

Unwanted Exposure: Preventing Environmental Threats to the Health of New York State's Children



A Report of the Children's Environmental Health Partnership of New York State,
a Collaboration of
Learning Disabilities Association of New York State
and
Healthy Schools Network, Inc.

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Executive Summary

In his first state of the state address, Gov. Eliot Spitzer talked of his goal to create One New York. For the state's children -- its most vulnerable citizens -- that means uniting government, parents, and educators to understand and address the most immediate and real environmental threats children face. There is no longer time to debate whether or not environmental hazards affect children. With all that is known today, the time to act is now.

Fortunately, the state Legislature passed a law during its 2006 session creating the Children's Environmental Health and Safety Advisory Council (Chapter 178 of the laws of 2006, effective January 22, 2007). This soon-to-be-appointed body provides New York with a new and potentially landmark opportunity to address the issue of children's environmental health. This report, *Unwanted Exposure: Preventing Environmental Threats to the Health of New York State's Children*, is designed to help the Advisory Council as it begins its work. It provides a summary of the October 12, 2006 Children's Environmental Health Leadership Symposium, held in Albany, New York under the sponsorship of state Senator Jim Alesi and state Assembly member Steve Englebright.

Unwanted Exposure also classifies and catalogues the major environmental health hazards linked to chronic childhood diseases. And, in a final section, the report reviews the current status of children's health protection in New York State through a series of interviews with key staff from the state departments of Health, Education and Environmental Conservation. In this final section, *Unwanted Exposure* also looks at other state agencies with responsibilities for providing services to children. Too often, these agencies lack access to the information and resources they need to effectively address children's environmental health needs. In conclusion, *Unwanted Exposure* demonstrates that some existing programs and services are under-resourced, uncoordinated and insufficiently focused to meet children's needs.

Unwanted Exposure was produced by the Children's Environmental Health Partnership of New York, a collaboration of the Learning Disabilities Association of New York State and the Healthy Schools Network, Inc. The Partnership's mission is to promote awareness of children's environmental health issues, advocate for policies that protect children and ensure that New York State is committed to preventing environmental health threats to New York's children.

We urge Governor Spitzer to identify children's environmental health as a state priority. He should require all state agencies to fully support the Children's Environmental Health Advisory Council and empower it to study and recommend policies to establish a unified state child protection policy. This should include mapping interagency authorizations and programs to identify lead agencies -- a step necessary to ensure a complete array of services -- and to coordinate agency initiatives.

In addition to a comprehensive look at the information the new Advisory Council will need to begin its work, *Unwanted Exposure* recommends the state take following actions:

- Develop a multi-agency agreement (MOU) for increased collaboration between state agencies on prioritizing children’s environmental health goals and initiatives.
- Establish a children’s environmental public health protection program that will provide a national model of information and support services for parents of children with exposures at school and in daycare; provide school and daycare on-site investigations and interventions.
- Adopt a precautionary approach to protect children from environmental harm. This would assure children protection from toxic exposures when there is evidence of harm, while not waiting to act based on the standard of conclusive proof of harm, especially when such proof is unlikely to exist for some time.
- Fully fund a system of regional centers for pediatric environmental health clinical services.
 - Such centers should include legislatively appointed advisory boards consisting of at least 50 percent experienced parents of health affected children.
 - Advisory boards will report annually to the Governor, commissioner of the state Health Department, and state Legislature.
 - The centers would provide clinical expertise for accurate diagnosis and treatment of environmentally related disease and injury to children, and provide additional community informational resources and work in cooperation with a New York State children’s environmental public health protection program.
- Establish a comprehensive system for reporting children’s exposures to environmental toxicants and complaints of environmental hazards that put children at risk. This should include reports concerning schools, daycare and preschool centers and other state funded or regulated facilities serving children. This reporting system must be coordinated among the various state agencies responsible for children and made publicly available. A designated lead agency should be responsible for coordinating data concerning children’s environmental exposures, and health and injury complaints. Known hazards, trends and recommendations for preventive action should be reported to the Governor, the Legislature and the public on a regular basis.
- Support state and federal efforts to address emerging chemicals of concern and related efforts to get ahead of the curve on HPV and PBT chemicals.
- Implement a broad toxic reform initiative similar to the national “Child, Worker and Consumer Safe Chemicals Act” that would require chemical manufacturers to provide data on a range of health effects to the EPA. The coordinating agency would then prioritize the chemicals for review to ensure they meet a health standard that is protective of children and fetuses. Comparable state legislation would help protect the children of New York State from unregulated, untested chemical manufacturing.
- Support the National Children’s Study, a multiple year prospective epidemiological study that will examine the influences on disease and development of exposures in early life in order to improve the health and well being of children, with the provision that it will include day care center and school exposure assessments

INTRODUCTION

Getting Started on a New State Initiative

Legislation passed unanimously by the New York State Legislature during its 2006 session, and signed into law by the Governor created the nation's first Children's Environmental Health Advisory Council, located within the state Department of Health. This historic initiative, known as the **Children's Environmental Health and Safety Council Act, effective January 22, 2007**, states that:

- Healthy children and strong families are fundamental to New York's future;
- Protecting children shall be one of the state's highest priorities; and
- Children's environmental health and safety issues shall be high priorities in all aspects of environmental protection, public health and education.

The new law begins with the premise that children are particularly vulnerable because they are more susceptible and more exposed to environmental threats than adults and that they are often exposed to different and unique environmental hazards. Of immediate importance is the law's mandate that the Children's Environmental Health Advisory Council work with the Commissioners of Health, Education and Environmental Conservation on a report containing criteria and recommendations for evaluating the impact of state agency standards and guidance on children's health and safety. The new law requires the council to develop programs and regulations to promote the protection of children from environmental hazards and to report back to the governor and legislature. In developing the Council's report – which is due in the fall of 2007 – the commissioners and advisory council members are asked to identify any human health risk assessments and science-based research upon which their relevant standards, regulations and guidance are based, and to identify gaps in protection of children from environmental health hazards.

Children are particularly vulnerable because they are more susceptible and more exposed to environmental threats than adults.

Unwanted Exposure: Preventing Environmental Threats to the Health of New York State's Children was produced by the Children's Environmental Health Partnership of New York, a collaboration of the Learning Disabilities Association of New York State and the Healthy Schools Network, Inc. The Partnership's mission is to promote awareness of children's environmental health issues, advocate for environmental health policies that protect children and ensure that New York State is committed to safeguarding all children from environmental health threats. To prevent harmful exposures and to defend the health of future generations, it is important to identify opportunities as well as gaps where existing state policies do not adequately protect children. The goal of this report is to help facilitate the work of the Children's Environmental Health Advisory Council, and to help assure its productive deliberations and timely reporting.

The new Council begins its work at a time when the ability of public health officials to identify hazards to children's health from environmental contaminants is advancing. The many chronic illnesses in children that have been established as being influenced and/or caused by contaminants in the environment include: the occurrence and exacerbation of asthma, cancer, intellectual and behavioral disorders (including developmental disabilities), learning disabilities and psychological disorders. While the study and understanding of how environmental toxicants can harm children's neurological functioning needs to be encouraged and enriched, policy action is needed now. Enough is known to move forward.

Toward that end, this report presents a comprehensive review of the major identified threats to children's health from environmental causes and explores the state's current policy framework for protecting children from these hazards. It is divided into three sections:

Section I summarizes the Children's Environmental Health Partnership Symposium, a leadership summit that took place at the state Capitol in Albany, on Oct. 12, 2006. The Symposium, a collaborative effort of the Learning Disabilities Association and the Healthy Schools Network, brought together leading state and national children's environmental policy health experts.

Section II reviews the predominant diagnosed childhood diseases and disabilities that have a suspected environmental cause; the major recognized environmental health threats to children; and a review of some of the major New York State laws and regulations that are specifically focused on protecting children from environmental hazards.

Section III analyzes state agency activities in regards to children's environmental health protection. For the purposes of this report, the agencies were divided into two tiers. Tier One includes the state departments of Health, Education and Environmental Conservation. Tier Two includes the state offices of Mental Retardation and Developmental Disabilities, Mental Health and Children and Family Services.

SECTION I: THE NATIONAL PERSPECTIVE

A Report on the Children's Environmental Health Leadership Symposium

The Children's Environmental Health Partnership of New York State hosted a Children's Environmental Health Leadership Symposium on October 12, 2006 in Albany, NY. The Symposium explored the social, political and medical implications of environmental health and children's needs. The primary theme stressed by Symposium presenters was that children's environmental health must be a top legislative priority of state government, and a primary concern to the medical profession as well as the general public. **Jeff Jones**, Chair of the Healthy Schools Network Board's New York State Committee welcomed more than 75 participants to the gathering and reviewed the year's legislative accomplishments. Two highlights included:

- The Environmentally Sensitive Cleaning and Maintenance Products Act (State Education Law 409-i and State Finance Law 163-b), known as the New York State Green Cleaning Law, which took effect September 1, 2006, and
- New York City Local Law 86, the Green Buildings Act, which requires many of the City's new buildings, additions, and renovations to be energy efficient and sustainable in their design and construction.

The primary focus of the Symposium, however, was the new Children's Environmental Health and Safety Advisory Council, which, according to Jones, will "create a more systematic structure and approach" to the issue of children's environmental health.

Despite these legislative accomplishments, there still remains a lack of political will when it comes to helping children afflicted with learning and developmental disabilities. **Charles Giglio**, national President of Learning Disabilities Association of America and Vice President of LDA of New York State, discussed the social aspects and implications of learning disabilities, and the need for more advocacy on their behalf. Children make up a large and crucial component of individuals with learning disabilities in New York State. Certain sub-populations with disabilities or chronic illnesses who depend on governmental services are frequently without support and advocacy. Parents, educators, agency officials and elected leaders need to become more educated, active and involved with advocating for individuals with learning disabilities and other cognitive disabilities.

Chronic disease such as childhood cancers, asthma, developmental and learning disabilities, neurological and behavioral disorders, can plague a child's daily life and affect future quality of life success and productivity. Environmental links have been established for many of these chronic diseases and disabilities, and ongoing research provides new evidence daily. Outdoor air pollutants, mold and volatile organic compounds contribute to the causation of asthma and other respiratory diseases in children. At least 28 percent of developmental disabilities in children, including dyslexia, attention deficit disorder and mental retardation, are due to at least in part environmental causes.¹



Leadership Symposium speakers from LTR:
Jeff Jones, Chair, HSN NYS Committee;
Kathy Curtis, Policy Director, Clean NY; Steve
Englebright, NYS Assemblyman, Claire
Barnett, Executive Director, HSN; Heather
Loukmas, Executive Director, LDA of NYS;
Stephen Boese, NYS Director, HSN; Ramona
Trovato, founding and former director of the
U.S. EPA's Office of Children's
Environmental Health Protection

Presenters addressing these concerns included **Dr. David O. Carpenter**, M.D., Professor at the Environmental Health and Toxicology Division, School of Public Health at the University of Albany in New York, **Ramona Trovato**, founder and former director of the U.S. EPA's Office of Children's Health Protection, **Dr. Leo**

Trasande, M.D., Assistant Director of the Center for Children’s Health and the Environment at Mt. Sinai Medical Center in New York City, **Elie Ward**, policy and advocacy consultant for the American Academy of Pediatrics, District II, NYS, and **Claire Barnett**, founder and executive director for Healthy Schools Network, Inc.

Dr. Carpenter discussed the science behind learning disorders and behavioral deficits affecting children who become exposed to environmental hazards. His presentation examined studies in animals as well as humans, highlighting the effects of lead, PCBs, dioxins, and mercury. Dr. Carpenter stated that exposure to lead unequivocally results in lower IQ levels, and may produce higher distractibility, lower performance levels, sleep problems, increased aggressiveness and decreased social skills, depression, as well as other behavioral abnormalities. One study he cited found lead exposure may increase high school drop-out rates and decrease reading and math scores.² Dr. Carpenter stated, “The bottom line on lead is that any level of exposure greatly impacts a child’s health, behavior, and cognition.”

The federal standard for lead exposure is 10 ug/dL, but in Dr. Carpenter’s opinion, this provides a false sense of security. “There is no safe level of lead. Lead will always reduce a child’s overall functioning,” Carpenter said. In fact, blood lead levels as low as 1 ug/dL are associated with harmful effects on children’s learning and behavior. Lead was banned from household paint in 1978. U.S. food canners quit using lead solder in 1991, and a 25-year phase-out of lead in gasoline was accomplished in 1995. However, older housing and buildings may still be coated in lead paint. The deteriorating paint exposes children to lead-laden dust and paint chips as well as exterior paint lead outside and residues in nearby soil. Lead particles from fumes released by leaded gasoline in the past are also still in the soil, especially near major highways. Additionally, lead may be found in drinking water and consumer products. “The risk of lead exposure remains disproportionately high for some groups,” Carpenter said, “including children who are poor, non-Hispanic black, Mexican American, living in large metropolitan areas, or living in older housing.” Furthermore, while adults absorb about 11 percent of lead reaching the digestive tract, children may absorb 30 to 75 percent. Also, up to 50 percent of lead may be absorbed into lungs when lead dust is inhaled.

Polychlorinated biphenyls (PCBs) also pose a considerable danger to women and children. PCBs are a known carcinogen, suppress the immune system, disrupt the endocrine system, and are neurotoxic. A pregnant woman previously exposed to PCBs may damage her child’s development. PCBs in a mother’s system will transfer to her child via breast milk, and may result in a lower IQ for her child. PCBs are especially harmful because they stay within a human’s system for so long. PCBs will stay in a mother’s system for up to 10 years, affecting development and cognition. Neurotoxic effects of PCBs include decreased cognition, increased impulsivity, attention problems, poor school performance and language problems, deficient social behavior and a blurring of gender specific behavior. According to Dr. Carpenter, a child who becomes exposed from birth to age 7 is virtually defenseless, and the detrimental effects are irreversible. “There is unfortunately no treatment available to combat these effects besides prevention,” Dr. Carpenter explained. He agreed with a member of the audience, Judith Schrieber, toxicologist in the Environmental Protection Bureau of the Office of then-Attorney General Elliot Spitzer stating, “All females should not eat fish, (a main source of PCBs and mercury) before they enter menopause.” However, there are other suppliers of PCBs that contaminate our environment. According to the International Program on Chemical Safety (IPCS), PCBs have been used in plasticizers, surface coatings, inks, adhesives, flame retardants, pesticide extenders, paints, and dyes for carbonless duplicating paper. Because PCBs are relatively heat-stable, they have been used in transformers and capacitors. Further environmental contamination and human exposure may occur from the disposal of old electrical equipment containing PCBs.

According to Dr. Carpenter, exposure to PCBs and dioxins carries enormous implications due to the fact that they stay in the body for up to ten years and will be passed through a pregnant woman to a fetus. Scientific research has shown that these exposures may impair immune system functioning, increase the likelihood of learning disabilities, cause gross neurological impairments, hyperactivity, depression, and the alteration of sex hormones.

Mercury is another insidious environmental contaminant. Exposure to mercury has been shown to result in decreased motor skills, attention, visual acuity, language and memory functioning.³ Increased autism rates may also be linked to mercury exposure. Dr. Carpenter explained that mercury is dangerous due to absorption in the nerve cells of the brain, and thus produces abnormal responses to stimuli. Dr. Carpenter also stated that a high occurrence of cerebral palsy was linked to mercury exposures from eating fish from Minamata Bay, Japan.

“Children born to mothers exposed to environmental contaminants have felt these effects,” Carpenter said. “It becomes important to remember that incidence of disease is not always from direct exposure.” A woman of childbearing age is also at serious risk of being affected by environmental threats. Dr. Carpenter suggested taking a look at the prison population for possible examples of exposure to environmental threats. Crimes of spontaneity should be researched to discover possible links between environmental threats and impulsive, hyperactive actions. According to Dr. Carpenter, no study has been completed examining possible links between children who have learning or developmental disabilities and exposure to environmental contaminants. Also, no studies exist of children who have preexisting problems, their incidence of environmental exposure, or of how to prevent such incidences from occurring.

