Mount Sinai *Children's Environmental Health Center*

The Children's Environmental Health Center (CEHC)

Electronic Press Kit

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About the Children's Environmental Health Center

Icahn School of Medicine at Mount Sinai

Around the World, the Rates Childhood Disease are Increasing

The physical environment in which American children live, learn and play in has changed dramatically over the past 50 years. Since World War II, more than 80,000 new synthetic chemicals have been developed and are used in millions of consumer products, ranging from foods and food packaging to clothing, building materials, cleaning products, cosmetics, toys, and baby bottles. Within that same period:

- **Child asthma rates have nearly tripled over the past three decades**. Asthma is now the leading cause of emergency room visits, hospitalizations, and school absenteeism.
- **One of every 88 children is affected by autism**. Neurodevelopmental disorders — dyslexia, mental retardation, and other learning disabilities — now affect 10 to 15% of the four million babies born in the U.S. each year. Another 14% are affected by ADHD.
- **Childhood obesity has tripled over the past 20 years**, rising from 5% to 17%. Type II diabetes, previously unknown in children, is now becoming epidemic.
- **Both childhood leukemia and brain cancer have increased in incidence by about 40%** since 1970. Childhood cancer has become the leading cause of death among children under the age of 15.
- **Today's children are at greater risk for breast and testicular cancer**. In young men, incidence of testicular cancer has increased by over 50% and is being diagnosed at younger ages. In young women, 13% of girls have reached the onset of puberty by age seven, putting them at greater risk for lifelong breast cancer.

The Role of the Environment

There is a strong and growing body of evidence that links chemical exposures increasing rates of these diseases. Children are uniquely vulnerable to the effects of toxic chemicals. Their developmental processes are easily disrupted, their ability to excrete toxic chemicals is significantly lower than adults, and their bodies are smaller and absorb more chemicals. During these unique "windows of early vulnerability," which occur during the nine months of pregnancy and early childhood, **exposures to even low levels of toxic chemicals can produce harmful effects — many of which do not occur until later in life.**

Childhood Diseases Not Only Take a Personal Toll on Our Families; They Also Place a Tremendous Economic Strain on Our Country.

In 2008, our country spent **$76.6 billion on preventable children's diseases induced by the environment** — 3.5% of annual healthcare costs. According to the CDC, almost half of Americans are suffering from at least one preventable chronic disease — many of which are rooted in childhood exposures. As a result, we spend more per capita than any other nation on healthcare, including $1.5 trillion on chronic diseases that are known to be preventable. While research has shown that disease prevention is one of the most cost-effective, long term strategies to improve our country's health, the U.S. still spends more on direct medical care and health insurance than it does on preventive action. **Now, more than ever, we need to focus on the causes of chronic diseases — not merely deal with the consequences.**

About Our Center

The Children's Environmental Health Center (CEHC) conducts groundbreaking research to identify the causes of childhood diseases and translates research findings into solutions that protect children's health.

America's children are at risk of becoming the first generation in over a century to live shorter, less healthy lives than their parents. While public health initiatives have made great strides in reducing the rates of preventable diseases, it is time to focus on the diseases that affect our children. Under the leadership of Philip J. Landrigan, MD, MSc, renowned pediatrician and epidemiologist, we are at the forefront of this emerging field.

The Center's work builds upon Dr. Landrigan's four decades of research in environmental pediatrics, beginning with his landmark findings on lead toxicity — which ultimately convinced the U.S. government to remove lead from gasoline and paint. The research conducted at CEHC employs the same evidence-based, epidemiologic framework that has guided Dr. Landrigan's past successes. We recruit the best and the brightest young pediatricians and researchers to work with us, and we provide the educational resources to train this next generation of leaders.

