



# Raising Healthy Children



The Newsletter of the Children's Environmental Health Center

Winter 2010

*Our Mission: Protecting Children Against Environmental Threats to Health*



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Director, CEHC

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Dear Friends,

As the calendar has turned to 2010 and the new decade has begun, it is my pleasure to share CEHC's Winter Newsletter with you.

The past few months have been busy here as our Center continues to grow. Since our last newsletter we have launched the *Endocrine Disruptors Project*, we are gearing up to launch the *Autism/Learning Disabilities Discovery and Prevention Project*, and we held a well-attended symposium on November 30th about breast cancer, early puberty and endocrine disruptors, which you can read more about in an article below. You will also find below a synopsis of a scholarly article fresh off the presses of the journal *Environmental Health Perspectives* written by researchers here in the Mount Sinai Department of Preventive Medicine. This important article is the first to report an association between pre-birth exposures to phthalate metabolites and attention deficit hyperactivity disorder (ADHD) in children between the ages of 4 and 9.

As new research in our Center and in other academic institutions continues to reveal links between chronic diseases and environmental exposures, particularly those found in every day products, it is important to continue to push for stricter regulations of the chemicals used in industry. In the last few months I've been assisting an organization called **Safer Chemicals, Healthy Families** with a health report they released on January 21st, 2010. This report echoes my calls to reform the Toxic Substances Control Act (TSCA). When TSCA was originally enacted, its goal was to require testing of industrial chemicals for possible toxicity; unfortunately it failed to require testing of thousands of chemicals that were already on the market, and has not effectively resulted in the proper testing of thousands of new chemicals that have been introduced into commerce since. The potential of TSCA to create a safer environment has resulted in an empty promise. To read the Safer Chemicals, Healthy Families report, please "[click here](#)".

Our center continues to work with other like-minded organizations to create a critical mass of research and support to push forward changes in the way chemicals are currently regulated. To bring about real change to protect our children's health requires all of us to work together. Please contact your local leaders in congress. Share our work with them, and encourage them to support the **Kid-Safe Chemicals Act** - the current best effort to reform TSCA.

I wish you all a very happy start to 2010 and thank you for your continued support and interest. The first decade of the 21st century has come to a close; lets work to make sure that the next decade is one in which we eliminate many of the toxic chemicals currently polluting our children's environments.

Sincerely,

Philip J. Landrigan, MD, MSc.



## Mount Sinai Study Finds Prenatal Phthalate Exposures Negatively Effect Childhood Neurodevelopment

In a study published this month in the peer-reviewed journal *Environmental Health Perspectives*, Mount Sinai researchers, in collaboration with scientists from Cornell University and the Centers for Disease Control and Prevention, report that increased exposures to prenatal phthalates are associated with disruptive and problem behaviors in children between 4 and 9 years of age.

Phthalates are one subset of a larger group of chemicals known as endocrine disruptors. Endocrine disruptors (or endocrine disrupting chemicals) are natural or synthetic chemicals that alter the normal functioning of the body's endocrine system. Phthalates are a specific family of chemicals used in many consumer products including cosmetics, perfumes, lotions, shampoos and plastic toys.

In this study, ten phthalate metabolites (phthalate breakdown products) were measured in urine collected from a group of 404 mothers during their third trimester of pregnancy. Approximately half of these women then participated in follow-up interviews when their children were between the ages of 4 and 9 years old. These interviews asked mothers to complete questionnaires to assess the behavioral and executive functions of their children. The results of the study indicated that mothers with higher recorded concentrations of low molecular weight phthalate metabolites in their urine during pregnancy reported poorer behavioral profiles in their children. In particular, there were strong trends in the measures of conduct and externalizing problems, characteristics typically associated with Oppositional Defiant Disorder, Conduct Disorder and Attention Deficit and Hyperactivity Disorder (ADHD).

This study is the first to evaluate neurobehavioral development of older children in relation to prenatal exposure to phthalates. Because exposure to phthalates in the environment is ubiquitous, the potential for public health impact of exposure to phthalates might be great. The researchers state that preventive measures to limit exposure to phthalates during pregnancy may be warranted should their findings be verified.

To read the Mount Sinai Press Release "[click here](#)".

To read the article in EHP "[click here](#)".

## Breast Cancer, Endocrine Disruptors, and Early Puberty

On November 30th, 2009, CEHC held its annual educational symposium titled Breast Cancer, Endocrine Disruptors, and Early Puberty. Attended by more than 140 people, the lecture featured CEHC Director Dr. Philip J. Landrigan, Mount Sinai doctors Dr. Maida Galvez and Dr. Alisan B. Goldfarb, and CEHC Board Member Karen Miller.

The theme of the symposium was the potential of environmental exposures during windows of vulnerability to cause the onset of disease, including breast cancer. As Dr. Landrigan described, the rate of chronic pediatric disease has been rising over the past few decades; there is growing evidence that environmental factors are at least partly responsible for increased morbidity. Endocrine disruptors (EDs), also known as endocrine disrupting chemicals, are one set of chemicals that are of particular concern. As defined by the Endocrine Society, an ED is: "a compound, either natural or synthetic, which through environmental or inappropriate developmental exposures alters the hormonal homeostatic systems that enable an organism to communicate with and respond to its environment."