Ramona Trovato, founding and former director of the U.S. EPA’s Office of Children’s Environmental Health Protection, discussed specifically why children are uniquely more vulnerable, provided facts about children’s health and outlined a national perspective for children’s health protection; elucidating the next steps in formulating a plan for the new state Children’s Environmental Health Advisory Council. Trovato stated that children are more greatly exposed to hazards because:

- **Children routinely eat three to four times per unit of body weight than the average adult;**
- **Children drink as much as 21 times more than the average adult;**
- **The air intake of a resting infant is twice that of an adult under the same conditions, and;**
- **The total surface area of an infant’s skin is two and a half times as great per unit of body weight as an adult.**

Children also engage in different behaviors that make them more vulnerable to environmental toxicants. They include:

- **Spending more time on the floor or ground where heavier chemicals tend to settle and accumulate**
- **Frequent engagement of hand to mouth behaviors**
- **Having a greater level of physical activity.**

Children’s increased susceptibility consists of:

- **Rapid growth and development; many organs are not fully developed until adolescence**
- **Different rates of absorption, metabolism, and excretion for infants and children**
- **Children have more years of life yet to come to experience symptoms.**

Ms. Trovato further showcased a cost analysis of the consequences of environmentally induced chronic illnesses in children, stating that **children miss 14 million school days per year due to asthma; totaling over \$16 billion to the U.S. economy in 2004, school absenteeism costs about \$1.5 billion each year in lost**

productivity, each IQ point that is lost in relationship to lead exposure costs \$9,600, or \$22 billion in all due to forgone earnings, and childhood cancer is the leading cause of death in children aged birth-14 years, costing \$4.8 billion to Americans, or over \$620,000 for each child with cancer. Ms. Trovato maintained that improvement in the quality of life and a reduction in this financial burden could be achieved if doctors knew what caused developmental diseases and other chronic health maladies, and emphasized a more precautionary approach.

Children are 100% of our future.

According to Ms. Trovato, the first action in producing a strong Children’s Environmental Health and Safety Advisory Council is to establish a background in public health and the facts surrounding children’s health. A second important step according to Ms. Trovato is to make certain that communication is clear between all state departments involved, such as the Departments of Health, Environmental Conservation, and Education. It is imperative for the Council’s success to have clear contact with all of the involved agencies, especially with the Health Commissioner.

Ms. Trovato stated that prior federal public health standards were based on young, healthy, adult white males, and did not take into consideration the needs of women or children. The federal council established for children’s environmental health recently concluded that if the health effects to children were **unknown**, the safety factor should be **ten times** that of adults. The same concept should be included in the rule-making procedures of all state level mandates concerning children’s health.

Another important step for the new council should be to prioritize environmentally induced health threats to children. Trovato listed the top EPA Children’s Environmental Health priorities established from the federal council, which included asthma, developmental/learning disabilities, childhood cancer, and unintentional injuries due to environmental exposures.

Trovato outlined helpful keys to success for the New York state advisory council. These include:

- **a strong leader who communicates easily with the health commissioner;**
- **well chosen members from a broad, balanced group of stakeholders;**
- **clear, concise goals;**
- **regularly established, clear deadlines for results;**
- **provide timely feedback;**
- **specific, direct, and pointed recommendations for the health commissioner;**
- **involvement of outside organizations concerned with children’s health and the environment;**
- **the use of an outside facilitator/organizer and staff support; and**
- **for members and departments to help the council succeed in every way possible.**

Trovato further advised that a primary concern for the newly established state council should be the creation of a set of ground rules in an advisory council charter. The federal council, for example, determined that each organization/department represented must use one principal member and only one alternate. Additionally, a member would be taken off the council if two meetings were missed in total. These rules assured that the council would be taken seriously and that members stayed involved and up to date with information communicated at council meetings.

Trovato also advised that in making each final report and final recommendation to the health commissioner, the advisory council does not always need to reach complete consensus. The final question for hesitant council

members should be, “*Can you go along with these recommendations?*” instead of, “*Do you support it?*” Individual council members can always provide minority reports as needed in an addendum to each report. Also, in making recommendations to the Health Department, it is important that the recommendations highlight what the department has *already done* to protect children’s environmental health. Included in every assessment should be up-to-date information on how children are affected and/or what child-centered considerations are taking place. In closing, Ms. Trovato reminded the audience that it was imperative to value this council and take its directives seriously on behalf of not only the children in New York state today, but for generations of children to come, stating that children are 30% of our population, and 100% of our future.

Leo Trasande, M.D., Assistant Director for the Center for Children’s Health and the Environment at Mt. Sinai Medical Center in New York City, outlined potential tools to address environmental hazards to children. He advocated moving forward with the National Children’s Study, which will provide a policy blueprint for improving children’s health, as well as for development of a statewide network of children’s environmental health centers. According to Dr. Trasande, these are among the significant measures that can help address the major problems facing children today -- chronic disease, injuries, mental retardation and learning disabilities.

Dr. Trasande stated that there are more than 80,000 chemicals in the environment that may be severely affecting children’s health. One of the most pernicious environmental threats children face is the uncontrolled mixture of

Fewer than half of the over 80,000 chemicals in the environment today are tested for their toxicity to human health.

chemicals that enter their systems. Less than half of the chemicals used today have been tested for their toxicity and none enter the atmosphere in isolation. No testing has been done on how chemicals react once they mix together, outside or inside the human body. Furthermore, Dr. Trasande explained, medical doctors who are responsible for the diagnosis and treatment of illnesses are not trained to suspect the environment as a cause of disease. Less than 20 percent of state-licensed pediatricians have received specific training in the taking and evaluation of a patient’s environmental history. A medical doctor entering the field today typically receives seven hours of general environmental training, usually consisting of high-dose, accidental occupational exposures of adults.

Dr. Trasande cited the results of a Mt. Sinai physicians’ survey that found hazards in the environment affected 90 percent of their patients. Trasande concluded that there is a need for more medical training in environmental studies and the threats

children face. Also, doctors need to learn more of the effects of environmental toxicants. The proposed National Children’s Study will examine the effects of environmental influences on the health and development of more than 100,000 children across the United States, following them from before birth until at least age 18. The goal of the study is to improve the health and well-being of children. Research will be analyzed on how elements such as natural and man-made environmental factors, biological and chemical exposures, physical surroundings, social interactions, behavioral influences and outcomes, genetics, cultural and family influences and differences, and geographic locations interact with each other and what helpful and/or harmful effects they might have on children’s health. By studying children through their different phases of growth and development, researchers will be better able to understand the role of these factors on health and disease. Unfortunately, Trasande noted, no funds for the study are included in President George W. Bush’s 2007 budget request. According to Dr. Trasande, for the health of America’s children and their future, this funding must be reinstated or alternative financial assistance or financial support must be obtained from state governments.

Furthermore, Mt. Sinai’s Center for Children’s Health and the Environment is continuously at full capacity. An efficient and effective approach to stemming the tide of the chronic disease epidemic in New York state’s

children, Dr. Trasande said, would be to establish a statewide, regionalized children’s environmental health system of four to six children’s environmental health centers. These centers would:

- increase the accuracy of diagnosis of children’s diseases caused by environmental factors;
- improve the treatment of children’s diseases caused by environmental factors;
- prevent diseases caused by environmental factors;
- better quantify and describe the health and financial burdens in the state of children’s diseases of environmental origin; and
- strengthen and expand educational programs in children’s environmental health for professionals at all levels.

Dr. Trasande explained how the clinics would make sense economically to New York state:

- A system of children’s environmental health clinics would cost at most \$9 million, or less than 0.3% of the environmentally attributable costs.
- If these clinics can prevent 1% of the environmentally mediated diseases in the State, then these clinics will save \$41 million, a return of nearly five-fold in decreased Medicaid expenditures and lost economic productivity.

Dr. Trasande stressed that chronic diseases of environmental origin are an increasing problem among the children of New York State; however, this problem is preventable. According to Trasande, solutions include: learning more about the potential health effects of most synthetic chemicals on our children, training physicians to suspect the environment as a cause of disease, developing facilities where children can be seen and evaluated for environmental exposures, educating families to realize, recognize, prevent and seek treatment for exposures, and improving disease tracking programs to identify environmentally mediated disease and accurately estimate the actual number of cases of children with these diseases.

In the closing panel discussion of the Children’s Environmental Health Leadership Symposium, **Elie Ward**, a policy and advocacy consultant for the American Academy of Pediatrics, District II, New York state asserted,



Elie Ward, addressing the audience.

“We must make children’s environmental health a priority and bring it into primary care medicine.” Ward insisted that children’s environmental health needs to become more of a mainstream issue with policy makers, health care practitioners, insurance providers, parents and the general public. “Pediatricians also must have more training and support to give guidance and referrals to parents whose children are affected with physical, developmental, learning, psychological or

behavioral disabilities caused by the environment,” Ward said. She assured that change is possible if more research is driven towards the issue of environmental health and children’s needs

and if academia changes the practice and training of health professionals. “Tracking systems must be implemented to examine what a child’s exposure is and its relationship to the onset of learning/developmental disabilities and other process oriented problems,” she stated. “The detriments of environment from preconception to a child’s early life are irreversible, and this issue must be covered more widely among media and press outlets.”

Claire Barnett, Executive Director of Healthy Schools Network, Inc. focused on the urgent need to establish public health prevention and intervention services for children, stating that, “No one is in charge of protecting

children from harmful environmental exposures at school or day care centers,” where children spend most of their time away from home. The organization’s new reports, *Who’s In Charge* (2005) and *Lessons Learned* (2006) document the surprising lack of public health agency oversight, interventions, and research to prevent harm to children who are at risk due to environmental hazards common to schools - such as chemical spills, unchecked renovations, pesticide misapplications, leaded drinking water, and indoor air pollutants such as molds.⁴ Children spend up to 40 hours per week in and around school buildings and environmental factors related to school buildings can have both acute and chronic effects on a child’s health and ability to learn. Children are required by law to go to school; however, they are without any system of preventive environmental public health services that address their specific situations and vulnerabilities. Thousands of children in New York and across the nation are at risk every day just by being present at schools that have identified facility environmental problems that can affect health and learning.

Hazards commonly found in schools consist of poor indoor air quality and pollution including molds, airborne fiberglass particles, lead and copper contaminated drinking water, overuse of toxic pesticides, unchecked furnaces and buses that emit cancer-causing diesel fumes, construction and renovation dust, and other harmful substances that create unhealthy schools buildings. According to Ms. Barnett, “The lack of any system to respond to children’s environmental health needs and the lack of focused interagency strategies puts children at risk, overwhelms teachers and school officials, and weakens both private and public schools. All are without the benefits of consistent expertise, independent oversight and interventions. No one is held responsible for children’s environmental health at school. Consequently, children are the victims.”

The symposium concluded with audience input on recommendations and next steps for children’s environmental health in New York state. Barnett said, for school inspections, they need to go beyond annual visual inspections and examine the conditions related to school health, absenteeism, suspensions, test scores and the onset of disease using proper surveillance, research and baseline data and for government to provide more support services to parents, teachers and schools; Ellie Ward questioned why there is no media interest in the concern of children’s environmental health and why this issue is not incorporated into mainstream pediatric medicine and insurance coverage; members of the audience suggested a 24-hour hotline for toxic pollution in homes or schools for parents, teachers and other concerned individuals as well as concern for more public awareness among parents and individuals within other cultures.

“The lack of any system to respond to children’s environmental health needs and the lack of focused interagency strategies puts children at risk.”
- Claire Barnett, Executive Director, Healthy Schools Network, Inc.

Dr. Trasande suggested advancing several policies to reduce environmental health risks to children. First, he proposed a broad toxic reform initiative similar to the national “Child, Worker and Consumer Safe Chemicals Act” that would require chemical manufacturers to provide data on a range of health effects to the EPA. The agency would then prioritize the chemicals for review to ensure they meet a health standard that is protective of children and fetuses. Comparable legislation would help protect the children of New York state from unregulated, untested chemical manufacturing. Second, he proposed a stronger statewide disease tracking system to collect and analyze data on chronic conditions of children. A thorough state system would enable policy makers and health practitioners to identify clusters of disease and make informed decisions when formulating policies that affect children’s health. Third, Dr. Trasande proposed the development of a new state bio-testing and bio-monitoring program. A direct measurement of people’s exposure to substances in the environment would help prevent chronic disease and advance the public health community’s understanding of

the diverse health effects of chemicals and other toxicants. In 2006, California introduced legislation (Senate Bill 1379) that would bio-monitor a representative sample of its residents for toxic chemicals. Up-to-date environmental public health tracking would help medical professionals understand environmental hazards, exposure pathways, and related health effects on pregnant women and mothers. Under the California plan, problems can be identified as they emerge, and information can be used to understand unexplained illnesses such as cancer.

Additional recommendations included enhanced or reallocation of funding for the Institute for Basic Research, a division of the Office of Mental Retardation and Developmental Disabilities to examine environmental causes of developmental disabilities and expansion of the green cleaning law to include state licensed daycare centers.

The Children's Environmental Health Leadership Symposium helped expose inadequacies in New York's public health system. Indeed, a revolution in public awareness and education may be necessary to prevent children from being harmed by environmental contaminants. In the past, children have not been part of the rulemaking process. The unfortunate truth is that state and federal government, public institutions, and the medical profession are unprepared to protect children from identified toxic exposures. Hopefully, the new Children's Environmental Health and Safety Council will be recognized as an important tool for health officials to use to protect New York's children.

SECTION II:

A SUMMARY OF ENVIRONMENTAL HEALTH ISSUES AFFECTING CHILDREN

Childhood Disease & Disability

Over the past 100 years, modern medicine has eliminated infectious diseases such as polio and small pox and has substantially decreased mortality rates for children suffering from persistent infectious diseases such as influenza. Ironically, these scientific and technological advances may also be contributing to a whole new cadre of diseases and disabilities for the infants and children of today. While children today are less likely to die from infectious disease, today's childhood diseases and disabilities acquired prenatally or in early childhood are more likely to persist throughout their entire lives, impacting their quality of life and economic and social independence. The result is endurance of immeasurable pain, frustration, despair, and disappointment by afflicted children and their families due to environmentally caused and/or exacerbated illnesses and disabilities. Because of the chronic nature of these diseases and disabilities the additional costs of providing medical care, special education services, adult support services and more over a lifetime combined with the fact that many individuals will experience a loss of income and ability to contribute as taxpaying citizens, represents a substantial cost to society.

While there are numerous diseases and disabilities that develop during fetal growth, infancy and early childhood, this report focuses on those that impact the greatest number of children and have experienced significant increases in prevalence rates. Certainly, there are many different factors such as genetics, pregnancy or birth trauma that contribute to the occurrence of these diseases and disorders. There may be one or a combination of factors, and many have no known specific causes. An environmental component has been suggested as a potential factor contributing to the occurrence and increase in prevalence of all of these disorders and disabilities.