Since establishing the Center in 2007, our team has published important research papers in the most highly cited scientific journals and leading textbooks. We are frequently quoted in major news publications as the source of credible information on children's environmental health, and we have given testimony that has led to new policies that protect children. Some of our past accomplishments include:

- **Leading research initiatives on the environmental origins of autism and neurodevelopmental disorders**, including a new paper that outlines a research strategy to identify the environmental causes of these conditions and prioritizes a list of chemicals linked to causation.
- **Building one of the country's strongest programs on endocrine disruption and children's health** by recruiting Shanna H. Swan, PhD, an international expert in the field. Dr. Swan's research played an important role in the ban on phthalates in children's toys by the Consumer Product Safety Improvement Act in 2008.
- **Testifying before the President's Cancer Panel, U.S. Congress, and state legislatures.** Our work has led to legislation that banned BPA from infant formula, baby food containers, and thermal receipt paper in Suffolk County, New York and Connecticut, as well as a New Jersey law that mandates testing all school and daycare centers for industrial pollutants.

About Our Director

Philip J. Landrigan, MD, MSc is a pediatrician, researcher, and thought leader in the field of children's environmental health. Over the past 30 years, he has translated his research into *real* actions, including:

- **Conducting the first research that linked lead exposure to brain damage in children** — even when exposures are too low to cause obvious signs and symptoms.
- **Leading the creation of a groundbreaking report that found children to be uniquely susceptible to the effects of pesticides.** This report profoundly changed public policy on pesticides and other toxic chemicals, and it served as the blueprint for the only federal environmental law that contains explicit provisions for the protection of children.
- **Creating the intellectual foundation for the 1997 Presidential Executive Order on Children's Health and the Environment**, which recognized that children are uniquely susceptible to environmental hazards.
- **Serving as the Senior Advisor on Children's Health to the EPA**, where he played a leading role in establishing a new Office of Children's Health Protection.

Our Core Programs

Currently, the Center is working to build research programs throughout the Department of Preventive Medicine at Icahn School of Medicine at Mount Sinai. Core initiatives include:

1. **Pilot Research Projects** are the signature research initiative of the CEHC. Using a "venture capital" approach to fund research, our Center supports new studies that investigate the environmental causes of childhood diseases. In just four years, our initial investment of $708,000 has generated a return on investment of almost $8 million from the NIH and other major foundations.

2. **The Autism and Learning Disabilities Discovery and Prevention Project** is a coordinated, multidisciplinary effort to discover the environmental causes of these common conditions. Currently, one in six American children is afflicted with a developmental disability. While sophisticated research has linked genetic factors to autism spectrum disorder (ASD), we are learning that genetics alone accounts for only about one third of cases – leading our Center to establish this research program.

3. **The Endocrine Disruptor Research Program (EDRP)** is a comprehensive research plan that encompasses all projects that examine the effects of exposures to bisphenol-A (BPA), phthalates, pesticides, and perchlorate on children's health. Currently, the EDRP coordinates two large multi-center pregnancy cohort studies that are examining the developmental effects of prenatal exposure to endocrine disrupting chemicals. Researchers also study the impact of early exposures on childhood conditions like obesity, breast cancer risk, pubertal timing, neurodevelopment, and reproductive outcomes.

4. **The Fellowship in Children's Environmental Health** is a highly competitive, three-year training program for the future leaders of environmental pediatrics. Each year, we select the most highly accomplished pediatricians and postdoctoral students from across the U.S. for mentored training.

5. **The Laboratory for Environmental Analytical Chemistry** is a new, state-of-the-art research facility that gives our Center the unique ability to quickly assess whether individuals or their environments are contaminated with toxic chemicals. No other facility in the U.S. outside the CDC has such complete capacity to examine these exposures. This lab is scheduled to launch in 2013.

6. **The Mount Sinai Pediatric Environmental Health Specialty Unit (PEHSU)** is the clinical component of our Center, part of a national network of PEHSUs supported by the CDC. To date, our pediatricians have provided care to the families of over 5,000 children who have experienced toxic environmental exposures.

7. **The Mount Sinai Pregnancy Biobank** is a unique, shared resource that fosters scientific investigations on the environmental causes of childhood diseases. By providing researchers with access to umbilical cord blood and placental tissue samples from pregnancies delivered at Mount Sinai Hospital, and linking samples to clinical and environmental information, the Biobank will become a platform for a number of multidisciplinary studies, including the newly developed New York Children's Study.

8. **The New York Children's Study** marks the next phase of the Biobank. In this long-term, epidemiological study, researchers will follow babies from their first months of life until the age of 10 – examining environmental factors and their influences on critical issues like asthma, obesity, diabetes, neurodevelopmental disorders.

