Children are Especially Vulnerable to Toxics

The National Academy of Sciences finds that children are more susceptible to chemicals.[i]

Children take in more pesticides relative to body weight than adults and have developing organ systems that are more vulnerable and less able to detoxify toxic chemicals.[ii]

Pesticides can increase susceptibility to certain cancers by breaking down the immune system's surveillance against cancer cells. Infants and children, the aged and the chronically ill are at greatest risk from chemically induced immune-suppression.[iii]

Exposure to herbicides (weed killers) before the age of one is linked to a more than four-fold increase in childhood asthma.[iii]a

Children and Cancer

The probability of an effect such as cancer, which requires a period of time to develop after exposure, is enhanced if exposure occurs early in life.[iv]

The rate of childhood cancer is increasing approximately 1% on average per year.[v] and cancer is the leading cause of death by disease among non-infant children under the age of 15. [vi]

According to EPA's Guidelines for Carcinogen Risk Assessment, children receive 50 per-cent of their lifetime cancer risks in the first two years of life.[vi]a

Between 1973 and 1991, the overall incidence of childhood cancer increased 10%. Soft tissue sarcoma and brain cancer incidence increased more than 25%.[vii]

Children with brain cancer are more likely than normal controls to have been exposed to insecticides in the home.[viii]

A study sponsored by the National Cancer Institute indicates that household and garden pesticide use can increase the risk of childhood leukemia as much as seven-fold.[ix]

Studies show that children living in households where pesticides are used suffer elevated rates of leukemia, brain cancer and soft tissue sarcoma.[x]

The most commonly used non-agriculture herbicide, 2,4-D,[xi] has been linked to non-Hodgkin's lymphoma in scientific studies.[xii]
Other Health Hazards Associated with Pesticides

Health effects of 48 commonly used pesticides in schools: 22 are probable or possible carcinogens, 26 have been shown to cause reproductive effects, 31 damage the nervous system, 31 injure the liver or kidney, 41 are sensitizers or irritants, and 16 can cause birth defects.[xiii]

Symptoms of exposure to commonly used pesticides: nausea, dizziness, headaches, aching joints, disorientation, inability to concentrate, vomiting, convulsions, skin irritations, flu-like symptoms and asthma-like problems.[xiv]

In a comparative study in Mexico, children exposed to pesticides demonstrated decreases in stamina, coordination, memory, and the ability to draw familiar subjects.[xv]

Animal studies link pesticides in the organochlorine, organophosphate (OP), and pyrethroid families to hyperactivity. OPs are also linked to developmental delays, behavioral disorders and motor dysfunction in animal studies.[xvi]

An internal Office of Pesticide Program, US EPA, memo states that further studies need be conducted, because of “evidence that odor and petroleum-related carriers” in OP pesticide products may be contributing to neurobehavioral effects in people exposed to OPs.[xvii]

US EPA and Dow AgroSciences recently agreed to phase-out chlorpyrifos (DursbanTM), one of the most commonly used insecticides in schools, because of its high risks to children, after allowing it to be used in schools and homes for the past 30 years. Although it can be purchased until 12/31/01, chlorpyrifos products can continue to be used in schools until existing stocks are used.[xviii]

Accumulation of Residues after Pesticide Applications

A 1998 study found that chlorpyrifos accumulated on furniture, toys and other sorbant surfaces up to two weeks after application.[xix] A separate study involving chlorpyrifos found substantially higher chlorpyrifos concentrations in the infant breathing zone.[xx]

Airborne concentrations of 7 insecticides were tested 3 days following their application in separate rooms. Six of the seven pesticides left residues behind through the third day.[xxi]

A 1996 study found that 2,4-D can be tracked from lawns into homes, leaving residues of the herbicide in carpets.[xxii]

EPA’s Non-Occupational Pesticide Exposure Study (NOPES) found that tested households had at least 5 pesticides in indoor air, at levels often 10X greater than levels measured in outdoor air.[xxiii]

Another EPA study found 23 pesticides in indoor household dust and air that was recently applied or used in the home. The study also found residues of pesticides in and around the home even when there had been no known use of them on the premises.[xxiv]
Pesticide Use in Schools

Connecticut schools reported 87% of 77 school districts surveyed sprayed pesticides indoors. Pesticides reportedly applied indoors include organophosphate and carbamate insecticides that may adversely affect the human nervous system via cholinesterase inhibition.[xxv]

Washington schools reported 88% of 33 school districts surveyed use one or more pesticides that can cause cancer, or damage the nervous system, hormone system or reproductive system.[xxvi]

California schools reported 93% of 46 school districts surveyed use pesticides, 87% reported using one or more of 27 hazardous pesticides that can cause cancer, affect the reproductive system, mimic the hormone system or act as a nerve toxin.[xxvii]

Integrated Pest Management (IPM)

The National PTA issued a position statement in 1992 stating that "The National PTA is particularly concerned about the use of pesticides in and around schools and child care centers because children are there for much of their young lives. The National PTA ... supports efforts at the federal, state, and local levels, to eliminate the environmental health hazards caused by pesticide use in and around schools and childcare centers [and] encourage the integrated pest management approach to managing pests and the environment in schools and child care centers."

The American Medical Association’s Council on Scientific Affairs states that “Particular uncertainty exists regarding the long-term health effects of low-dose pesticide exposure. ... Considering these data gaps, it is prudent ... to limit pesticides exposures ... and to use the least toxic chemical pesticide or non chemical alternative.”[xxix]

Maryland schools reported 100% of 17 school districts surveyed had adopted integrated pest management (IPM) policies that discourage the routine use of pesticides.

Albert Greene, National IPM Coordinator for the U.S. General Services Administration (GSA), has implemented IPM in 30 million square feet, approximately 7,000 federal buildings, in the capital area without spraying toxic insecticides. Greene has stated, “that it can be pragmatic, economical, and effective on a massive scale.”[xxx]

According to the US EPA, “preliminary indications from IPM programs in school systems suggest that long term costs of IPM may be less than a conventional pest control program.”[xxxi]

Endnotes available upon request.

HealthyPlanet’s mission is to promote food choices and lifestyles that respect our bodies and our shared environment. We educate people about the deep connection among all life on Earth, and the powerful effect our everyday choices can have on creating a clean, healthy and compassionate world. Our activities include: our popular, long-running Dinner/Lecture Series; ongoing Youth Outreach; The Healthy Planet Radio Program; public speaking on related topics to audiences of all ages; and working with other environmental/health groups/decision-makers to advance education and policy initiatives focused on health promotion, disease prevention, innovative solutions to the energy/climate crisis... & more!

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