Nationally and worldwide, there is compelling research regarding the effects of toxic chemicals and environmental toxicants on children's health.⁵ In 2006, the World Health Organization estimated that as much as 24 percent of global disease is caused by avoidable environmental exposures, and over 80 percent of major diseases are significantly affected by environmental factors. Over 33 percent of disease in children under age five is caused by environmental exposures.⁶ The federal Environmental Protection Agency's (EPA) *Children's Environmental Health: 2006* report identifies the threats in children's environments and efforts to protect children's health.⁷ The report provides research, evidence and programs designed to improve indoor air quality, reduce chemical exposure, control asthma and promote pediatric environmental health expertise. According to a study published in November 2006 in *The Lancet*, a respected medical journal, researchers from Harvard School of Public Health and Mount Sinai School of Medicine believe industrial chemicals have caused a worldwide "silent pandemic" that has resulted in impaired brain development in millions of children. The study explains that exposure to chemicals while in the womb and early childhood can lead to neurodevelopmental disorders such as autism, Attention deficit hyperactivity disorder (ADHD), cerebral palsy and mental retardation.⁸

Other research points out the economic costs of environmentally induced diseases. For example, *The Price of Pollution*, published by the Minnesota Center for Environmental Advocacy and the Institute for Agriculture and Trade Policy (IATP), estimates that environmental contributors to childhood diseases cost Minnesota \$1.569 billion each year.⁹ Furthermore, scientists at Mount Sinai School of Medicine say environmental pollution and synthetic contaminants that contribute to the occurrence, frequency, and mortality of these childhood diseases, cost Americans \$54.9 billion annually.¹⁰

Known environmental toxicants that are ubiquitous in the air, water and food supply contribute to our toxic body burden. Especially for pregnant women and children, this burden is directly related to asthma, cancer, allergies, chronic disease, damage to the brain or cognitive functioning, memory loss, learning and behavioral disabilities, sensory motor dysfunction, and reproductive problems, among others.¹¹ According to the EPA, in 1998 there were approximately 80,000 synthetic chemicals in use in the U.S. marketplace, most of which did not exist prior to 1940.¹² Mt. Sinai School of Medicine reports that as many as 1,500 new chemicals are introduced annually; meaning that in 2007 there will be nearly 93,500 man-made chemicals in the environment.¹³ Of these, approximately 15,000 have been registered with the federal government and less than half of those have been tested for their toxicity to humans. None have been tested for their health effects as they interact within one another.¹⁴

Children are uniquely vulnerable to these health threats triggered by toxicants in the environment and a child in utero is most vulnerable of all.¹⁵ Children eat, drink and breathe more than adults in proportion to their body weight and, consequently, take in higher concentrations of toxicants. Children take in twice the amount of air as adults and drink seven times more water than adults on average. Also, children's bodies and organs are still developing, adding to their risk. For example, low dose exposure during a child's development can cause lifelong problems to body and/or brain functioning, from learning disabilities to reproductive problems. According to the EPA, certain carcinogens are ten times more potent in children from birth to age 2 than in adults and other cancer-causing chemicals are up to 65 times more potent. Pesticides are up to 165 times more potent in infants than adults.¹⁶ In research conducted in 2005, the Environmental Working Group in cooperation with the American Red Cross studied the umbilical cord blood of newborns. They found the average newborn has 200 different industrial chemicals, pollutants and pesticides in their blood. These included over 70 known toxicants that cause cancer.¹⁷

Asthma

What it is:

Asthma is one of the leading diseases plaguing children today. The American Lung Association (ALA) reports that in 2004, missed school days due to asthma cost the national economy approximately \$1.5 billion.¹⁸ Asthma is a chronic illness that causes inflammation of the bronchial airways. This inflammation causes an increase in mucus, swelling and muscle contractions that can lead to airway obstruction, chest tightness, coughing and wheezing. Severe inflammation can cause shortness of breath and low oxygen in the blood. There are many triggers of asthma including allergies, respiratory infections, vermin, toxic pesticides and other irritants in the air. In childhood asthma, genetics plays a role along with a strong allergic component. According to the ALA, approximately 75 to 80 percent of children with asthma also have significant allergies. Indoor air pollutants that have been linked to asthma include nitrogen dioxide, pesticides, plasticizers such as phthalates, molds and volatile organic pollutants.¹⁹ Chronic ozone and diesel exhaust exposure have been indicated as outdoor air pollutants that trigger or exacerbate asthma attacks.

A recent EPA study ranked New York's air as the **dirtyest** in America, full of chemicals and particles that trigger asthma attacks.²⁰ On August 22, 2006, the American Lung Association reported that parents of children with asthma are not informed of the risks that schools pose as potential asthma triggers, including indoor and outdoor pollutants such as industrial carpeting and pesticides, diesel emissions, cleaning chemicals and molds.²¹

Impact:

- Nearly 1 in 8 school-aged children in the United States have asthma. This rate is rising most rapidly in pre-school aged children.²²

- In the United States, asthma is the leading cause of school absenteeism due to chronic illness. Every year, asthma accounts for 15 million lost days of school.²³
- In 2004, approximately 6.2 million children in the United States had asthma. The highest prevalence rate was seen in those 5-17 years of age (95.5 per 1,000).²⁴
- In New York State, the number of youth age 0-17 hospitalized for asthma has risen from 14,957 per 10,000 in 2001 to 16,584 per 10,000 in 2003.²⁵
- A panel of experts in environmental and pulmonary medicine recently estimated that approximately 30 percent of acute exacerbations of asthma are environmentally related. From this approximation, researchers were able to estimate the specific cost of environmentally attributable asthma to be \$2.0 billion annually.²⁶
- As of 2006, there are over 5,400 cases of pediatric asthma in Albany County, New York alone.²⁷
- Diesel emissions constitute a major contributor to the high rates of asthma symptoms among school-age children.²⁸

Childhood Cancer

What it is:

Cancer develops when cells in a part of the body begin to grow out of control. Normal body cells grow, divide, and die in an orderly fashion. During the early years of a person's life, normal cells divide more rapidly until the person becomes an adult. After that, cells in most parts of the body divide only to replace worn-out or dying cells and to repair injuries. Cancer cells continue to grow and divide. Instead of dying, they outlive normal cells and continue to form new abnormal cells. Cancer cells often travel to other parts of the body where they begin to grow and replace normal tissue. This process, called metastasis, occurs as the cancer cells get into the body's bloodstream or lymph vessels. Cancer cells develop because of damage to Deoxyribonucleic acid (DNA). This substance is in every cell and directs all its activities. Most of the time when DNA becomes damaged the body is able to repair it. In cancer cells, the damaged DNA is not repaired. People can inherit damaged DNA, which accounts for inherited cancers. Many times though, a person's DNA becomes damaged by exposure to something in the environment. Cancer usually forms as a tumor. Some cancers, like leukemia, do not form tumors. Instead, these cancer cells involve the blood and blood-forming organs, and circulate through other tissues.²⁹ While genetic predisposition can be attributed in part to some instances of childhood cancer, the causes are largely unknown. Researchers at the Mount Sinai School of Medicine, Department of Community and Preventive Medicine have estimated the annual cost of environmentally attributable childhood cancer to be approximately \$332 million.³⁰

Impact:

- Cancer among children is a substantial public health concern. Each year in the United States, approximately 12,400 children and adolescents are diagnosed with cancer. Approximately 2,300 children and adolescents die of cancer each year, which makes cancer the most common cause of disease-related mortality for children 1-19 years of age.³¹
- The incidence of cancer in children jumped 26 percent between 1975 and 1998.³²
- A landmark study of nearly 10,400 childhood cancer survivors recently concluded that many young adults

who conquered cancer as a child suffer chronic health issues such as osteoporosis, hearing loss, thyroid problems, second cancer and heart damage. More than one in four have potentially life-threatening conditions.³³

- According to the National Cancer Institute, over the past 20 years, there has been some increase in the incidence of children diagnosed with all forms of invasive cancer; from 11.4 cases per 100,000 children in 1975 to 15.2 per 100,000 children in 1998. Brain cancers and tumors in children's nervous systems rose by more than 25 percent between 1973 and 1996.
- Leukemia increased by more than 15 percent over the past 20 years. Most of this has been in a kind of cancer called acute lymphoblastic leukemia (ALL).³⁴
- The incidence of all cancers among infants less than one year old, both sexes, age adjusted, has risen 36 percent when comparing the years 1976-1984 to 1986-1994. The incidence for germ cell cancers in that same group has increased 124 percent.³⁵
- A recent study in the *American Journal of Public Health* reports an association between household chemicals and ALL. In the study, the researchers from the National Cancer Institute (NCI) and the University of Minnesota found children were more likely to develop ALL if they lived in households where family hobbies involved the use of solvents (such as refinishing furniture, or building models). The study "found elevated risks for childhood ALL associated with substantial postnatal exposure to some household activities and prebirth and postnatal exposure to indoor house painting," especially if more than 4 rooms in the house had been painted while the mothers were pregnant.³⁶
- According to the Children's Cancer Group Epidemiology Program, a program of collaborative cooperative clinical trial groups supported by the National Cancer Institute, children are 5 to 6 times more likely to develop leukemia and brain cancer if their families use pesticides at home.

Intellectual and Behavioral Disorders:

According to the Centers for Disease Control and Prevention, approximately 17 percent of children in the United States have some type of neurobehavioral or intellectual disability. In 2000, the National Academy of Sciences brought together an expert committee to estimate the impact of environmental factors on intellectual and behavioral disorders in U.S. children. The panel concluded that 3 percent of these neurobehavioral disorders were directly due to toxic environmental exposures and another 25 percent were due to an interaction between environmental factors and genetic susceptibility. Researchers at the Mount Sinai School of Medicine Department of Community and Preventive Medicine used this estimate to calculate the specific cost of neurobehavioral disorders attributable to environmental factors at \$9.2 billion annually. Specific neurobehavioral disorders that were considered included attention deficit/hyperactivity disorder, developmental disabilities, learning disabilities, autism, mental retardation and diminished intelligence.³⁷

Attention Deficit/Hyperactivity Disorder (AD/HD)

What it is:

Attention Deficit/Hyperactivity Disorder (AD/HD) is one of the most prevalent neurobehavioral disorders diagnosed in childhood that can persist throughout life. Individuals with AD/HD have chronic levels of inattention, impulsive hyperactivity or both that impacts their daily functioning. The symptoms of the disorder must be present at levels that are higher than what would normally be expected at their particular stage of development and must interfere with their ability to function in a variety of settings such as at school and home.

Individuals with AD/HD may also have a high instance of co-occurring conditions such as disruptive behavior disorder, developmental disabilities, psychological disorders, and learning disabilities. Researchers do not know AD/HD's exact causes.

Impact:

- In New York State, 6.27 percent of youth ages 4-17 were diagnosed with AD/HD.³⁸
- Follow-up studies of clinical samples indicate that individuals with AD/HD are 32-40 percent more likely to drop out of school.³⁹
- AD/HD is diagnosed in boys three times more often than girls.
- According to the May 2002 Centers for Disease Control and Prevention Vital and Health Statistics publication, some 1.623 million children (approximately 7 percent) ages 6-11 have AD/HD in the U.S. Of this number, 784,000, or 3.3 percent, have AD/HD without a learning disability and 839,000, or 3.5 percent, have AD/HD with a learning disability.

Developmental Disabilities

What they are:

Developmental disabilities are a variety of chronic conditions that emerge in early childhood and result in mental and/or physical impairments. Individuals with developmental disabilities have difficulty with major life activities such as language, mobility, learning, self-help and independent living. Developmental disabilities begin anytime during development up to the age of 22 and are life-long. Specific developmental disabilities include mental retardation, cerebral palsy, epilepsy, autism spectrum disorder and other neurological impairments. Genetic problems, poor prenatal care, exposure to toxic substances, birth trauma, and accidents resulting in head injuries are all causes of developmental disabilities.

Impact:

- There are approximately 4.5 million individuals with developmental disabilities in the United States.
- Approximately 200,000 New Yorkers have mental retardation.
- Between 1994 and 2003 the number of children being classified as having an autism spectrum disorder (ASD) increased six-fold from 22,664 to 141,022. The number of students in New York State receiving special education services classified with an ASD increased from 6,752 in 2000 to 12,162 in 2004. Some researchers have suggested that some of this increase is the result of changes in classification criteria but others have countered that the growth in the number of children diagnosed with ASD has been too great to be due entirely to changes in diagnostic criteria alone.
- Based on current identification standards, autism spectrum disorders are the second most common developmental disability after mental retardation.

Learning Disabilities

What they are:

A learning disability is a neurobiological disorder which is developmental in nature. A learning disability manifests itself as a chronic condition in many aspects of learning and behavior across an individual's lifespan, and its impact upon an individual's ability to function can be significant. Learning disabilities impede the ability

to store, process or produce information. People with learning disabilities have trouble because their minds process words or information differently than people who learn normally. Learning disabilities can affect the ability to read, write, speak, or compute math and can impair one's ability to build social relationships. Learning disabilities can occur along with, and be complicated by, problems in attention and the development of social skills. Learning disabilities have distinct characteristics and should not be confused with mental retardation, autism, deafness, blindness and behavioral disorders. None of these conditions are learning disabilities. Some causes of learning disabilities may be attributed to genetics or may be due to smoking, drug or alcohol abuse during pregnancy and exposure to environmental toxins during crucial stages of fetal and early childhood development.

Impact:

- The National Institutes for Health estimates that approximately 15 percent, or 1 out of every 7, Americans has some type of learning disability the impact of which can be mild, moderate or severe. Applied to New York's population, this would translate to approximately 2.8 million New Yorkers with some type of learning disability.
- Results of studies released in February 2004 have led the EPA to conclude that more than 15 percent of children born in the U.S. could be at risk for brain damage and learning difficulties due to mercury exposure in the womb.⁴⁰
- In 2002 nearly 2.9 million students received special education services for learning disabilities.⁴¹
- The percentage of students with learning disabilities receiving special education services increased from 3.9 percent in 1991-92 to 4.4 percent in 2000-2001.⁴²
- According to the state Education Department, as of December 1, 2004 there were 181,307 students with specific learning disorders in the New York State public school system. This represents approximately 44 percent of all children receiving special education services in the state.
- On average, New York spends approximately \$12,457 per pupil on special education services above what would have been spent otherwise. This translates to an additional cost of approximately \$5.5 billion.⁴³

Psychological Disorders

What they are:

More recently, scientific research is examining the causal relationship between prenatal exposure to neurotoxicants and psychological disorders. While the existing body of evidence is at present somewhat limited, emerging data suggests a potential link and highlights the need for more extensive examination of this relationship through scientific study. Existing research has primarily looked at the effects of animal exposures and adult exposures in occupational settings. A compilation of the existing data has indicated a correlation between anxiety disorder and depression and exposure to mercury, organophosphates (pesticides), lead and organic solvents. One recent study also examined the effects of prenatal exposure to lead and elevated amniotic acid levels during the second trimester of pregnancy on the emergence of schizophrenia in adulthood, suggesting that conditions caused by prenatal exposures to neurotoxins can manifest in adulthood years after the initial exposure.⁴⁴

Environmental Toxicants of Greatest Concern:

Numerous toxic chemicals and heavy metals have been shown to have negative impacts on human health. Our focus is on those which are of greatest concern to children's environmental health because of their persistent bio-accumulative toxic properties; the scientific research documenting their adverse human health impacts; and on their widespread presence in the environment.

Asbestos

What it is:

Asbestos has been used for years in the development of commercial products including as a strengthening agent in construction, insulation and fireproofing materials, automotive brakes and textile products, and cement and wallboard materials.

Routes to exposure:

Asbestos fiber can separate into microscopic size particles that can remain in the air and are easily inhaled deep into the lungs. Although the use of asbestos and asbestos products has dramatically decreased, they are still found in many school buildings as well as residential and commercial settings, and continue to pose a health risk to children and employees. In schools and other buildings, asbestos is often found around pipes, in insulation, boilers and in floor and ceiling tiles. Remodeling or other types of construction can disturb asbestos fibers that are already in the building and cause them to be released into the air where they can be inhaled.

Human health effects:

It is now known that breathing in asbestos fibers has serious health impacts. Individuals exposed to asbestos can develop several life-threatening diseases such as asbestosis, mesothelioma and lung cancer.

Asbestos Laws:

There are federal, state and local laws that act to reduce the risk of asbestos exposure in schools. The Asbestos Hazard Emergency Response Act (AHERA) 15 U.S.C. 2651 is a federal law. The regulations are found in Title 40 Code of Federal Regulations (C.F.R.) Part 763. These regulations specifically discuss the management of asbestos-containing materials in schools. Asbestos may not have to be removed but just managed in a safe manner. Every school must have an AHERA report. New York State regulations 12 N.Y.C.R.R. Part 56 and 10 N.Y.C.R.R. Part 73 address the removal of asbestos from public places and the appropriate training required for people working with asbestos generally.