Mount Sinai *Children's Environmental Health Center*

Philip J. Landrigan, MD, MSc

Director, Children's Environmental Health Center (CEHC)

Dr. Landrigan, a renowned pediatrician and epidemiologist, has devoted his career to protecting children against environmental threats to health. He has been a member of the faculty of Mount Sinai School of Medicine since 1985 and Chair of the Department of Preventive Medicine since 1990. He was named Mount Sinai's Dean for Global Health in 2010.

Dr. Landrigan's work in disease prevention began at the CDC, where he led efforts to control measles and rubella epidemics across the country. He also worked in the Global Campaign for the Eradication of Smallpox – one of the greatest medical triumphs of the twentieth century.

In the early 1970s, Dr. Landrigan began a series of landmark studies that investigated the effects of lead on American children. Using careful epidemiologic investigations conducted among children who lived near a lead smelter in El Paso, Texas, he found that lead causes brain damage to children, even when exposures are too low to cause obvious signs and symptoms. This discovery convinced the U.S. government to mandate removal of lead from gasoline and paint – actions that have produced a 95 percent decline in childhood lead poisoning, increased the average IQ score by six points, and saved the U.S. government $200 billion each year.

Dr. Landrigan's breakthrough discovery led to a fundamental new understanding of how lead and other toxic chemicals can damage the developing brains of infants and children. His other accomplishments include:

- Leading a groundbreaking report at the National Academy Sciences (NAS) that found children to be uniquely susceptible to pesticides. This served as the blueprint for the Food Quality Protection Act of 1996 – the only federal environmental law that contains explicit provisions for the protection of children.
- Creating the intellectual foundation for the 1997 Presidential Executive Order on Children's Health and the Environment, which recognized that children are uniquely susceptible to environmental hazards.
- Playing a leading role in establishing the Office of Children's Health Protection at Environmental Protection Agency (EPA).
- Conducting the medical studies that followed the destruction of the World Trade Center on September 11, 2001 and consulting extensively to the World Health Organization (WHO). This international collaboration led the CEHC to be designated a WHO Collaborating Centre in Children's Environmental Health – one of two Centres of its type in the U.S.

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Pilot Research Projects

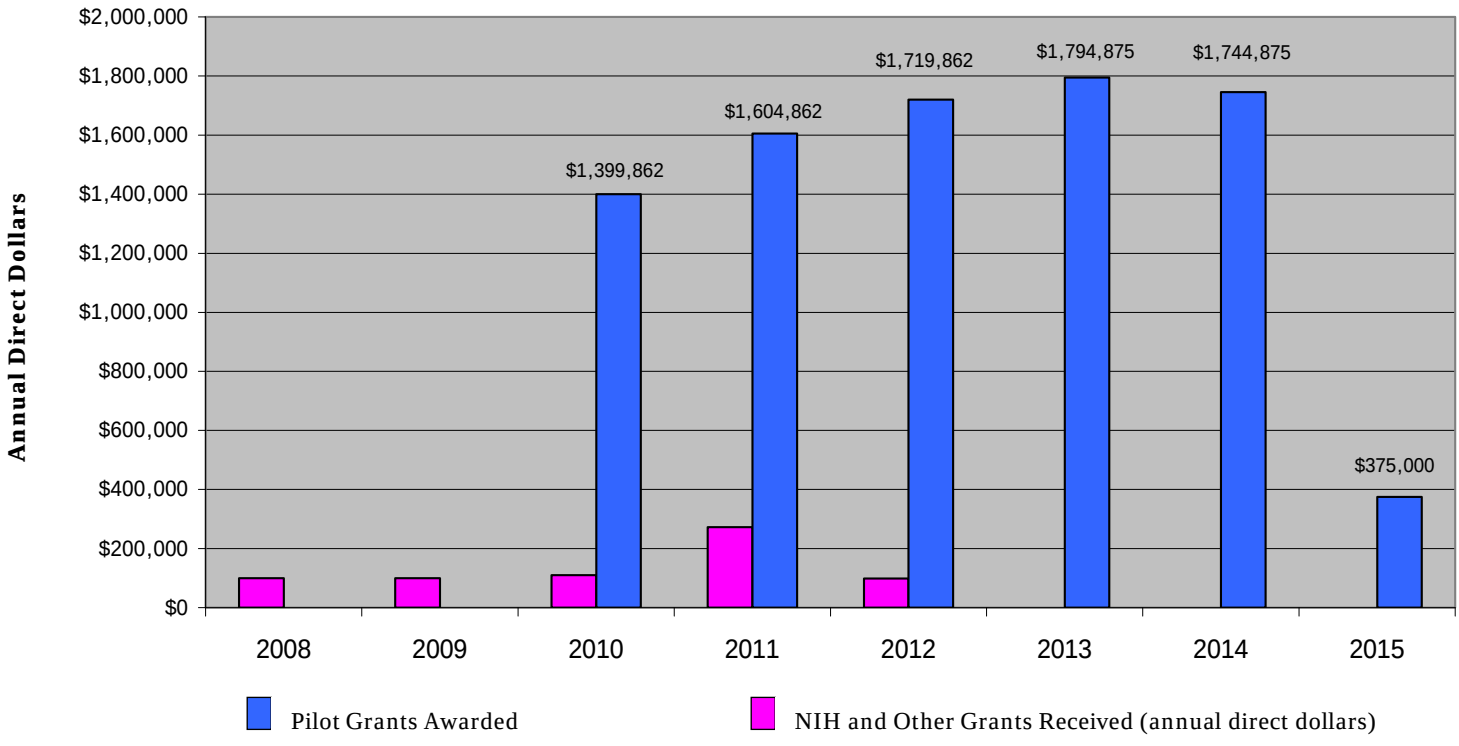
Pilot research projects are the signature research initiative of the CEHC. Using a "venture capital" approach to fund research, the Center supports new studies that investigate the environmental causes of childhood diseases – including asthma, autism, learning disabilities, obesity, and diabetes.