While genetic susceptibilities are undoubtedly implicated in the onset of breast cancer, environmental factors play a role as well. As Dr. Goldfarb described, "most breast cancer is made, not born." Specific risk factors that Dr. Goldfarb outlined included living in urban, westernized areas of the world; increased lifetime exposure to estrogen; exposure to toxic chemicals; multiple x-rays, CT scans or RT particularly during the teens and twenties; diet; and alcohol. While all breast cancer is genetic, the abnormal gene is not always inherited. Environmental damage can cause genetic breaks and can cause further damage in an abnormal gene that has been inherited.

While many of the factors that increase risk of breast cancer during adulthood have been well characterized, a great deal less interest has been focused on risk factor during the period from early development through adolescence, due in part to the disease's onset later in life. Dr. Galvez and the Breast Cancer and the Environment Research Center (BCERC) are working to fill this gap in knowledge by studying the effects of early environmental exposures on mammary development and potential breast cancer risk. Of particular concern to Dr. Galvez is the increasingly early onset of puberty in girls; a 1997 study showed that in the United States, the average age at menarche (a girl's first menstrual cycle) was 12.1 years in black girls and 12.6 years in white girls. This is a dramatic change since the 1800s, when the average age at menarche was 17 years old. This statistic is particularly alarming because early menarche (defined as menarche at less than 12 years of age) has been shown to increase the lifetime risk of breast cancer by 30%.

Because EDs can cause alterations and interruptions in the normal functioning of the endocrine system, which plays a major role in the timing of human development, these chemicals have been implicated as possible contributors to the increasingly early onset of puberty. Two EDs commonly found in our everyday environment are bisphenol-A (BPA) and phthalates. BPA can be found in hard plastic bottles, the epoxy resins lining many canned foods and beverages, and dental sealants and composites, while phthalates can be found in plastic toys, cosmetics, and medical supplies.

The presentation was concluded with a message of hope. As Dr. Landrigan discussed, environmental toxins and threats to human health are, at least in theory, preventable. In 1976, the EPA began to regulate the use of lead in gasoline. Since then, blood lead levels have declined by 90%, there has been a 90% decrease in the incidence of childhood lead poisoning, and the calculated economic benefit from this decrease in exposure and morbidity is estimated at \$200 billion each year. Further funding for research is required to produce results that can catalyze such a change. Karen Miller used the recent ban on BPA in Suffolk County as an example of what can happen when good scientific research is used by the advocacy community to bring about change. Until further research is complete and scientific certainty has been established, Dr. Galvez advised to err on the side of caution by reducing phthalate and BPA exposures. Some easy ways to do this include:

- Using a wet mop and dusting frequently
- Choosing fragrance free products
- Seeking phthalate- and BPA-free products
- Glass/Stainless Steel food and drink containers
- If plastics are the only option, use recycling labels as a guide
  - **Safer Plastics** include those with recycling codes #1, #2, #4, and #5
  - **Plastics to Avoid** include those with recycling codes #3, #6, and #7

One result of the symposium was Nicholas Kristof's editorial [Cancer From the Kitchen](#), which was published in The New York Times on December 5th. This editorial became the most emailed article on The New York Times website for more than a week.

## ABOUT THE CHILDREN'S ENVIRONMENTAL HEALTH CENTER (CEHC)

Formally established in 2007, the Mount Sinai Children's Environmental Health Center builds on Dr. Philip J. Landrigan's three decades of work in children's environmental health and fifteen years of research in environmental pediatrics at Mount Sinai. CEHC has established itself as a leading source of scientifically credible information on issues related to children's health and the environment.

Our mission is to protect children against environmental threats to health. We do this by guiding, supporting, and building the programs of the Department Preventive Medicine at Mount Sinai. Current projects include:

**The Pediatric Environmental Health Specialty Unit (PEHSU)**, our clinical arm which cares for children with toxic environmental exposures;

**Pilot Project Research Grants Program**, CEHC's signature program, providing seed grants for Mount Sinai-wide initiatives into the environmental causes of learning disabilities (including autism), asthma, obesity/diabetes, and childhood cancer;

**The Endocrine Disruptors Project**, studying the effects of Endocrine Disrupters on neurodevelopmental disorders, obesity, early puberty and other alterations in the proper functioning of the endocrine system;

**The Autism/Learning Disabilities Discovery and Prevention Project**, a multi-disciplinary, inter-departmental study soon to be launched exploring the link between neurodevelopmental disorders and environmental exposures;

**Growing Up Healthy in East Harlem**, tracing the effects of pollutant exposures on children's health in the inner city.

## SUPPORTING CEHC

To make a donation supporting CEHC's work, please send a check payable to "The Mount Sinai School of Medicine" ATTN: Children's Environmental Health Center to:

Mount Sinai School of Medicine  
Mount Sinai Development - Box 1049  
One Gustave Levy Place  
New York, NY 10029

For more information, please visit our website: [www.cehcenter.org](http://www.cehcenter.org)

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