Outdoor Air Pollution

What it is:

According to California's Office of Environmental Health Hazard Assessment, the two most common and most hazardous air pollutants are ozone and particulate matter. Particle pollution refers to a combination of fine solid particles and aerosols that are suspended in the air. Particles are different sizes: some are one-tenth the diameter of a strand of hair. Many are even smaller. Millions of particles form a "haze" in the air. Eighteen percent of the nation—affecting 53 million people—lives where the quality of the air they breathe puts their health at risk. Twenty-two percent—64.3 million—live in areas where frequent spikes in particles lasting hours to days places their health at risk as well. The American Lung Association states that many metropolitan areas in New York State have "some of the most serious air pollution problems in the nation." New York City and surrounding areas, ranked 9th among the 25 most ozone-polluted U.S. cities. Albany County received a grade analysis of an "F" for ozone pollution.

Routes to exposure:

Components to air pollution come from many sources, including mechanical processes such as mining operations, construction and demolition, and coal and oil combustion and chemical processes such as the burning of fuels that emit gases. These gases can simply vaporize and then condense to become a particle of the same chemical compound. Or, they can react with other gases or particles in the atmosphere to form a particle of a different chemical compound. Particles formed by this latter process come from the reaction of elemental carbon (soot), heavy metals, sulfur dioxide (SO₂), nitrogen oxides (NO_x) and volatile organic compounds with water and other compounds in the atmosphere.⁴⁵ The burning of fossil fuels in factories, power plants, steel mills, smelters, diesel and gasoline-powered motor vehicles and equipment also generate a large part of the pollution in the air.⁴⁶

Human health effects:

Because of their very small size, particulate pollution can pass through the nasal passage, past the trachea and deep into the lungs, where they can remain embedded for long periods of time. Some are small enough to slip through the lung into the blood stream. Short term exposure is associated with adverse health effects ranging from increased respiratory symptoms to increased hospitalization and emergency room visits, to increased mortality from respiratory and cardiovascular disease. In 1993, a landmark study appeared in the *New England Journal of Medicine*, which documented the significant risk to human life from long-term exposure to particle pollution. Named *The Harvard Six City* study, it looked at six small towns in the eastern U.S. and found clear evidence of the increased risk of premature death from exposure to the particle pollution in the most polluted city studied, compared to the cleanest. Two years later, another group of researchers using a large nationwide database of personal histories from the American Cancer Society, came to similar conclusions.

Exposure worsens asthma, a condition most prevalent among children, and causes wheezing, coughing and respiratory irritation in anyone with sensitive airways.⁴⁷ It also triggers heart attacks, cardiac arrhythmias (irregular heartbeat) and premature death.⁴⁸

New findings show that particle pollution can be as dangerous as cigarette smoking. In a 2005 review of the research on how particles cause damage to the human body, researchers found that particle pollution attacks the body in ways similar to cigarette smoke. According to the findings from some of the latest studies, short-term increases in particle pollution have been linked to:

- death from respiratory and cardiovascular causes, including strokes;
- increased numbers of heart attacks, especially among the elderly and in people with heart conditions;
- inflammation of lung tissue in young, healthy adults;
- increased hospitalization for cardiovascular disease, including strokes and congestive heart failure;
- increased emergency room visits for patients suffering from acute respiratory ailments;
- increased hospitalization for asthma among children; and
- increased severity of asthma attacks in children.⁴⁹

Air pollution is especially dangerous to children because their bodies are still growing and their lungs are still developing. The human lung takes over seven years to fully develop. Children are also more active than adults. In addition, the defenses that help adults fight off infections are still developing in young bodies. Children also have more respiratory infections than adults, which increases their susceptibility to air pollution.

In 2004, the World Health Organization (WHO) published a comprehensive report on children's health and air pollution. From this research, scientists confirmed that particle pollution caused infant deaths. Furthermore, they found that air pollution caused a host of harmful effects on children, including:

- short-term and long-term decreased lung function rates;

- aggravation of asthma (from exposure to particle as well as ozone pollution);
- increased prevalence and incidence of cough and bronchitis (primarily from particle pollution); and
- increased risk of upper and lower respiratory infections.⁵⁰

Several studies published in 2005 found prenatal exposure to air pollution can harm a woman's fetus. A study of pregnant women in four Pennsylvania counties found an increased risk of preterm births linked to chronic exposure to high levels of air pollution during the last six weeks of pregnancy. A study of three low income neighborhoods in New York City found that infants born to nonsmoking mothers faced a possible increased risk of cancer from living in areas with elevated urban area air pollutants. A third study in the Czech Republic found evidence that the mother's exposure to air pollution may even alter the immune system of the fetus.⁵¹

Indoor Air Pollution

What it is:

Americans spend 90 percent of their time indoors. Indoor air pollution and environmental air quality problems are caused by the total sum of all the environmental defects of a facility and the effects of its occupants and their processes, including chemical use, materials, furnishings, ventilation system deficiencies, off-gassing from materials, overcrowding, dirt, dust, lead, asbestos, chemical fumes, pesticides, bacteria, mold, tar and diesel fumes, pest leavings, machines within buildings and other outdoor pollutants. Concentration of these pollutants can be 10-100 times more intense than those found outdoors and cause considerable damage to children and employees in homes, buildings and schools. Poor indoor air quality affects a child's health and ability to learn. Pollutants come from surfaces in the building, cleaning products, paints and floor finishes, carpets, other occupants of the building, buses, the outside air, and can result from demolition or construction. Pollutants can cause a wide range of problems from asthma to flu-like symptoms such as headaches, sore throats, memory problems, joint pain, and nausea. Not everyone has the same reactions, but children and adults with pre-existing health problems including asthma, allergies, or chemical sensitivities generally have more problems.

Children's Health in Schools

New York State has no laws regulating indoor air quality in schools or enforceable ventilation standards. There are, however, voluntary measures schools can take in both assessing and managing indoor air quality. *Who's In Charge*, a report published by Healthy Schools Network Inc. in 2005, noted that schools have failed to address "indoor air quality, water damage, carbon monoxide, contaminations, persistent organic pollutants," and countless other problems.⁵² The report maintains that "there are no programs specifically designed to evaluate children who have health problems that may be school related." Poor indoor air quality in schools has been shown to decrease test scores and concentration levels and increase absenteeism and respiratory illness.⁵³

Diesel Exposure and Children's Health:

There is overwhelming evidence that exposure to diesel exhaust causes cancer and premature death and exacerbates asthma and other respiratory illnesses. Government regulators estimate, based on lifetime risks, that diesel exhaust is responsible for 125,000 cancer cases nationwide.⁵⁴ Studies completed in California reveal that more than 70 percent of the risk of cancer from air pollution comes from diesel exhaust alone.⁵⁵

It is estimated by the Natural Resources Defense Council that for every one million children riding the school bus for 1 or 2 hours each day during the school year, 23 to 46 children may eventually develop cancer from the excess diesel exhaust they inhale. This means a child riding a school bus is being exposed to as much as 46 times the cancer risk considered "significant" by EPA under federal law.⁵⁶ Recent studies also find that students who are inside school buses are exposed to 5 to 15 times the levels of particulate pollution than if they were outside the bus.⁵⁷ Bus idling and bus queuing (back-to-front line-up of buses) increases the concentrations of harmful

particulate pollution inside school buses. In addition, diesel exhaust contains both carbon particulates and over 40 toxic chemicals that are classified as “hazardous air pollutants” under the Clean Air Act.⁵⁸

In addition to its cancer-causing properties, diesel exhaust is also a major source of fine particles. Additionally, smog-forming oxides of nitrogen (NOx), which are also emitted from diesel engines, have recently been linked to decreased lung function growth in children.⁵⁹

State Laws Specifically Addressing Children’s Unique Vulnerability to Air Pollution:

State law protects acceptable air quality in schools. The Public Employees Safety and Health Act (PESH) protects teachers, administrators, and staff at public schools from certain toxicants in the air. Consequently, children are indirectly protected from poor air quality. **However, there are no laws requiring schools to test indoor air quality, and there are no standards for indoor air established specifically for children.**

- There is a state regulation that specifically addresses the right to a well-ventilated room. 8 New York Code of Rules and Regulations (N.Y.C.R.R.) 155.1(b)(3)(ii) says that each teaching space should have a constant supply of fresh air to avoid the problem of odor, toxins and dust build up. In addition, the New York City Health Code, section 45.11 says that each school room should be properly ventilated, but not so well-ventilated as to cause drafts. 8 NYCRR 155.3(d) covers rules for heating and ventilating and air conditioning for non-Big City schools in the state.
- Regarding outside air pollution, Section 24-163 of the New York City Administrative Code specifically states that buses cannot leave their motors running for more than three minutes, and cannot leave them running at all when it is warmer than 40 degrees outside.
- Regulations of the Commissioner of Education, Part 155 (8 NYCRR 155) address several areas of indoor air quality in schools. Also known as the RESCUE (REbuild SChools to Uphold Education) regulations, they require schools to have an indoor air quality management plan; generally require schools to have a controlled supply of fresh air and have sufficient air changes to produce healthful conditions and avoid odors or build-up or concentrations of toxic substances or dust particles and provide for specific protections to protect air quality during school construction and renovation projects.
- New York State Environmental Conservation Law limits the idling time of trucks and busses, including school busses, to five minutes. (New York City Law limits idling to three minutes).

Endocrine Disrupters

What they are:

Endocrine disruptors (EDs) are man-made synthetic chemicals and natural phytoestrogens (naturally occurring plant or fungal metabolite-derived estrogen) that act on the endocrine systems of humans and animals by mimicking, blocking and/or interfering with the natural instructions of hormones to cells.⁶⁰ The most dangerous EDs are man-made synthetic chemicals. Known and suspected EDs are in products we use every day. The list includes; health and beauty aids (cosmetics, sunscreens, perfumes, soaps); pharmaceuticals (birth control pills); dental sealants; solvents; surfactants; pesticides and plastics (PVC, polystyrene a.k.a. Styrofoam®, and others).⁶¹

Many endocrine disrupting drugs have been specifically designed to treat hormone imbalance in humans. Diethylstilbesterol (DES), a drug with strong estrogenic properties administered to pregnant women until 1971 to prevent miscarriages, is a tragic example. Female children of mothers who took DES during pregnancy have

a higher incidence of certain forms of ovarian and vaginal cancer. However, there are many drugs that mimic or affect hormone balance which are important for medicine and reproduction. Other man-made chemicals with inadvertent hormone-like activity include: pesticides such as DDT, vinclozolin, endosulfan, toxaphene, dieldrin, and DBCP, and industrial chemicals and byproducts such as polychlorinated biphenyls (PCBs), dioxins, and phenols. Some of these products are found in soaps and detergents. Also implicated are heavy metals, plastics, cosmetics, textiles, paints, and lubricants. Sewage treatment runoff may contain a variety of natural and man-made endocrine disruptors, including natural hormones from animal and human waste. Atrazine, an herbicide previously implicated in endocrine disrupting effects, has been banned by the European Union. However, atrazine is the most widely used weed killer in America.

Currently, there are no standard tests to determine if a chemical is an endocrine disruptor. Both the Clean Water Act and the Food Quality Protection Act (1996) require the EPA to develop test methods. However, it has been over ten years since Congress ordered the EPA to develop tests to determine if pesticides could be disrupting human hormone functions, and no chemical has been tested under the program. The EPA has yet to decide which pesticides will be tested first.

The 1996 Food Quality Protection Act set a 1999 deadline for EPA to develop a series of animal experiments with which pesticide manufacturers would be required to screen their products as possible endocrine disruptors. Similar pending tests are required to determine whether the chemicals cause cancer, birth defects, genetic mutations or other problems. According to an October 2006 article in the Austin American Statesman, the U.S. EPA has repeatedly pushed back the deadline. The agency now says it will be 2008 before it finalizes a set of tests. However, President George W. Bush has proposed cutting the agency's budget for the endocrine disrupter program, which leads to questions about whether the 2008 deadline can be met.

Routes to exposure:

The creation of EDs can be deliberate and/or a byproduct of industrial processes such as paper and pulp bleaching, emissions from steel foundries and motor vehicles, and the incineration of chlorine containing products such as PVC (polyvinyl chloride, or vinyl) in incinerators, residential backyard barrels, or building fires.⁶² Concentrations of endocrine disruptors are magnified through the process of bioaccumulation up the food chain. **The accumulations in the fat tissues of humans at the top of the food chain can be millions of times higher than the concentration of the water it first came to rest in.** Along with food, humans can also be exposed to EDs through inhalation, through the skin, or through water and from the products listed above. Humans are in direct contact with EDs at home, the workplace, or at school. EDs can persist in soil for years and can contaminate areas far removed from the source of contamination.⁶³

Human health effects:

The delivery or timing of hormones to various organs is vital. When the delivery timing and/or amount of a hormone are upset, the results can be devastating and permanent. The stimulation or inhibition of the endocrine system could produce an inappropriate quantity of hormones -- too much, too little or none at all. Any combination of interferences on the endocrine system can affect physical development, gender, reproduction, brain development, behavior, temperature regulation and more. An endocrine disruptor can injure or destroy an organ that has the task of supplying hormones. Due to the lack of testing on the human health effects of ED's, there are many questions to be answered. Despite this uncertainty, EDs are suspected contributors to many possible health problems. These include: birth defects; alterations in sexual and functional development; neurological disorders, diabetes mellitus, immunologic disorders, early puberty in young girls, cancers: breast, colon, vaginal, endometriosis, cervix, testicular, sexual differentiation of the brain and other estrogen target tissues, structural abnormalities of the oviduct, uterus, cervix and vagina, a contributing factor to subfertility,

non-Hodgkin's lymphoma, reduced physical stamina, genital birth defects, reduced sperm counts, and enlargement/reduction of prostate, developmental, behavioral and mental disorders, anger, inattention, decreased mental capacity, learning disabilities, dyslexia, attention deficit/hyperactivity disorder (ADHD), autism, propensity to violence, reduced motor skills, and gross and fine eye-hand coordination.⁶⁴ According to the Center for Children's Health and the Environment of the Mount Sinai School of Medicine, exposure to endocrine disruptors during pregnancy can have significant health risks. Early disruption in human development could lead to lifelong alteration of behavior or endocrine function.⁶⁵

Lead

What it is:

Lead is a naturally occurring heavy metal that for hundreds of years was mined, smelted and refined for use in products such as paint, gasoline, pipes, crystal and ceramics. Lead can also travel great distances throughout our environment via air particles. Rain can cause dust particles containing lead to return to earth's surface where it is deposited into the soil and can persist for many years. Federal regulations passed in 1977 eliminated the use of lead from paint and for general use.

Routes to exposure:

Because lead is so pervasive throughout our environment and occurs in natural form, everyone is exposed to some levels of lead. The most common route to exposure for humans today is swallowing lead paint chips, breathing in lead dust or ingesting food that contains lead from soil or water. Lead can be found in products used in and around our homes, schools and communities, including many common products used by children such as jewelry, lunchboxes and other children's toys. According to New York State Public Health Law Section 1372, 99 percent of houses built before 1940 contain some lead paint. New York State has the highest number of housing units built prior to 1950 in the nation.

Human health effects:

Lead poisoning can cause a variety of adverse human health effects but is particularly harmful to the neurological development of children. Lead absorption rates vary. Adults typically absorb 10-15 percent of ingested lead while pregnant women and children can absorb up to 50 percent. In adults, lead poisoning can lead to poor muscle coordination, nerve damage, high blood pressure, reproductive problems and more. In children, lead poisoning can result in brain damage or mental retardation, behavioral problems, anemia, hearing loss, hyperactivity, developmental delay and at high levels, death.