All projects are selected through a competitive peer-reviewed process, and each project is specifically evaluated for its ability to generate major funding from the National Institutes of Health (NIH), Centers for Disease Control and Prevention (CDC), and other private foundations. Only the best and the brightest are chosen for funding.

In just five years**, our initial investment of $722,000 has generated a return on investment close to $9 million** from the NIH and other major foundations. The Center has launched over 40 pilot projects, which have:

- Designed and patented a new tool to sample the human placenta – a unique organ that provides critical information on the origins of childhood disease.
- Began the first study to examine chemical exposures in the neonatal care unit (NICU).
- Used pilot data to secure a competitive grant to study exposure to the pesticide DDT; published a groundbreaking paper that linked pesticide exposure to lower IQ in children.

Investing in Knowledge: Grant Dollars Generated by CEHC Pilot Projects



The Team at the Children's Environmental Health Center: Online Media Mentions

HUFF POST GREEN

Autism's Rising Rates Increasingly Blamed On Toxic Chemicals

Posted: 05/24/2012

"The brain goes through rapid changes, all complex and all easily disrupted," said **Dr. Philip Landrigan**, chairman of the department of preventative medicine at the Mount Sinai School of Medicine in New York City. "Take a Swiss watch and multiply that by 1,000."

In April, Landrigan co-authored a report that highlighted 10 widely used chemicals and mixtures of chemicals that are suspected of harming the developing brain.

WebMD Better information. Better health.™

Pesticide Exposure in the Womb Affects IQ

Posted: 05/18/2011

Babies exposed to high levels of common pesticides in the womb have lower I.Q. scores than their peers by the time they reach school age, according to three new studies. "I think these are shocking findings," said **Dr. Philip Landrigan**, director of the Children's Environmental Health Center at Mount Sinai. "Babies exposed to the highest levels had the most severe effects. It means these children are going to have problems as they go through life."

Dr. Landrigan compared the findings with research in the 1980s that linked childhood lead exposure to lower intelligence, dyslexia, higher risk for dropping out of school and a range of behavioral and developmental problems.

DAILY NEWS

Elevated Mercury Levels Pose Special Risks for Kids and Pregnant Women

Posted: 07/04/2012

High exposures to mercury can affect the developing brain. Because of this, "the groups who need to be most vigilant about avoiding mercury are women who are pregnant, may become pregnant or who are nursing, as well as children," says **Dr. Maida Galvez**, a pediatrician who specializes in environmental health at Mount Sinai Hospital.

