thank you for the opportunity to comment on this important issue.

The Children's Environmental Health Network (CEHN) is a national multi-disciplinary organization whose mission is to protect the developing child from environmental hazards and promote a healthier environment. The Network's Board and committee members include internationally-recognized experts in children's environmental health science and policy who serve on key Federal advisory panels and scientific boards. We recognize that children, in our society, have unique moral standing.

The Network was created to promote the incorporation of basic pediatric facts such as these in policy and practice:

- Children can be more susceptible and more vulnerable than adults to toxic chemicals.
- Children are growing. Pound for pound, children eat more food, drink more water and breathe more air than adults. Thus, they are likely to be more exposed to substances in their environment than are adults.
- Children have higher metabolic rates than adults and are different from adults in how their bodies absorb, detoxify and excrete toxicants.
- Children's systems, including their nervous, reproductive, digestive, respiratory, and immune systems, are developing. This process of development creates periods of vulnerability. Exposure to toxicants at such times may result in irreversible damage when the same exposure to a mature system may result in little or no damage.
- Children behave differently than adults, leading to a different pattern of exposures to the world around them. For example, they exhibit hand-to-mouth behavior, ingesting whatever substances may be on their hands, toys, household items, and floors. Children play and live in a different space than do adults. For example, very young children spend hours close to the ground where there may be more exposure to toxicants in dust, soil, and carpets as well as low-lying vapors such as radon, mercury vapor or pesticides.

- Children have a longer life expectancy than adults; thus they have more time to develop diseases with long latency periods that may be triggered by early environmental exposures, such as cancer or Parkinson's disease.
- Though the process of child growth and development does not change, the world of today's children has changed tremendously from that of previous generations. One of these changes is the phenomenal increase in substances to which children are exposed. As reported by the EPA, 83,000 industrial chemicals are currently produced or imported into the United States. The Centers for Disease Control and Prevention's National Human Exposure Report has amply demonstrated that such chemicals often are ubiquitous, appearing in the vast majority of blood and urine samples taken at random from the general population in the U.S. Many of these are readily passed across the placenta to the fetus or to the infant via breast milk.

As epidemiologists see increasing rates of asthma, learning disabilities, and childhood cancers; as parents seek the causes of birth defects; and as researchers understand more and more about the fetal origins of disease, policy makers must do a better job of understanding and acting on the connections between children's health and the environments in which they spend their time.

These environments include the home, school, and childcare settings. A growing number of studies are finding unexpected impacts of prenatal environmental exposures on health in later years. For example, prenatal exposures to a common pesticide have been linked to lower IQs and poorer working memory at age 7.

Thus, the Network is pleased to see the Maryland State Senate considering the important issue of non-essential exposures to pesticides by children at child care, preschool and school settings.

A pesticide is any substance used inside or outside to control, repel, or kill pests. The health effects of pesticides are dependent upon the chemical class and formulation of each pesticide, the level and length of exposure, and the age of exposure, with children being more vulnerable than adults. Of main concern is children's exposure to pesticides because of their small size and developing nervous system.

As summarized in a technical report on pesticides by the American Academy of Pediatrics (AAP) released in fall 2012 (PEDIATRICS Volume 130, Number 6, December 2012):

> Evidence is increasingly emerging about chronic health implications from both acute and chronic exposure [to pesticides]. A growing body of epidemiological evidence demonstrates associations between parental use of pesticides, particularly insecticides, with acute lymphocytic leukemia and brain tumors. Prenatal, household, and occupational exposures (maternal and paternal) appear to be the largest risks. Prospective cohort studies link early-life exposure to organophosphates and organochlorine pesticides (primarily DDT) with adverse effects on neurodevelopment and behavior. Among the findings associated with increased pesticide levels are poorer mental development by using the Bayley index and increased scores on measures assessing pervasive developmental disorder, inattention, and attention-deficit/hyperactivity disorder. Related

> animal toxicology studies provide supportive biological plausibility for these findings. Additional data suggest that there may also be an association between parental pesticide use and adverse birth outcomes including physical birth defects, low birth weight, and fetal death, although the data are less robust than for cancer and neurodevelopmental effects.

Thus, the AAP concludes, and the Network agrees:

> Children's exposures to pesticides should be limited as much as possible.

Thus, the Network urges alternatives to the use of toxic pesticides and supports measures, such as the concept advanced in Maryland SB 412, which would limit the use of lawn care pesticides in at child care and educational settings.

We commend the State Senate for recognizing this critical emerging issue relating to the ability of Maryland children to grow up in environments that support their health and ability to learn and, thus, to succeed in life. We urge you to seek to limit children's exposures to known or potentially harmful chemicals, such as pesticides.

Thank you for the opportunity to comment on these critical issues.