Elevated blood lead levels have also been linked to delinquency in teenagers. Dr. Herbert Needleman, one of the pioneers of research studying the effects of lead exposure on children and his colleagues compared 194 youths aged 12-18 arrested and adjudicated as delinquent to a control group of 146 non-delinquent youths and found that the delinquent youths had significantly higher blood lead levels of 11 parts per million (ppm) versus 1.5 ppm. Race and number of parents in the home were also examined and shown not to be a factor in this study. The results indicate that there is a definite risk of delinquency in youth with elevated blood lead levels.⁶⁶ Children are at greater risk of lead poisoning because they tend to take in more lead as a result of their behavior (i.e., placing objects in mouth, playing on floor or in dirt, etc.) and as they naturally take in more food, water and air pound per pound than adults do. All of this occurs at a time when their brains and nervous systems are still developing, which makes them more susceptible to the neurological and developmental effects of lead poisoning as well. Our breadth of knowledge about how exposure to certain toxicants adversely impacts human development continues to grow with greater scientific study. While the current standard established for a blood lead level of concern in children is 10 micrograms per deciliter of blood, several recent studies have indicated that low concentrations of lead exposure can lead to reduced IQ, shortened attention spans and learning

disabilities. As a result, several federal agencies, including the EPA and Centers for Disease Control, are considering lowering this threshold.

State Laws Specifically Addressing Children's Unique Vulnerability to Lead Poisoning:

New York State Public Health Law gives power to the Commissioner of Health to enforce the correction of paint conditions that could lead to lead poisoning.

New York State RESCUE Regulations (REbuild SChools to Uphold Education) require abatement of lead paint in schools in accordance with federal protocols when such paint may be disturbed during renovation or construction projects.

Mercury

What it is:

Mercury is a heavy metal that occurs naturally in the earth's surface and is released into the environment through mining, coal combustion and through its use in manufactured products. Mercury can also be found in some dental fillings, vaccines, fluorescent lights, batteries and thermometers. Coal-burning power plants are the largest source of mercury pollution. They are responsible for more than 40 percent of all air-borne mercury from industry in the U.S. Mercury emitted into the air from industrial smoke stacks returns to earth via precipitation or attached to air particles. Microorganisms in the environment convert this mercury into a highly toxic substance known as methylmercury. Fish absorb methylmercury through their diet. Mercury is a concern for human health and for the environment because it does not break down and is not destroyed by burning, which is why proper disposal and recycling are essential.

Routes to Exposure:

The most common route to exposure for humans is through consumption of contaminated fish, although exposure can occur through dental fillings and vaccination as well. In 2006, the New York State Department of Health issued specific fish consumption advisories for 135 bodies of water that have mercury contaminant levels higher than the federal standards for certain fish species and has indicated that women of childbearing age and children under the age of 15 should not eat any fish from these bodies of water. In fact, 70 percent of the mercury released into the air each year comes from human activity sources such as emissions from coal-fired power plants, waste incineration and various industrial activities, which settle into our lakes and rivers and enter the human food chain.⁶⁷

Mercury Sources in Schools and Day Care Centers:

Children are especially at risk to mercury exposure in schools. Instruments containing mercury can be found virtually anywhere on school property - in the nurse's office, science rooms, gymnasiums, art rooms and boiler rooms. Liquid mercury is used in instruments that measure temperature (thermometers), pressure (barometers or sphygmomanometers), humidity (hygrometers), vacuum (laboratory manometers), flow (water meters) and air speed (anemometers). Mercury can also be found in lights (particularly gymnasium and fluorescent lights), thermostats, heating/ventilation and air conditioning (HVAC) systems, plumbing systems, cafeteria equipment, medical devices, regulators, gauges and science room equipment. At times, children or adults who are unaware of the health hazards bring mercury into schools to play with, for demonstrations or to use in cultural rituals. Mercury-containing devices might be brought into the school by contractors, guest speakers, parents, staff or students. In the news, a New Jersey day care center was sited in a former mercury thermometer factory, which has led to elevated blood mercury levels in all children attending the day care.⁶⁸

Human health effects:

While adverse effects of mercury exposure have been reported in adults, the adverse health effects of methylmercury toxicity on children and the developing brain are of particular concern. Women of childbearing age (or rather their potential offspring) and young children are particularly vulnerable to the effects of mercury. During fetal development, methylmercury crosses the placenta and concentrates in the central nervous system.⁶⁹ Research has also indicated that there are potentially genetic differences in how children eliminate mercury from their bodies and that inability to remove mercury from the body allows it to build up in body tissues, resulting in adverse effects even from small exposures.⁷⁰ Methylmercury toxicity has been indicated in nervous and digestive system malfunctions, kidney damage, learning disabilities, autism, mental retardation and developmental disabilities.

Methylmercury has been shown in several studies to have extremely detrimental effects on the developing brain. The highly toxic properties of methylmercury were first noted in the 1950s in Minamata, Japan. The consumption of highly contaminated fish by pregnant women resulted in at least 30 cases of cerebral palsy in children. The mothers showed minimal effects.⁷¹ Twenty-two years later, a similar episode resulted in infants and children bearing the brunt of exposure when thousands of people in Iraq were poisoned as a result of eating wheat that had been treated with methylmercury to resist disease and pestilence.⁷² A more recent study conducted in the Faroe Islands, a territory of Denmark, indicated reduced IQ scores among children who were born to women with maternal hair mercury concentrations above 6ug/g.⁷³ A second study done in the Faroe Islands released in 2004 highlighted the neurotoxic effects of methylmercury exposure even at low levels. Phillippe Grandjean, senior author of the study and adjunct professor in the Department of Environmental Health at Harvard School of Public Health “found that both prenatal and postnatal mercury exposure affects the brain functions and that they seem to affect different targets in the brain. Children in the study had average exposure levels that were similar to current limits set by the EPA and 95% of them were below the current limit used by the Food and Drug Administration.” In 2004, the Environmental Protection Agency concluded that up to 630,000 of the 4 million babies born annually in the United States could have mercury blood levels at or above the agency’s safety limit, almost double its previous estimate. Also, according to EPA estimates in 1997, over 1.16 million women in the U.S. of childbearing age eat sufficient amounts of mercury-contaminated fish to risk damaging their children’s brain development.⁷⁴

According to a report released by the Minnesota Center for Environmental Advocacy, mercury emitted from coal-fired power plants alone cost the state about \$30 million annually in neuro-developmental problems in children. Recently, the Minnesota Legislature passed tough new mercury reduction limits for power plants that will be phased in over the next decade.

State Laws Specifically Addressing Children’s Unique Vulnerability to Mercury Poisoning:

NYS Department of Environmental Conservation Law requires schools to identify and remove elemental mercury from school facilities.

Legislation signed into law in 2005, Chapter 603, prohibits the administration of vaccines having certain mercury levels to persons under the age of three years and to pregnant women.

Also signed into law in 2005, Chapter 676, prohibits the sale and distribution of certain additional mercury-added products; requires manufactures and trade associations dealing in mercury-added products to report certain information to the state Department of Environmental Conservation.

Chapter 611 of the laws of 2006 provides for the phase out of mercury added components in motor vehicles within five years.

NYS Department of Environmental Conservation's Final Regulations on the Management of Mercury and Dental Amalgam Wastes at Dental Facilities, effective May 12, 2006:

Section 27-0926, in the Environmental Conservation law, "Use and recycling of elemental mercury and dental amalgam by dentists" prohibits the use of non-encapsulated elemental mercury in dental offices and requires dentists to recycle any elemental mercury or dental amalgam waste generated in their offices in accordance with regulations that the Department promulgates.

The New York State Department of Environmental Conservation has established a Mercury Task Force to help coordinate its response to issues on mercury and the environment, including providing recommendations to the commissioner and addressing issues concerning regulating air emissions, remediating and preventing hazardous spills, assisting businesses in finding mercury-free alternatives and monitoring water and habitat to keep toxic levels safe for fish, wildlife and humans.

The New York State Health Department recommends that containers of elemental mercury identified by staff or found during an inventory be given the highest priority for removal. Should a spill occur, many individuals could be exposed, resulting in negative health effects, significant cleanup costs and widespread environmental contamination. Brochures are available on their website about mercury exposure in schools geared toward parents, students, science teachers, buildings and grounds personnel, health and safety committees, superintendents, school boards, principals and school nurses as well as action steps to take if a spill occurs and phone numbers to contact in the case of an emergency.

Pesticides

What they are:

The EPA defines a pesticide as any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest. Pests can be insects, mice and other animals, unwanted plants (weeds), fungi, or microorganisms like bacteria and viruses. Under United States law, a pesticide is also any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant. Recently, the U.S. EPA has been highly criticized in regards to their "inadequate job of measuring effects [of pesticides] on brain development in fetuses, infants and young children," according to EPA scientists, who, in late May 2006, accused the EPA of putting the "concerns of agriculture and the pesticide industry" before the agency's "responsibility to protect the health of our Nation's citizens."⁷⁵ In August 2006, 14 states and the U.S. Virgin Islands petitioned the EPA to require pesticide manufacturers to disclose on the label of their products all hazardous ingredients. Currently, the EPA only requires pesticide labels to disclose a product's "active" ingredients. Pesticides, however, can contain other chemicals, or "inert" ingredients. These "inert" ingredients are often highly toxic themselves. Although almost 400 chemicals used for this purpose have been found by EPA or other federal agencies to be hazardous to human health and the environment, and the EPA does not require them to be identified on pesticide labels. New York State Governor Eliot Spitzer has stated, "Consumers have a right to know about toxic ingredients in consumer products, whether or not those ingredients are 'active' or 'inert.' There is no logical reason for EPA to mandate disclosure of those ingredients that harm pests but exempt from disclosure other ingredients that cause serious health and environmental problems."⁷⁶

Routes to exposure:

Pesticides are applied to schools, including school athletic fields, residential lawns, golf courses, and public parks and can be used in bodies of water to control weed growth, by local governments to control insect populations such as mosquitoes, and in household and commercial applications to control pests.

According to data collected from the American Association of Poison Control Centers, in 2004 alone, an estimated 71,000 children were involved in common household pesticide-related poisonings or exposures in the

United States. Bathrooms and kitchens were cited as the areas in the home most likely to have improperly stored pesticides. Examples of some common household pesticides found in bathrooms and kitchens include roach sprays; chlorine bleach; kitchen and bath disinfectants; rat poison; insect and wasp sprays, repellents and baits; and flea and tick shampoos and dips for pets. Other household pesticides include swimming pool chemicals and weed killers. A survey conducted by the U.S. Environmental Protection Agency concerning pesticides used in and around the home revealed some significant findings:

- 47 percent of homes with children under 5 had at least one toxic pesticide stored in an unlocked cabinet, less than 4 feet off the ground (i.e., within the reach of children).
- Almost 75 percent of homes without children under 5 also stored pesticides in an unlocked cabinet, less than 4 feet off the ground (i.e., within the reach of children). According to the EPA, this number is especially significant because 13 percent of all pesticide poisoning incidents occur in homes other than the child's home.⁷⁷

Also, millions of children are potentially exposed to pesticides while attending daycare. An October 2006 U.S. EPA study found at least one toxic chemical at every day care center examined, and used up to 107 times annually.⁷⁸ A large variety of pesticides were used, with centers employing up to 10 different kinds. The most commonly found pesticides were chlorpyrifos, diazinon and permethrin. Chlorpyrifos and diazinon are organophosphates, which kill insects by disrupting their brains and nervous systems and can also harm the brains and nervous systems of animals and humans. Permethrin attacks the nervous system and is a possible carcinogen. It is a type of pyrethroid, which is similar to the pesticide pyrethrum naturally produced by chrysanthemums. Roughly 13 million children attend daycare each day in the United States. The EPA recommends that daycare centers and schools adopt pest-management practices that reduce sources of food, water and shelter for pests.

Human health effects:

Studies have shown that commonly used pesticides can cause hyperactivity and permanent, severe changes in neurological functioning in the brain. One of the most commonly used pesticides, chlorpyrifos (Dursban), decreases DNA synthesis in the developing brain, resulting in a shortage of cells. Prenatal exposure to chlorpyrifos is associated with developmental delays in children and attention deficit hyperactivity problems. In a study of the impact of prenatal chlorpyrifos exposure on neurodevelopment in the first three years of life among inner-city children, the proportion of New York City three-year-olds showing delayed development was five times greater in the higher exposure group.⁷⁹

Children exposed to a variety of pesticides in an agricultural community in Mexico showed impaired stamina, coordination, memory, and ability to represent common, familiar subjects in drawings.⁸⁰ A study in Colorado found that the use of herbicides and insecticides cause neurological damage and that poisoning decreased concentration and triggered irritability.⁸¹ A recent study done in 2006 concluded that low level, repeated exposure to Lindane, an organochlorine pesticide, produced persistent changes in neural activity causing anxiety and fear.⁸² Organochlorine pesticides have a long history of widespread use in the United States and around the world. These compounds are typically very persistent in the environment, and are known for accumulating in sediments, plants and animals. Organochlorines have a wide range of both acute and chronic health effects, including cancer, neurological damage, and birth defects. Many organochlorines are also suspected endocrine disruptors. Organochlorines have been linked with non-Hodgkin's lymphoma (NHL) in epidemiological studies. In a case-control study of sheep owners, research was gathered from sheep dipping records and the national cancer registry. No other insecticide was used in sheep dip in Iceland during the study period, other than organochlorines. The results indicate that there is a strong link between organochlorine pesticides and the development of NHL.⁸³

The Pesticide Lindane and Children's Health:

Lindane is a synthetic pesticide used as a treatment for head lice and scabies. Consumers use Lindane most often on children for the treatment of head lice and scabies in the form of creams, lotions, and shampoos. Extended exposure to Lindane causes the absorption of its chemicals into the skin, the digestive system, and the respiratory tract, resulting in seizures and, in rare cases, death. Medical and toxicology studies have labeled Lindane a possible carcinogen. The World Health Organization (WHO), the Environmental Protection Agency (EPA), and the U.S. Department of Health and Human Services, confirm these findings.

Lindane is exceptionally toxic to the environment. The EPA categorizes Lindane as a persistent, bioaccumulative, and toxic pollutant, meaning it remains in the environment for a protracted period of time and builds up in the food chain and in our bodies. After its use, patients rinse Lindane shampoos and creams down the sink or shower drains. Since wastewater treatment plants do not remove Lindane successfully, it passes through groundwater streams, rivers, lakes, and the ocean. In California, one dose of Lindane was shown to pollute six million gallons of water. Even a small amount of Lindane when ingested is lethal. For this reason, the Environmental Protection Agency has severely restricted the agricultural use of Lindane.

Head lice infestations in children are frequently associated with schools. Schools are the most densely occupied public building, and crowded schools provide conditions that facilitate head lice infestation in children. Tragically, Lindane is still an available treatment for head lice in children, even though it can seriously harm the health of the child and impair his or her future. Safer, cost- and performance-effective alternatives are readily available besides Lindane. Clearly, the risk to the health and well-being of the child outweigh any benefit of Lindane use.

State Laws Specifically Addressing Children's Unique Vulnerability to Pesticide Poisoning:

New York State Environmental Conservation Law Article 33 (1001-1005) establishes provisions regarding posting of visual notification markers for residential lawn applications, posting of signs at certain retail establishments, and mandating neighbor notification of certain commercial lawn applications. While the law is mandatory for all K-12 schools and daycare centers, the neighbor notification portion of the law is only applicable to counties that have voted to opt-in to the program. Further, all schools must provide written notice to staff and parents or guardians, at the beginning of each school year informing them that pesticides may be used at school facilities or on school grounds throughout the school year; the school is required to maintain a list of staff and parents who wish to receive 48 hour advance written notice of pesticide applications, with instructions on how to register to receive such notice; and inquiries for more information should be directed to a particular school contact person at a specified telephone number.

The state Education Department's RESCUE Regulations require all schools to have integrated pest management plans. The RESCUE regulations require schools to adhere to a process for resolving environmental health and safety problems, including establishment of school district health and safety committees as well as an annual school facility report card, which must include the status of the district's integrated pest management program.