USA TODAY

Chemicals Could be a Threat to Some Boys

Posted: 04/11/2011

Research by **Dr. Shanna Swan** indicates that baby boys exposed to the highest levels of phthlates are at greater risk of anatomical changes, such as undescended testes.

HEALTHY CHILD HEALTHY WORLD

Air Pollution Poisons our Children

Posted: 02/01/2012

"Prenatal exposure to mercury lowers kids' IQs, leaving families burdened by a lifetime of caring for children... Mercury exposure is bad for society and the U.S economy, causing an estimated $8.7 billion dollars in lost productivity every year," said **Dr. Philip Landrigan**.

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HealthAffairs

Environmental Illness in Children Costs $76.6 Billion Annually

May 4, 2011

By Chris Fleming

Poor childhood health caused by environmental factors, such as air pollution and exposure to toxic chemicals, cost the United States $76.6 billion in 2008, according to a new study in the May issue of *Health Affairs*. This price tag represents a dramatic increase, from 2.8 percent of total health care costs in 1997 to 3.5 percent in 2008, report study authors Leonardo Trasande of the Mount Sinai School of Medicine and Yinghua Liu of National Children's Study New York-Northern New Jersey Center.

The new study was published online today, along with three other Web First articles focusing on the environment and children's health, described below.

Trasande and Liu focused on the cost of lead poisoning, childhood cancer and chronic conditions, including asthma, intellectual disability, autism and attention deficit disorders — conditions that are linked to environmental toxins and pollutants in the air, food, water, and soil, as well as in homes and neighborhoods. "Left unchecked, these preventable environmental factors will continue to harm the health of our children and push up health care costs," Trasande said. "By updating environmental regulations and laws aimed at protecting the public's health, we can reduce the toll taken by such factors on children's health and the economy."

Trasande and Liu used recent data to estimate the number of environmentally induced conditions in children and then calculated the annual cost for direct medical care and indirect costs, such as lost productivity resulting from parents' caring for sick children. Their study updates an analysis of 1997 data that documented $54.9 billion in annual costs due to U.S. childhood diseases connected to the environment.

In comparing the two studies, Trasande and Liu found that diminished exposure to lead and reductions in costs for asthma care were offset by diseases newly identified as environmentally induced, including attention deficit disorder, and the added burden of mercury exposure. This toxic metal, from contaminated fish and coal-fired power plants, can harm the developing brain and is associated with intellectual disability.
Key findings from the study:

- Lead poisoning – $50.9 billion
- Autism – $7.9 billion
- Intellectual disability – $5.4 billion
- Methyl mercury exposure – $5.1 billion
- ADHD – $5.0 billion
- Asthma – $2.2 billion
- Childhood cancer – $95.0 million

Trasande and Liu call for further reductions in lead-based paint hazards to protect children from lead poisoning, which can severely affect mental and physical development, and tighter air quality standards to curb mercury emissions and reduce particulates that can trigger asthma. They also call for testing of new chemicals and substances already in use to ensure they pose no risk to human health.

Several other papers in the May issue explore environmental health challenges for children, including the following:

Children's vulnerability to toxic chemicals. A landmark 1993 study brought to the forefront the fact that children are far more sensitive than adults to toxic chemicals in the environment, write **Philip Landrigan of the Mount Sinai School of Medicine** and Lynn Goldman of the George Washington University. They analyzed existing literature on toxicity in children and concluded that even minute exposures to toxic chemicals — at levels that would have no impact on an adults — can harm children, leading to diseases like asthma, mental retardation, and possibly cancer. To reduce this burden of preventable disease, Landrigan and Goldman recommend including a legally mandated requirement to test the chemicals already on the market for toxicity and stepped-up research to both identify new toxins and document environmentally induced diseases in children.

Air pollution and its impact on health and academic achievement. **Perry Sheffield and coauthors at the Mount Sinai School of Medicine** examined the little-studied relationship between fine particulates or pollutants in the air and the cost of bronchiolitis, a type of lung infection in children. They discovered that children exposed to such pollutants were more likely to have higher health care costs from treating this respiratory illness. If regulators took steps to reduce fine particulate levels 7 percent below the current standard, the nation would save an estimated $15 million a year in health care costs, the researchers note.