Polychlorinated Biphenyls (PCBs)

What they are:

Most New Yorkers who are familiar with the ongoing saga of the dredging of the Hudson River are familiar with the term "PCBs" the acronym for polychlorinated biphenyls. PCBs are mixtures of up to 209 different compounds. Their form can be that of either an oily liquid or solid and some PCBs can exist as a vapor in the air. PCBs are odorless and tasteless and are colorless to light yellow. PCBs were used as coolants and lubricants in transformers, capacitors and other electrical equipment because of their inflammability and insulating

properties. In 1977, PCBs were banned in the United States because evidence revealed they build up in the environment and contribute to serious negative health effects. Despite the ban, PCBs persist in our environment today because they do not break down. PCBs can still be newly released into the environment through hazardous waste sites, leaks from old electrical transformers and illegal and/ or improper disposal of consumer and industrial products. Because they can exist in the air, PCBs can travel great distances and be deposited far from their origin. PCBs are taken up by small organisms and fish in water and accumulate in larger mammals who feed on contaminated fish.

Routes to exposure:

Humans can be exposed to PCBs in a variety of ways. PCBs contained in old fluorescent light fixtures and electrical devices manufactured prior to 1977 could potentially leak into the air and be absorbed through the skin. Breathing air near hazardous waste sites and drinking contaminated well water can also be a potential source of exposure. Workers can be exposed through handling, accidental spills, leaks and disposal of PCB-containing devices. Finally, eating contaminated food, such as fish, meat and dairy products is another exposure pathway. Infants and children can be exposed prenatally via transplacental transfer of PCBs and postnatally via breast milk contamination.

Human health effects:

Learning disabilities, attention deficit/hyperactivity disorder, memory impairment, psychomotor dysfunction, deficiencies in immune system, reproductive system and thyroid functioning and cancer have all been indicated in animal and human studies as potential consequences of PCB exposure. The International Agency for Research on Cancer, National Cancer Institute, U.S. Environmental Protection Agency, Agency for Toxic Substances and Disease Registry, World Health Organization and National Institute for Occupational Safety and Health all classify PCBs as a probable carcinogen.

Many of the studies that have been done to determine the health effects of PCBs in the general population have examined children of mothers who were exposed to PCBs. One study indicated that in utero exposure to a maternal serum PCB level of 9.7 ppb impaired brain development with resulting attention and IQ deficits that appeared to be permanent.⁸⁴ PCBs are also known endocrine disruptors and as a result impact thyroid hormones essential for normal brain development. PCBs have been shown to alter thyroid function during critical periods of brain development.⁸⁵

Polybrominated Diphenyl Ethers (PBDEs)

What they are:

Polybrominated Diphenyl Ethers (PBDEs), are synthetic flame-retardants that are used in plastics and textiles. There are three kinds of PBDEs, which have differing uses. Penta-BDEs are used in mattresses and furniture; Octa-BDEs are used in products such as business equipment, telephones, kitchen appliances; and Deca-BDEs are used in electronic enclosures, such as wire insulation, televisions and computers and as fabric treatments on carpets and draperies.⁸⁶ PBDEs are similar in their molecular structure to PCBs.

Routes to exposure:

The general public is primarily exposed to PBDEs through the use of consumer products. PBDEs are released into the environment when products are discarded. Incineration of PBDEs is thought to be an important route of their release into the environment. PBDEs have been found in home and office dust, indoor air, plant and animal-based foods, terrestrial and marine animals, human breast milk, blood and fat. PBDEs are particularly persistent in aquatic ecosystems with relatively high levels being found in some fish. Consumption of food containing PBDEs is thought to be the most likely route of human exposure.

Human health effects:

In the limited toxicity testing that has been done to date, PBDEs showed similar toxic effects and physiologic changes seen with PCBs. These effects include developmental and nervous system toxicity, as well as mimicry of estrogen and interference with the activity of thyroid hormone.⁸⁷ In studies examining the carcinogenic effects of PBDEs, increased instances of some cancers were observed in mice at high doses. Neurobehavioral effects were seen in adult mice after single low dose exposures given during the neonatal period of brain development. Humans exposed occupationally were found to have hypothyroidism and decreased sensory and motor neurons.⁸⁸

New York State's Deca-BDE Task Force:

In 2004, the New York State Legislature passed a law banning the use of penta- and octa-BDE, and setting up a Taskforce on Flame Retardant Safety. The taskforce was to determine the availability of safer, cost- and performance-effective substitutes for deca-BDE, and report its findings back to the legislature by December 31st, 2005. According to NYS Department of Health, this taskforce has yet to convene.

Mold

What it is:

Molds are microscopic organisms that live on plant or animal matter. Present virtually everywhere, they can be found growing on organic material such as soil, foods, and plant matter. In order to reproduce, molds produce spores, which spread through air, water, or by insects. These spores act like seeds and can form new mold growth. Mold will grow and multiply under the right conditions, needing only sufficient moisture (i.e., in the form of very high humidity, condensation, or water from a leaking pipe, etc.) and organic material (e.g., ceiling tile, drywall, paper, or natural fiber carpet padding).⁸⁹

Routes to exposure:

Common sources of moisture include a leaking roof, flooding, drainage problems, plumbing leaks, damp basements or crawl spaces, bathroom or kitchen steam, humidifiers, and poor or improper ventilation. Inadequate maintenance and enough moisture will allow molds to spread on ceilings, behind and on walls, on floors and carpets, and in books and other water absorbing materials. Indications of a moisture problem may include discoloration of the ceiling or walls, warping of the floor, or condensation on the walls or windows. Mold spores are small enough to remain airborne and enter the respiratory system through inhalation.⁹⁰

Human health effects:

Exposure to mold can cause allergies, trigger asthma attacks, detrimentally affect the function of vital human organs and increase susceptibility to colds and flu. Common symptoms include congestion, runny nose, coughing, and irritated eyes; new or worsening asthma; flu symptoms; headaches and, fatigue. Less common symptoms include fever, vomiting, nausea, nosebleeds, dizziness, memory loss, diarrhea, and changes in behavior.⁹¹ Not everyone will display the same symptoms, and some are not bothered at all. Other warning signs may be related to exposure to chemicals produced by molds, including volatile chemicals that cause moldy odors and chemicals known as mycotoxins. These toxins can also have deleterious effects on humans when ingested, inhaled or come in contact with skin.^{92, 93} *Stachybotrys*, a toxigenic mold, has been cultured from the lung fluid of a 7-year old boy with lung bleeding (pulmonary hemosiderosis) who was chronically exposed to a moldy indoor environment.⁹⁴ All molds, dead or alive, can provoke allergic reactions in sensitive individuals. Research shows that people who live or work in very damp, moldy environments can become sensitized due to chronic exposures.^{95, 96} Allergic individuals may also develop chronic inflammation. This inflammation then makes people susceptible to secondary bacterial infections. Damp buildings are also associated with chronic upper respiratory problems.

New York State Toxic Mold Task Force:

The New York State Toxic Mold Task Force, signed into law, chapter 356 of 2005, was to create a task force to assess the nature, scope and magnitude of the adverse environmental and health impacts caused by toxic mold. The law states specifically for the task force to measure, based on scientific evidence, the adverse health effects of exposure to molds on the general population, including specific effects on subgroups identifiable as being at greater risk of adverse health effects when exposed to molds; identify actions taken by state, and local governments, and other entities; assess the latest scientific data on exposure limits to mold in indoor environments; and determine methods for the control of mold in a cost-effective and environmentally sound manner and identify measures to mitigate mold. The task force is then to prepare a report to the governor and the legislature, “no later than November thirteenth 2006,” that assesses the current body of knowledge on toxic mold, providing the status of toxic mold in the state, and assess the feasibility of any further actions to be taken by the legislature or state agencies as recommended by the task force. According to the Department of Health, no one has yet to be appointed to the Toxic Mold Task Force and there has been no action taken.

Volatile Organic Compounds (VOCs)

What they are:

Volatile Organic Compounds (VOCs) are chemicals that evaporate easily at room temperature. The term “organic” indicates that the compounds contain carbon. VOC exposures are often associated with an odor while other times there is no odor. Both can be harmful. There are thousands of different VOCs produced and used in our daily lives. Many products emit or “off –gas” VOCs. Some examples of VOC emission sources are Benzene, Toluene, Methylene, Chloride, Formaldehyde, Xylene, Ethylene glycol, Texanol and 1,3-butadiene.⁹⁷

Routes to exposure:

Many VOCs occur naturally in plants and trees, others are synthetic and made from petrochemicals. Commercial processing of plants transforms natural VOCs into stronger chemicals, such as solvents like turpentine made from pine needles and d-limonene processed from orange peel. These are common ingredients in air fresheners and household cleaners that contribute to indoor air pollution and cause health problems.

*Sources of VOCs Include:*⁹⁸

paints	cooking
paint strippers and other solvents	vinyl floors
wood preservatives	carpets
aerosol sprays	photocopying
cleansers and disinfectants	upholstery fabrics
moth repellents	adhesives
air fresheners	sealing caulks
stored fuels and automotive products	cosmetics
hobby supplies	vehicle exhaust
dry-cleaned clothing	pressed wood furniture
varnishes	tobacco smoke (secondhand smoke)
newspaper	

According to the Environmental Protection Agency, concentrations of VOCs are consistently up to 10 times higher indoors than outdoors. Other studies have found that certain organic compounds average levels two to five times higher in indoor air than outdoor air and that immediately after using certain products, such as paint stripper, studies have found that VOCs may be 1,000 times higher than background outdoor levels.⁹⁹

Human health effects:

Acute symptoms of VOC exposure include eye irritation/watering, nose and throat irritation, headaches, nausea/vomiting, dizziness, asthma exacerbation, allergic skin reaction, memory impairment, and visual disorders.¹⁰⁰ However, over time, VOCs can lead to many serious conditions including cancer, damage to the liver, kidney and central nervous system and loss of coordination.¹⁰¹

People with respiratory problems such as asthma, young children, the elderly, and people with heightened sensitivity to chemicals may be more at risk from VOC health effects. Australia's Commonwealth Scientific and Industrial Research Organization (CSIRO) found, however, that anyone could experience acute symptoms at exposure to concentrations above about 10 mg per m³.¹⁰²

Scientists from the National Institute of Environmental Health Sciences (NIEHS) found harmful reactions of the pulmonary system when in the proximity of deodorizers and air fresheners (VOCs). "Even a small reduction in lung functions indicates harm to the lungs," according to the lead NIEHS investigator, Stephanie London, M.D. "The best way to protect yourself, especially children who may have asthma or other respiratory illnesses, is to reduce the use of products and materials that contain these compounds."¹⁰³

According to the American Solvents Council, the solvents used in products such as coatings, inks, adhesives, and consumer products, are generally classified as VOCs. Unless they are controlled (by an incinerator on a painting operation, for example), these solvents are emitted into the air after they perform their function.¹⁰⁴ Thus, solvent emissions from products and industrial operations are one of several significant sources of VOC emissions.

According to *In Harm's Way*, a publication of the Boston-based Physicians for Social Responsibility, exposure to organic solvents during development has the potential of causing a variety of disorders including structural birth defects, hyperactivity, attention deficits, reduced IQ, learning and memory deficiencies.¹⁰⁵ Furthermore, studies have shown that exposures to common chemicals like toluene, trichloroethylene, xylene, and styrene during pregnancy may also cause learning deficiencies and altered behavior in offspring, particularly after fairly large exposures.¹⁰⁶ As of the time of this printing, neither New York State nor the federal government has set standards for VOC levels in non-occupational settings, including schools. However, guidelines are available.

Bisphenol A

What it is:

Bisphenol A (BPA) is a chemical most commonly used as a component of polycarbonate plastic. Polycarbonate plastic is a hard plastic that is used to make many different consumer products including baby bottles, 5-gallon water bottles, in plastic food cans, as a dental sealant in children used to prevent cavities. BPA is also used during the manufacturing of epoxy resins and other types of plastics. BPA's have also been used in pesticides, fungicides and flame-retardants.

Routes to Exposure:

The bonding agent used in the process by which BPA is bonded to other compounds or "polymerized" is not completely stable and over time, it decays and is released into materials with which it comes in contact such as food or water. The most likely source of exposure to BPA comes through the wide variety of consumer products that contain the chemical and from which the chemical eventually leaches. BPA contamination also emerges through the environment showing up in rivers, estuaries and in sediment. As BPA does not readily degrade it is a persistent environmental concern.

Human Health Effects:

BPA has been classified by the World Health Organization and the Environmental Protection Agency as an unclassifiable carcinogen. It is also a suspected endocrine disruptor. Early developmental low-dose exposure to BPA has been linked to the adult-onset of breast and prostate cancer.¹⁰⁷ In mice, BPA has been shown to cause an error in cell division that causes miscarriage, birth defects, including the equivalent of Down Syndrome in humans.

Other State Laws Invoked to Protect Children from Environmental Hazards:

RESCUE Regulations

Section 155 of the New York State Education Department Regulations contains the comprehensive school environmental health regulations known as RESCUE (REbuilding Schools to Uphold Education). In addition to the protections cited in the above sections, RESCUE provides for the establishment of school facility environmental health reporting mechanisms, the establishment of health and safety committees to review and recommend action to resolve reported environmental health complaints, and comprehensive regulations governing the health and safety of school construction projects.

While adult employees may call in union support or Councils of Occupational Safety and Health (COSHs) to assist with site evaluations, to date, this vehicle has not proven to be an effective avenue for protecting children from harm, due to: 1- the absence of information, training, and support networks for parents who can serve on the committees; 2- the relative lack of parents who are able to regularly make committee meetings during the school day without any compensation; and 3- the lack of any enforcement or standards upon which parents and their support networks could rely to resolve problems affecting children. For children, public health stops at the schoolhouse door.

CCA Playground Equipment

In 2002, New York State legislation was signed into law to ban new play structures made with CCA pressure-treated wood from public playgrounds (Chapter 521, adding Section 37-0109 of Environmental Conservation Law). CCA pressure treated wood is lumber infused with chromated copper arsenate, which is intended as an insecticidal preservative for the lumber. CCA wood has been shown to leach arsenic, one of the components of CCA. Children who play on these structures get arsenic, a well known poison, on their hands, clothing, and in their mouths due to hand to mouth behaviors. In addition to banning new CCA playground structures, this law also mandates that existing pressure treated wooden playgrounds be regularly sealed to prevent the leaching of CCA and other types of chemicals out of the treated wood.¹⁰⁸

School Cleaning and Maintenance

Signed into law in 2005 are New York State's Executive Order 134 and statewide law that require all state agencies and all public and private schools to use Green Cleaning products. Common cleaning products are known to contain many known and suspected harmful chemicals, including respiratory irritants, skin irritants, asthma triggers, suspected carcinogens, endocrine disrupters and substances linked to learning and developmental disabilities. The Executive Order and law, as well as state qualifications for cleaning products and related issues are found at:

www.ogs.state.ny.us/bldgadmin/environmental/default.html.

State law also bans any public or private, elementary or secondary school from purchasing any urinal or toilet cake deodorizer containing para dichlorobenzene. See:

http://law.onecle.com/new-york/education/EDN0409-G_409-G.html

SECTION III:

THE STRUCTURE OF RESPONSE

The Current Status of Children's Environmental Health within New York State's Regulatory System

New York State currently has no comprehensive children's environmental health policy or child-specific authority. Environmental health initiatives for children, where they do exist, are fragmented across several state agencies, including the Health Department, the Education Department and the Department of Environmental Conservation. Other state agencies with some responsibility for programs and services for children are usually unaware of children's environmental health as a priority, and lack access to information and resources to effectively address children's environmental health needs. This section of *Unwanted Exposure* demonstrates that while certain programs and services now exist, they are under-resourced, uncoordinated and insufficiently focused to meet the health needs of New York's children.

Passing legislation is only the first step toward creating a system that recognizes and protects the environmental health of New York State's children. The Children's Environmental Health Partnership developed a questionnaire (see appendix) and conducted a series of interviews and surveys with key state agencies that have oversight of programs and services related to children, children's health and the environment. This analysis demonstrated that there is no one agency that is specifically focused on the task of protecting children's environmental health. What exists is a patchwork of indirectly related regulations, programs and services in the areas of environment, human health and children's services that if pieced together and re-defined could begin to establish a solid system of protection. Many of these agencies have strong regulatory systems in place, along with mechanisms to ensure compliance with regulations, into which a focus of children's environmental health could be inserted. It is clear, however, that such a change would first require a re-focusing of agency mission and a significant commitment to an overall focus on children's environmental health.

As part of the survey, agencies were divided into two tiers. Tier one includes those agencies whose current areas of operation are most directly related to the environment, health and children's services. These agencies -- the New York State Departments of Health, Education and Environmental Conservation -- have also been designated to have a leadership role in the newly created Children's Environmental Health and Safety Advisory Council.

For the purposes of this study, tier two agencies include those that provide programs and services for particularly vulnerable populations of children, including children with mental health needs and children with developmental disabilities. These agencies include the state offices of Mental Retardation and Developmental Disabilities, Mental Health, and Children and Family Services.

Tier One Agencies:

The New York State Department of Health

The authors of this study approached the New York State Department of Health for information regarding the Health Department's efforts in protecting children from environmental hazards. The Health Department largely declined to participate, saying, "With the many programs in the NYS Health Department that involve children, responding thoroughly to the survey questions would require an extensive amount of staff and time effort. Additionally, responding to the survey questions alone is unlikely to adequately portray all the programs." As a result, this analysis is comprised of information from the Department's website, along with general information

available regarding its responsibilities and the New York State Center for Community Health's 2005 book, *Working with Communities to Assure a Healthy New York State*.

New York State's Center for Community Health (CCH) has extensive responsibilities that affect almost all aspects of public health in New York State. CCH identifies and assists local agencies with disease outbreaks, makes nutritious foods available to pregnant women, infants and children and tracks cancer incidence across the state. The Center conducts public health surveillance to help identify and respond to emerging health threats; to plan, implement and monitor public health programs that respond to these threats; and to show New Yorkers how to minimize health risks. CCH bureaus and programs help local health agencies and community organizations fight diabetes, cancer, lead poisoning, adolescent pregnancy, smoking, tuberculosis, sexually transmitted diseases, injuries, abuses, cardiovascular disease, rabies, Lyme disease, osteoporosis, vaccine-preventable diseases, dementias and other public health issues known and still to be discovered.

New York State's Center for Environmental Health applies scientific, medical, engineering, and public health expertise to identify, understand, prevent, and mitigate risks to human health from New York State's living and working environments. The Center consists of an Outreach and Education Group, the Public Health Preparedness Program, the Division of Environmental Health Assessment, the Bureau of Environmental and Occupational Epidemiology, the Bureau of Toxic Substance Assessment, the Division of Environmental Health Protection, the Field Coordination Unit, the Bureau of Community Environmental Health and Food Protection, the Bureau of Environmental Radiation Protection, the Bureau of Water Supply Protection, the Division of Environmental Health and Investigation, and the Bureau of Environmental Exposure Investigation. There is no indication of any tracking, record keeping, or reporting practices on children's environmental health.

The New York State Education Department

The State Education Department's (SED) Office of Operations and Management Services' mission is "to strengthen the capacity of our customers by ensuring the effective, efficient, and prudent use of agency resources in advancing the Regents Strategic Plan." OMS also develops practices, policies, and decisions to promote accountability and high performance throughout the department. The services provided by the Office of Management Services are human resources management, including labor relations and staff development; financial management, including processing payments and claims for school districts and service providers; budgeting services; information technology systems development and support; business services, including preparation and distribution of department publications and exams and maintenance of facilities; internal and external auditing; public information; intergovernmental relations; and legal services. The Office of Facilities and Business Services implements the Department's minor rehabilitation projects as well as major capital initiatives. Projects generally involve new facilities, energy conservation, preservation, and improvements to health and safety. The Office of Facilities is also responsible for oversight and enforcement of the RESCUE Regulations (see page 37) concerning environmental health and safety of school facilities.

The New York State Education Department responded to the Children's Environmental Health Partnership's questions in the form of an interview with Chuck Szuberla, Coordinator of New York State School Operations and Management. According to Szuberla, SED's services work to protect children's environmental health through school construction regulations and specific laws that protect children in school facilities such as green cleaning and mercury laws. The Education Department is primarily a means of support through the supply of funds and the allocation of resources to state school boards and municipalities and serves as the regulatory framework for education services in the state.

Specifically concerning the protection of children's environmental health, New York State schools are required to have health and safety committees under state RESCUE regulations.¹⁰⁹ Children are also mandated to be tested for elevated lead levels before entering school. Other SED interests cover fire safety, health and overall

welfare of individuals within school districts, which is reflected in the building codes and regulations. However, according to Szuberla, when speaking of environmental problems or hazardous situations, the agency is reactive, taking steps to alleviate problems after they occur, for example in cases of asbestos, mercury, arsenic, and other contaminants. He stated that although new building construction requires preventive measures, issues such as cost and valid, authorized research are factors that may inhibit taking the extra steps needed to account for potential environmental hazards.

Szuberla claimed the U.S. EPA's Tools for Schools program (TfS) has become a guiding force in SED's school construction and maintenance.¹¹⁰ TfS has helped raise awareness of hazards such as mold and indoor air quality and argues that schools should not only work to fix these problems but take preventive, precautionary measures as well. Szuberla added, "The main hindrance in the past has been a lack of knowledge and awareness of 'invisible' dangers. The approach used to lie with the judgment that if you can't see it, it wasn't there, and was not able to be tested." He also stated, "Past framework for school construction and maintenance had no accounting for bad judgment or individual accountability if issues arose. Policies, regulations, implementation and enforcement are basically in the hands of the Commissioner."

Szuberla feels that schools should remove hazards first but that it is difficult with individual outliers in power who make decisions. He believes that raising consciousness and education levels is the most important factor for creating change. Currently and throughout history, missteps have served as learning experiences. Szuberla stated that schools need to "see the light at the end of the tunnel" and start employing preventative measures instead of being unwilling and resistant to change in terms of children's environmental health.

Regulations and policies implemented by the SED, according to Szuberla, "are not child specific." However, he believes that the current research on children's neurology and development has forced planners to slow down and not rush to follow construction guidelines. "Where in the past modifications to plans were seen as a failure, public feedback has served as an impetus to be more considerate of children's vulnerabilities," Szuberla said. RESCUE regulations and NY-CHPS can be recognized as examples of more awareness on the part of decision makers of children's health needs.

According to Szuberla, the SED is specifically concerned with the data related to asthma prevalence, which has served as a significant component in decision making due to its impact on student attendance levels. Szuberla has observed a fundamental shift from schools not taking environmental health needs seriously to showing more signs of accommodating children with special needs related to chemical sensitivity. Nevertheless, Szuberla calls attention to the fact that there are still many schools unwilling to accommodate children's environmental health needs, but, with the implementation of the new green cleaning law and the more limited use of pesticides, schools will show significant benefits to children's health and learning in the upcoming years.

For Szuberla, the SED needs to consult more scientific research and implement proper benchmarks and standards to address children's health needs. The training of school officials and employees needs to be consistent and systematic. However, education on healthy and high performance schools for professional educators and the public is limited due to limited staff resources. Furthermore, Szuberla stated the SED does not track the links between environmental threats and development/learning, illnesses and mental health impairments in students. Moreover, the SED does not maintain records of complaints or inquires of student/staff exposure to environmental toxicants. According to Szuberla, this lack of reporting is an impediment on protection. "School districts simply do not report bad news," he states, "but certainly this effort [tracking complaints and exposures] would help things get fixed."

If additional resources were added to the SED, Szuberla feels the department would use them in an effort to protect children's environmental health by pulling data together to focus on the interrelationship between building conditions, children's health, community health and students' academic performance. According to Szuberla, a lack of funding hinders research that should be there to guide decision-making. "Districts need to find a way to increase productivity, and research could be a way to do that. Enormous amounts of money are being spent on capital construction, and we need to find a way to free up money from other areas to set and put proper environmental health standards into practice."

The New York State Department of Environmental Conservation

The New York State Department of Environmental Conservation responded to the Children's Environmental Health Partnership's questionnaire with a written response issued by then-Commissioner Denise M. Sheehan. In the response, the DEC states that the department's role for protecting children's environmental health is encompassed in its mission statement: "To conserve, improve and protect New York State's natural resources and environment, and control water, land and air pollution, in order to enhance health, safety and welfare of the people of the State and their overall economic and social well-being." The department works to ensure good air quality through the Division of Air Resources which implements numerous federal and state rules and regulations designed to protect public health and the environment as well as the Clean Air Act. The Clean Air Act requires the U.S. EPA to set National Ambient Air Quality Standards (NAAQS) for pollutants identified as harmful to public health and the environment. Primary clean air standards set limits to protect public health and consider the health of sensitive populations such as asthmatics, children and the elderly. The law also requires EPA to periodically review the standards to ensure that they provide adequate health and environmental protection, and to update those standards as necessary.

To highlight the department's development of policies related to the prevention of childhood illnesses, diseases and disabilities associated with environmental health threats, DEC assisted the state Office of General Services and the state Department of Health in developing guidelines for the procurement of environmentally sensitive green cleaning and maintenance supplies for use in all public and private elementary and secondary schools in New York State. In an effort to provide information on environmental health issues, the department provides fact sheets, workshops and demonstration projects to educate the public, school officials, teachers, nurses and staff on the danger of mercury in schools and works to inventory, remove and replace sources and potential sources of contamination. Other services provided to children include department-operated environmental education centers, summer residential camps, Earth Day and Arbor Day events, and State Fair activities for children. In addition, the DEC coordinates the dissemination of fact sheets on individual hazardous waste sites with the Department of Health and, as appropriate, other state agencies such as the Education Department. Other educational outreach efforts include environmental curricula for use in schools and pollution prevention initiatives undertaken at Environmental Education Camp facilities.

Of current protective regulations, DEC considers national primary NAAQS, (National Ambient Air Quality Standards) to be adequate environmental health protection for children. The department believes that its regulations to reduce mercury releases to the waters of the state protect the environmental health of children. So, too, do the Standards for the Management of Elemental Mercury and Dental Amalgam Wastes at Dental Facilities, which will be fully implemented in 2008. At DEC run facilities that provide services to children, the department follows a number of important protocols to ensure the health and safety of all campers and staff, as well, operating under regulations specified by the Department of Health, which are reviewed to ensure compliance by the department's Health and Safety Office.

In developing new regulations, the department conducts research to develop a Regulatory Impact Statement (RIS) to determine the impact those regulations will have on public protection. This research, however, is not

directly geared toward assessing children's needs, but rather intended to protect the general public. Of existing regulations, the department implements the National Emission Standards for Hazardous Air Pollutants (NESHAPs) developed under the 1990 Clean Air Act Amendments as well as State Air Toxics Program Regulations, intended to protect the general public from adverse effects that may be introduced by exposure to ambient air toxics. These guidelines are updated and reissued on a three year cycle and sensitive populations, which include children, are considered when the guidelines are developed. The DEC reviews current scientific literature and guidelines developed by the federal EPA, the California Air Resources Board, the national Centers for Disease Control and the state Department of Health to insure these guidelines are protective of public health.

Additionally, the DEC works closely with the Department of Health on all environmental issues and receives DOH news bulletins, as well as notices from county health departments and the American Camp Association on issues related to health and safety issues impacting children who attend DEC run camps. Occasionally, DEC will receive information from organizations such as the Northeast Waste Management Officials Association (NEWMOA), Great Lakes Pollution Prevention Roundtable (GLPPR), and the National Pollution Prevention Roundtable (NPPR) that will identify concerns of children regarding mercury exposure.

As well as consulting outside information on environmental health issues, the DEC actively seeks guidance from federal documents about issues to consider when evaluating children's health in health risk assessments and reports from the Southern California Children's Health studies involving ambient exposure to criteria pollutants and respiratory development.

However, the DEC does not currently track and report developmental disabilities, mental health impairments, childhood illnesses, injuries, or chronic diseases that are associated with or the result of environmental exposure. The department issues ozone and particulate matter episode alerts to media with specific causations to sensitive populations. The Department relies on the DOH to follow and report the occurrence of such illnesses and disabilities. Furthermore, the DEC relies on its Division of Law Enforcement to record complaint reports of illegal exposures to hazardous substances.

If additional resources were added, the DEC noted that the department's educational services would be expanded to assist in disseminating information on children's environmental health. These efforts would address other issues beyond mercury in schools and would aid in the establishment of programs to see that all laboratory chemicals, art supplies, pesticides and shop chemicals and materials are properly managed and disposed of. The DEC stated that schools need assistance in developing such programs to properly manage toxic school supplies along with recycling efforts, food wastes and lighting materials.

Tier Two Agencies:

The Office of Mental Retardation and Developmental Disabilities

The mission of the Office of Mental Retardation and Developmental Disabilities (OMRDD) is to coordinate and provide services for people with developmental disabilities and their families and to conduct research into the causes and prevention of developmental disabilities. The state of New York and its local governments have a responsibility for the prevention and early detection of mental retardation and developmental disabilities and for the comprehensively planned provision of services including care, treatment, habilitation and rehabilitation of their citizens with mental retardation and developmental disabilities. The Institute for Basic Research in Developmental Disabilities (IBR) is OMRDD's research component. IBR's primary mission is to conduct basic and clinical research in order to further the prevention and early detection and treatment of mental retardation and developmental disabilities. In conjunction with the research program, the IBR provides extensive services

and educational programs. Research conducted at the IBR typically focuses on genetics. Neither IBR nor OMRDD provides educational programs or materials on environmental contributors to developmental disabilities.

Some of the specific services that OMRDD provides to children with developmental disabilities include in-home residential day habilitation and day habilitation services and care at home services for medically frail children such as adaptive technologies that enable children to remain with their families. OMRDD also serves children placed in residential school programs and operates two homes for medically frail children in New York State. Because of the sensitive nature of the population OMRDD serves, their regulatory oversight and quality assurance systems are strong. OMRDD has regulations in place that are specifically designed to protect the health and safety of individuals that live in OMRDD-funded residences that include requirements for the distribution of medication and procedures for handling communicable diseases. They also have a sophisticated incident reporting system to handle immediate events, which could include acute environmental exposures (such as those resulting from a toxic chemical spill). OMRDD's existing regulatory framework centered on the protection of the health and safety of the individuals they serve could provide a solid basis for future regulations specific to children's environmental health.

Since scientific research conducted to date clearly indicates a link between exposure to environmental toxicants and developmental disabilities and with a clearly stated mission of identifying causes of and preventing developmental disabilities, OMRDD should be a prominent partner in establishing a system of children's environmental health protection. OMRDD through its research arm, IBR, should focus a segment of its research on examining the environmental triggers contributing to developmental disabilities. Such research should lead to development of a tracking mechanism that will help to better define and monitor the true impact of environmental toxicants on causes of developmental disabilities in New York. As a service-providing agency, OMRDD also has a stake in prevention of developmental disabilities that may be due to environmental exposures to the extent that its capacity to deliver services will continue to diminish as the demand grows with the increasing number of individuals diagnosed with developmental disabilities that may be due to environmental factors.

The Office of Mental Health

The mission of the New York State Office of Mental Health (OMH) is to promote the mental health of all New Yorkers with a particular focus on providing hope and recovery for adults with serious mental illness and children with serious emotional disturbances. The New York State Office of Mental Health serves over 500,000 individuals each year and "envisions a future when everyone with a mental illness will recover, when all mental illnesses can be prevented or cured, when everyone with a mental illness at any stage of life has access to effective treatment and supports—essential for living, working, learning, and participating fully in the community." With a specific mission statement encompassing the goal of prevention of mental illness and a growing corresponding body of evidence indicating a link between exposure to environmental toxicants and mental disorders such as schizophrenia, anxiety and depression, OMH's initial role in the system of protecting children's environmental health could include one that specifically focuses on expanding research on, and development of a system of tracking of, the connection between environmental exposures and the onset of and/or exacerbation of mental health disorders.