Exposure to air pollution during important stages of development. Such exposure can lead to long-lasting health and academic problems for children, write Paul Mohai, Byong-Suk Kweon, and colleagues at the University of Michigan. They examined the extent of air pollution from industrial sources near public schools, finding that schools located in areas with the highest air pollution had the lowest attendance rates (a marker for poor health) and the highest proportion of students failing to meet state educational standards. The authors call for increased attention to the air quality in neighborhoods where schools are to be located.

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The New York Times

How Chemicals Affect Us

May 2, 2012

By Nicholas D. Kristof
Op-Ed Columnist

Scientists are observing with increasing alarm that some very common hormone-mimicking chemicals can have grotesque effects.

A widely used herbicide acts as a female hormone and feminizes male animals in the wild. Thus male frogs can have female organs, and some male fish actually produce eggs. In a Florida lake contaminated by these chemicals, male alligators have tiny penises.

These days there is also growing evidence linking this class of chemicals to problems in humans. These include breast cancer, infertility, low sperm counts, genital deformities, early menstruation and even diabetes and obesity.

Philip Landrigan, a professor of pediatrics at Mount Sinai School of Medicine, says that a congenital defect called hypospadias — a misplacement of the urethra — is now twice as common among newborn boys as it used to be. He suspects endocrine disruptors, so called because they can wreak havoc with the endocrine system that governs hormones.

Endocrine disruptors are everywhere. They're in thermal receipts that come out of gas pumps and A.T.M.'s. They're in canned foods, cosmetics, plastics and food packaging. Test your blood or urine, and you'll surely find them there, as well as in human breast milk and in cord blood of newborn babies.

In this campaign year, we are bound to hear endless complaints about excessive government regulation. But here's an area where scientists are increasingly critical of our government for its failure to tackle Big Chem and regulate endocrine disruptors adequately.

Last month, the Endocrine Society, the leading association of hormone experts, scolded the Food and Drug Administration for its failure to ban bisphenol-A, a common endocrine disruptor known as BPA, from food packaging. Last year, eight medical organizations representing genetics, gynecology, urology and other fields made a joint call in Science magazine for tighter regulation of endocrine disruptors.

Shouldn't our government be as vigilant about threats in our grocery stores as in the mountains of Afghanistan?

Researchers warn that endocrine disruptors can trigger hormonal changes in the body that may not show up for decades. One called DES, a synthetic form of estrogen, was once routinely given to pregnant women to prevent miscarriage or morning sickness, and it did little harm to the women themselves. But it turned out to cause vaginal cancer and breast cancer decades later in their daughters, so it is now banned.

Scientists have long known the tiniest variations in hormone levels influence fetal development. For example, a female twin is very slightly masculinized if the other twin is a male, because she is exposed to some of his hormones. Studies have found that these female twins, on average, end up slightly more aggressive and sensation-seeking as adults but have lower rates of eating disorders.

Now experts worry that endocrine disruptors have similar effects, acting as hormones and swamping the delicate balance for fetuses in particular. The latest initiative by scholars is a landmark 78-page analysis to be published next month in Endocrine Reviews, the leading publication in the field.

"Fundamental changes in chemical testing and safety determination are needed to protect human health," the analysis declares. Linda S. Birnbaum, the nation's chief environmental scientist and toxicologist, endorsed the findings.

The article was written by a 12-member panel that spent three years reviewing the evidence. It concluded that the nation's safety system for endocrine disruptors is broken.

"For several well-studied endocrine disruptors, I think it is fair to say that we have enough data to conclude that these chemicals are not safe for human populations," said Laura Vandenberg, a Tufts University developmental biologist who was the lead writer for the panel.

Worrying new research on the long-term effects of these chemicals is constantly being published. One study found that pregnant women who have higher levels of a common endocrine disruptor, PFOA, are three times as likely to have daughters who grow up to be overweight. Yet PFOA is unavoidable. It is in everything from microwave popcorn bags to carpet-cleaning solutions.

Big Chem says all this is sensationalist science. So far, it has blocked strict regulation in the United States, even as Europe and Canada have adopted tighter controls on endocrine disruptors.