The Office of Children and Family Services

The focus of the New York State Office of Children and Family Services (OCFS) is to serve New York's public by promoting the wellbeing and safety of children, families and communities. The agency was created to improve the integration of services for New York's children, youth, families and vulnerable populations and to promote their development and protect them from violence, neglect, abuse and abandonment. OCFS oversees

New York State's adoption and foster care system; regulates, licenses, registers and monitors approximately 18,000 child day care facilities; and is responsible for residential and community treatment of court-placed youth, including intake, management of over 2,000 beds in facilities ranging from secure centers to community residences, as well as day placement programs and aftercare services. OCFS is also responsible for oversight of detention centers and intake functions for youth re-placed in voluntary agencies.

While OCFS does not currently have a direct role addressing children's environmental health, its regulatory oversight of child daycare facilities and juvenile justice facilities could provide the necessary mechanism. For example, recognition that volatile organic compounds found in many commonly used cleaning chemicals could potentially lead to negative health impacts and exasperate existing health conditions resulted in the passage of state laws requiring the use of green cleaning products in state agencies and more recently in elementary and secondary schools. These requirements have not however, been extended to infants, toddlers and preschoolers. Likewise, the laws do not extend to the juvenile justice facilities operated by OCFS in which youth reside 24 hours a day and attend school, just as they would a public or private institution if not for their incarceration. OCFS' research into causes of juvenile delinquency and its goal to reduce criminal activity among young people should also include a component that examines environmental factors, such as lead poisoning, that potentially contribute to juvenile delinquency rates and cause delinquent behavior in some youth.

Expeditious and effective implementation of a children's environmental health advisory council, that currently requires representation from the DOH, DEC and SED is an essential first step toward the development of a statewide system of protection for children's environmental health. However, a phased in expansion of the council to include representation from tier two agencies OMRDD, OMH and OCFS should be considered given the significant roles these agencies play in the protection of vulnerable populations of children and research into causes of and prevention of developmental disabilities and mental illness.

DISCUSSION AND ANALYSIS

Children are uniquely vulnerable to environmental hazards, and the rise of childhood illnesses and injuries that are known or suspected to be caused by environmental factors is truly alarming.

Policy makers must recognize these avoidable threats and formulate effective policies and programs to protect children from harm. New York State has made some important progress in recognizing and responding to this need. This paper highlights many of the laws and programs adopted by the Legislature and State agencies that address children and environmental health hazards. However, much remains to be done.

FINDINGS

- Children's environmental health protection is fragmented and uncoordinated. No one is in charge of protecting children's health. There is no comprehensive state agency policy and no single authority responsible for coordination of children's environmental health protection. Some agencies have important programmatic initiatives, such as informing schools of the hazards of mercury exposure, promotion of healthy cleaning products, or requirements to have integrated pest management plans. Yet these initiatives largely stand alone, and are not part of an overall strategy to protect children.
- Enforcement of children's environmental health laws, e.g. abatement of lead paint and mercury cleanup in schools, is uneven at best. Anecdotal information gathered by advocacy organizations such as Healthy Schools Network, Inc. through its client intake information and reported in its Clearinghouse: Guides and Reports indicates that basic enforcement of enacted laws is often ignored, or otherwise not available. For example, limiting school bus idling is a worthy objective, yet effective enforcement of such a wide-ranging law is almost impossible. Important laws such as RESCUE (REbuilding Schools to Uphold Education) and school green cleaning can protect children's health, yet the state Education Department is under-resourced and unable to effectively respond to the many children's environmental health problems encountered in schools throughout the state.
- Enactment of children's environmental health policies are often hampered by the need to demonstrate conclusive harm to health **before** policy makers will take action. Yet, the health effects of the vast majority of chemicals in use today are untested, and, with very few exceptions, standards for children's exposures simply do not exist.
- Due to fragmentation, uneven enforcement, and lack of effective action for protecting children from hazards, there is no system of recourse for children harmed by environmental exposures. There is no OSHA (Occupational Safety and Health Administration) for kids, no effective enforcement of basic public health laws for children, and a lack of recognition among the public health, educational, environmental and children's services infrastructure that children need protection, and that coordinated, resourced and determined action is necessary.

RECOMMENDATIONS FOR ACTION

We strongly recommend the following actions in order to strengthen New York State's commitment to children's environmental health:

- Children's environmental health is a pertinent issue that points to the need for executive leadership to develop a multi-agency agreement (MOU) for increased collaboration between state agencies on prioritizing children's environmental health goals and initiatives.
- The Governor should identify children's environmental health as a state priority for all pertinent agencies and fully support and empower the Children's Environmental Health Advisory Council to study and recommend effective policies to address the needs identified in this report. The Council must recommend policies to the Governor and Legislature to establish a unified policy to protect children through stages of fetal development, infancy, early childhood and young adulthood. This should include 'mapping' interagency authorizations and programs to identify lead agencies, to ensure a complete array of services, and to coordinate agency initiatives.
- New York State must establish a comprehensive system for reporting children's exposures to environmental toxicants and complaints of environmental hazards that put children at risk. This should include reports concerning schools, daycare and preschool centers and other state funded or regulated facilities enrolling or serving children. This reporting system must be coordinated among the various state agencies responsible for children and made publicly available. A designated lead agency should be responsible for coordinating data concerning children's environmental exposures, and health and injury complaints, and for regularly reporting to the Governor, Legislature and public regarding known hazards, trends and recommendations for preventive actions.
- The Legislature must adopt a precautionary approach to protect children from environmental harm. Such a preventive public health approach would mean that children would be assured protection from toxic exposures and substances when there is evidence of harm, and not have to wait for action based on a standard of conclusive proof of harm, especially when such data is unlikely to exist in the short term.
- New York State should establish a children's environmental public health protection program that will provide a national model of information and support services for parents of children with exposures at school and in day care; and provide independent, reliable school and day care on-site hazard investigations and interventions.
- New York State should fully fund a system of regional centers for pediatric environmental health clinical services that have legislatively appointed Advisory Boards that meet quarterly and are composed of 50% experienced parents of health-affected children. The Advisory Board will report to the state Department of Health Commissioner, Governor and state Legislature annually. These centers would provide clinical expertise for accurate diagnosis and treatment of environmentally related disease and injury in children, provide additional community informational resources and work in cooperation with a New York State children's environmental public health protection program.
- New York State should support the National Children's Study, a multiple year prospective epidemiological study that will examine the influences on disease and development of exposures in early life in order to

improve the health and well being of children, with the provision that it will include day care center and school exposure assessments.

- New York State should support state and federal efforts to address emerging chemicals of concern and related efforts to get ahead of the curve on HPV and PBT chemicals.
- New York State should implement a broad toxic reform initiative similar to the national “Child, Worker and Consumer Safe Chemicals Act” that would require chemical manufacturers to provide data on a range of health effects to the EPA. The coordinating agency would then prioritize the chemicals for review to ensure they meet a health standard that is protective of children and fetuses. Comparable legislation would help protect the children of New York State from unregulated, untested chemical manufacturing.

In addition, after consideration of the full range of issues discussed in this report, agency interviews, and topics addressed at the Children’s Environmental Health Leadership Symposium, a number of salient and thought provoking recommendations emerged. These recommendations, which are referenced throughout the paper, are summarized below.

Information and Educational Initiatives Regarding Children’s Health and the Environment

- School inspections need to go beyond annual visual inspections to examine the conditions related to school children’s health, absenteeism, suspensions, test scores and the onset of disease using proper surveillance, research and baseline data. (Recommended by: Claire Barnett, Executive Director, Healthy Schools Network, Inc.)
- More media coverage is needed concerning children’s environmental health. New York State should coordinate a health oriented public service campaign. This should include having the issue of children’s health and the environment incorporated into mainstream pediatric medicine and insurance coverage as well. (Recommended by: Elie Ward, policy and advocacy consultant for the American Academy of Pediatrics, District II, NYS).
- There should be the creation of a 24-hour hotline for toxic pollution in homes or schools for parents, teachers and other concerned individuals (comment from symposium audience).
- New York State should implement a broad toxic reform initiative similar to the national “Child, Worker and Consumer Safe Chemicals Act” that would require chemical manufacturers to provide data on a range of health effects to the EPA. The coordinating agency would then prioritize the chemicals for review to ensure they meet a health standard that is protective of children and fetuses. Comparable legislation would help protect the children of New York State from unregulated, untested chemical manufacturing. (Recommended by: Dr. Leo Trasande, M.D., Assistant Director of the Center for Children’s Health and the Environment at Mt. Sinai Medical Center in New York City)
- A stronger statewide disease tracking system is needed to collect and analyze data on chronic conditions of children. A thorough state system would enable policy makers and health practitioners to identify clusters of disease and make informed decisions when formulating policies that affect children’s health. (Dr. Leo Trasande)
- New York State should implement a new state bio-testing and bio-monitoring program. A direct measurement of people’s exposure to substances in the environment would help prevent chronic disease and advance the public health community’s understanding of the diverse health effects of chemicals and other toxicants. In 2006, California introduced legislation (Senate Bill 1379) that would bio-monitor a representative sample of its residents for toxic chemicals. Up-to-date environmental public health tracking would help medical professionals understand environmental hazards, exposure

pathways, and related health effects on pregnant women and children. Under the California plan, problems can be identified as they emerge, and information can be used to understand unexplained illnesses such as cancer. (Dr. Leo Trasande)

- New York State should provide environmental health education for healthcare professionals and those within the health care sector.
- New York State should enact policy changes to speed up restrictions in the use of noted contaminants, tackling the issue on all fronts - production, use and disposal.
- State regulations need to be assessed to ensure that they adequately protect children's health. They need to be routinely monitored and updated to include health related information specific to pregnant women and children.

Schools and Education

- The State Education Department needs to consult more scientific research and implement proper benchmarks and standards to address children's health needs. The training of school officials and employees needs to be consistent and systematic. (Recommended by: Chuck Szuberla, Coordinator of NYS School Operations and Management)
- New York State schools need to be leaders in employing preventive measures, and in that way they will 'see the light at the end of the tunnel' while reaping substantial benefits. (Chuck Szuberla)
- The State Education Department should track the links between environmental threats and development/learning, illnesses and mental health impairments in students.
- The State Education Department should maintain records of complaints or inquires of student/staff exposure to environmental toxicants.
- The State Education Department should pull data together to focus on the interrelationship between building conditions, children's health, community health and students' academic performance.

Office of Mental Retardation and Developmental Disabilities Recommendations:

- Funds should be enhanced or reallocated for the Institute for Basic Research division of the Office of Mental Retardation and Developmental Disabilities to examine environmental causes of developmental disabilities.

Office of Children and Family Services Recommendations:

- Implement expansion of the green cleaning law to include state licensed out of home daycare centers, preschools and juvenile justice facilities.
- Expand research of juvenile delinquency to include examining environmental factors such as lead poisoning, which potentially contributes to juvenile delinquency rates and causes delinquent behavior in some youth.

Office of Mental Health Recommendations:

- Focus expanding research on, and development of a system for tracking the connection between environmental exposures and the onset of and/or exacerbation of mental health disorders.

CHILDREN'S ENVIRONMENTAL HEALTH PARTNERSHIP OF NY

Healthy Schools Network
www.healthyschools.org
Stephen J. Boese, NYS Director
Co-Chair



Learning Disabilities Association of New York State
www.ldanys.org
Heather Loukmas, Executive Director
Co-Chair



Interview Questions Regarding Children's Environmental Health Policy in New York State

The Children's Environmental Health Partnership (a project of Healthy Schools Network and the Learning Disabilities Association in coordination with the Alliance for a Toxic Free Future) is developing a report that, for the first time, will provide a concise analysis and definition of the scope of children's environmental health policy, demonstrating new opportunities for NYS government to be more responsive in protecting children from environmental hazards. The report will further identify and summarize the current policy framework for protection of children's environmental health in New York State, and examine the gaps in that protection. This will include an analysis of the key state agencies that currently play a role in children's health and related services and make recommendations for NYS policy makers and the advocacy community on greatest needs for policy change.

In order to better understand your agency's role in providing services on behalf of children and its relationship with environmental health, we would like to ask the following questions. We understand that some agencies may have extensive programs and services related to children's environmental health while others may have little if any related policies or programs. Our goal is to assure that we fully understand the scope of children's environmental health policies in NYS. Therefore, any and all information you can provide our interviewer will be welcome. Thank you very much for your time and attention.

1. Please describe the services if any, your agency provides on behalf of children.
2. Does your agency have any regulations or policies in place that are specifically designed to protect the environmental health of children? If yes, please describe. Also, how would one find out more information?
3. If your agency develops any new regulations designed to protect or serve children, do you have any procedures in place to determine the impact those regulations will have on protecting the environmental health of children? If so, please describe.
4. Does your agency conduct/consult any research on the impact of environmental toxicants on children's health? If so, please describe.
5. Does your agency commonly receive any outside research or information on the topic of children's environmental health? If so, from what source? If not, why not?

6. Does your agency track and report any developmental disabilities, mental health impairments, childhood illnesses, injuries, or chronic diseases that are associated with or the result of environmental exposure?
7. Does your agency coordinate education programs to make the public or parents aware of children's environmental health risks?
8. Does your agency have any policies related to prevention of childhood illnesses, diseases, disabilities, etc. that are caused by environmental toxicants? If so, please describe.
9. Does your agency have procedures in place to maintain records of inquiries or complaints? Do you have procedures in place to respond to situations in which you receive complaints or if the children you serve are exposed to environmental toxicants? Do you have procedures in place to follow up on whether the situation was satisfactory resolved? (Immediate action as a result of direct exposure-short term measures or action policy in place)
10. If you had the personnel and financial resources, do you see a role or service your agency could provide in protecting children's environmental health? If so, please describe.

LAWS OF NEW YORK, 2006
CHAPTER 178

AN ACT to establish an advisory council on children's environmental health and safety

Became a law July 26, 2006, with the approval of the Governor.
Passed by a majority vote, three-fifths being present.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

Section 1. Legislative intent. The legislature recognizes that healthy children and strong families are fundamental to the future of this state. Protecting children in New York state shall be one of the highest priorities. Children are particularly vulnerable because they are more susceptible and more exposed to environmental threats and exposed to different environmental hazards than other segments of the population. Children's environmental health and safety issues shall be high priorities in all aspects of environmental protection, public health and education.

§ 2. Children's environmental health and safety policies. The commissioner of health shall establish an advisory council on children's environmental health and safety. Such council shall be comprised of 15 members two of whom shall be appointed by the temporary president of the senate and two members shall be appointed by the speaker of the assembly. The council shall consist of representatives of the following groups: elected and appointed school officials (including facilities directors), teachers, parents (including parents of children with disabilities), chemical industry and cleaning industry with experience in children's environmental health or adult occupational health, pediatricians including physicians with experience with pediatric environmental health, a representative of the state funded children's environmental health clinics, persons with experience in environmental and health issues, environmental and public health advocates, and children's advocates. The commissioner of health, in consultation with the commissioners of environmental conservation and education, and the advisory council on children's environmental health and safety shall jointly issue a report which shall contain criteria and recommendations for evaluating the impact of the department of health's, the education department's and the department of environmental conservation's regulations, standards and guidance on children's health and safety. In developing such report, such commissioners and advisory council shall identify any human health risk assessments and science-based research upon which their relevant standards, regulations and guidance are based, and gaps in protection of children from environmental health hazards. The report shall recommend procedures and programs to establish that risk assessments and regulations take into account the potential for and nature of the increased risks for children. The report shall be subject to public review and comment prior to adoption. The report shall be prepared and presented to the governor and the legislature within one year of the effective date of this act and be available to the public upon request.

§ 3. This act shall take effect on the one hundred eightieth day after it shall have become a law; provided that the commissioners of health, education and environmental conservation are authorized to promulgate any and all rules and regulations and take any other measures necessary to implement this act on its effective date on or before such date.

The Legislature of the STATE OF NEW YORK:

Pursuant to the authority vested in us by section 70-b of the Public Officers Law, we hereby jointly certify that this slip copy of this session law was printed under our direction and, in accordance with such section, is entitled to be read into evidence.

JOSEPH L. BRUNO
Temporary President of the Senate

SHELDON SILVER
Speaker of the Assembly

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