Yes, there are uncertainties. But the scientists who know endocrine disruptors best overwhelmingly are already taking steps to protect their families. John Peterson Myers, chief scientist at Environmental Health Sciences and a co-author of the new analysis, said that his family had stopped buying canned food.

"We don't microwave in plastic," he added. "We don't use pesticides in our house. I refuse receipts whenever I can. My default request at the A.T.M., known to my bank, is 'no receipt.' I never ask for a receipt from a gas station."

I'm taking my cue from the experts, and I wish the Obama administration would as well.

Mount Sinai Children's Environmental Health Center

The New York Times

THE NEW YORK TIMES OP-ED • TUESDAY, OCTOBER 26, 2010

Why Are We Subsidizing Childhood Obesity?

Philip J. Landrigan, M.D., M.Sc. Lisa M. Satlin, M.D. Paolo Boffetta, M.D., M.P.H.

Obesity is epidemic in America's children. The potential health consequences for the next generation are grave, and the impact on the nation's health care costs — an estimated $14 billion per year — is substantial and growing. We need urgent realignment of the health and farm policies that have contributed to this crisis.

Since 1980, obesity rates in children have tripled. Today, 13 million children are obese, including 14 percent of all 6- to 11-year-olds, and 17 percent of adolescents. Over 70 percent of these children will be obese adults, with increased risks of diabetes, heart disease, and certain cancers. Today's children may be the first U.S. generation in a century to have a shorter lifespan than their parents.

Insufficient physical activity is a major driver of childhood obesity. Structural features of the modern environment — too few sidewalks, unsafe playgrounds, and insufficient physical education programs — contribute, as do reliance on cars and a sedentary lifestyle. Poverty is a major risk factor. Chemical obesogens — synthetic chemicals that alter the body's metabolism — are coming under scrutiny.

But an especially powerful driver is the abundance of cheap, unwholesome food sweetened by the synthetic sugar substitute high-fructose corn syrup (HFCS). Consumption of HFCS has increased tenfold since 1974. The obesity epidemic in America's children precisely tracks this trend.

HFCS was invented in the 1960s. Production increased dramatically in the 1970s, after the U.S. Department of Agriculture (USDA) ended controls on corn, wheat, and soy production and replaced them with a policy that encouraged — and paid — farmers to grow as much of these commodity crops as possible. Today, these subsidies total $19 billion per year. They have led to enormous increases in production of cheap corn starch. No subsidies are paid to fruit or vegetable farmers despite the clear health benefits of eating fresh fruits and vegetables.

High-fructose corn syrup now represents 40 percent of the non-calorie-free sweeteners added to U.S. foods. It is virtually the only sweetener used in soft drinks. Because of subsidies, the cost of soft drinks containing HFCS has decreased by 24 percent since 1985, while the price of fruits and vegetables has gone up by 39 percent. By 2006, the average American child drank 132 calories of HFCS per day from sweetened beverages, and the 8-ounce soft drink of a generation ago was replaced by the even cheaper 20-ounce super-size drink.

Due to these and other factors, it is estimated that overall caloric intake in the U.S. has increased an alarming 600 calories per person per day since 1970. Burning these extra calories would require, on average, an additional hour of physical activity per day.

As with tobacco, commodity subsidies need to be reexamined. It is incongruous and wasteful for health agencies to spend millions of dollars countering obesity while the USDA spends billions in farm subsidies that indirectly promote it. Fruit and vegetable farmers need more support: calories from vegetables are 100 times more expensive than those from HFCS, making it financially challenging for many consumers to make healthy food choices.

Curbing the obesity epidemic requires a multifaceted approach: education, increased physical activity, healthy school food, promotion of unprocessed foods — and a change in agricultural policy. Coordinated national leadership is essential.

Philip J. Landrigan, M.D., M.Sc., is Dean for Global Health at Mount Sinai School of Medicine in New York City. He is a principal investigator for the National Children's Study.

Lisa M. Satlin, M.D., is Chair of the Department of Pediatrics, and Paolo Boffetta, M.D., M.P.H., is Deputy Director of The Tisch Cancer Institute.

Mount Sinai MSSM MOUNT SINAI SCHOOL OF MEDICINE

One in a series of commentaries by prominent Mount Sinai physicians and scientists.