

AS EVIDENCE GROWS THAT OUR BODIES ARE BURDENED WITH HUNDREDS OF INDUSTRIAL CHEMICALS
ABSORBED FROM OUR SURROUNDINGS, LOCAL HOSPITALS EMBARK ON A NEW ROLE: HEALING THEMSELVES.
BY CHRISTINE H. O'TOOLE PHOTOGRAPHY BY JOSHUA FRANZOS

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Nurture

Nature

With 63 tiny beds, the neonatal intensive care unit at Magee-Womens Hospital in Pittsburgh is a warm, safe and near-silent room.

The infants here, averaging slightly more than two pounds, receive the most sophisticated care that American medicine can provide. Every year, 1,000 critically ill babies will be treated at Magee, in the largest intensive care facility for neonatology and fetal health care in Pennsylvania. Each discharge from the unit is an everyday miracle.

But even at birth, these babies' systems are already compromised. Umbilical cord blood for all newborns has been found to contain more than 200 long-lasting chemicals — carcinogens, mutagens and other toxic time bombs, absorbed from the environment by mothers and inherited in utero.

The tiny bodies fighting for every breath in the neonatal intensive care unit don't need any more challenges.

That's why Magee acted last year to protect these fragile infants from exposure to toxins. With growing evidence that phthalates in plastics could pose long-term cancer risks, the hospital banned the element from IV bags, tubing and sensors in the unit. The move earned Magee international kudos in the emerging field of environmental health, which links chronic diseases and disorders to exposure to toxic chemicals.

Chris O'Toole is a Pittsburgh-based freelance writer. Her last story for h, published in the Summer issue, was about efforts by western Pennsylvania's 2,700 nonprofits to work together in taking a leading role in the region's development.

Braden Alexander Hoover is a bright-eyed bundle who weighed 6 pounds 13 ounces when he was born at 11:09 a.m. Jan. 29 in Magee-Womens Hospital in Pittsburgh. Braden is now home with his parents, Sonia and Jonathan Hoover of Carnegie, Pa.





During the past decade, the new science has connected exposure to minute levels of everyday chemicals like phthalates to long-term harm. In addition to potentially causing cancer, birth defects and infertility, toxins are now known to disrupt hormonal balance and even interact with genes; some early exposures can result in disease decades later. Breast cancer rates have nearly tripled in the past 40 years; non-Hodgkins lymphoma has doubled. Endometriosis, linked to dioxin exposure, is now diagnosed in 10 to 15 percent of U.S. women.

Helping to educate health care professionals worldwide about the impact of toxic chemicals on human health is Heinz Endowments grantee Health Care Without Harm, an international coalition of more than 440 health care, environment, labor and community organizations, with headquarters in Arlington, Va.

“Of all sectors, health care lives by an ethical framework,” says Co-executive Director Gary Cohen, who has been following environmental health work in Pittsburgh. “When kids are being bombarded with chemicals, when cancer rates have risen to... one in three for women, what is health care’s role?”

The drumbeat of evidence prompted soul-searching at Magee, where officials responded by making the hospital a role model for good environmental behavior. In addition to researching the links between women’s health and toxins, Magee established new protocols in every department, from nursing to housekeeping, and is finding new ways to warn the

public about potential hazards discovered through research.

The hospital’s efforts to promote environmental health are echoed in other projects throughout the University of Pittsburgh Medical Center. UPMC, of which Magee is a member, is the largest health care provider in western Pennsylvania and its largest employer.

“Other hospitals in the United States are building green and buying green. But what is happening here is unique because it’s not simply an environmental initiative. It’s being linked to the health care mission of the hospitals,” says Ellen Dorsey, the Endowments’ program officer who directs environmental health initiatives. “They are investing in medical training, more research on the environmental links to disease and community education on environmental health, along with reducing exposures in the hospital environment. Taken together, Magee and other UPMC hospitals are not only world class in detecting and treating diseases, but now are beginning to offer leadership in preventing disease.”

Recognizing this leadership, the Endowments has awarded a total of \$825,000 in grants to UPMC or one of its member hospitals in the past three years for environmental health initiatives. Included in that amount is \$275,000 to Magee to explore sustainable practices and to help support a first-ever Pittsburgh conference on women’s environmental health (see sidebar p. 27). Also part of the total is \$300,000 to Children’s Hospital of Pittsburgh for environmental projects

Briana Banner, right, of Seven Fields, Pa., keeps her eye on her son, Caden, as Katherine Hinch, a clinical nurse specialist in Magee-Womens Hospital's neonatal intensive care unit, adjusts tubing around the baby's bassinet. Caden was a tiny 3 pounds, 2 ounces when he was born on Jan. 8. He was able to go home on Feb. 9.

WHAT CHEMICALS ARE SAFE ENOUGH?

Every day, the U.S. government approves an average of two new industrial chemicals for commercial use. But if it's sold, is it safe? "The public expects that the government must be testing chemicals before they come to the marketplace. They are shocked that it is not so," says Gary Cohen of Health Care Without Harm.

In fact, among the chemicals approved daily for the market, 80 percent win approval within three weeks, with or without evaluation by safety studies. Vigilant interest groups are sharing their scientific research on chemical dangers with as many audiences as they can find. But so far, the federal government has been loath to take on the task, leaving individual states to set their own standards. Pennsylvania's new mercury legislation, which sets tougher-than-federal rules for a state with the nation's second-highest levels of emissions of the neurotoxin, is one example.

On Dec. 14, European lawmakers signed sweeping legislation to regulate 30,000 chemicals known to harm human health that are produced or sold in the European Union. Registration, Evaluation, and Authorization of Chemicals, or REACH, targets flame retardants, solvents and other chemicals that cause cancer, damage genes or impair fertility. Eight years in the making, the bill was one of the most intensely lobbied pieces of legislation in E.U. history. Its effect will be felt in the United States, as well.

"Any American firm wants to sell in the Euro market, so to be competitive, toxic-free products are going to be produced," Cohen predicts.

and education and to aid in the green design of a \$575 million facility scheduled to open in 2009 on a new 10-acre campus. The final \$250,000 was awarded to the UPMC network to help fund officials' efforts to coordinate the environmental initiatives of all its member institutions, from research to environmentally friendly operations. The foundation also has supported the development of a system-wide green purchasing framework for UPMC's 19 hospitals in western Pennsylvania.

Other organizations supporting the work at Magee include The Thomas Phillips and Jane Moore Johnson Foundation, which gave \$75,000 to the hospital last year for its environmental health efforts and the women's conference. The April 20 event coincides with the centennial of Pittsburgh's most famous environmentalist, Rachel Carson, and echoes the prophetic warnings of her 1962 classic, "Silent Spring," that emphasized the devastating effects of pesticides on the environment. The Pittsburgh-based Johnson philanthropy, which operates as the Johnson Family Foundation, established its environmental health grant-making program last year because of the Johnson family's concern about the impact of toxic chemicals on health and the environment.

"We have a special interest in the environmental burdens carried by young women and mothers, and believe that public education at the grassroots level, as well as advocacy targeting public policymakers, is critical for making change," says Mary Tyler Johnson, an environmental health consultant.

With that philanthropic support, the local medical community embarks on a new role. Its green agenda, says Cohen, is threefold: "First, it's got to clean up its own house. That's what Magee and UPMC are doing — and more. Second, hospitals have to use their overall purchasing power to drive innovation that will lead to safer products. And finally, they must also become advocates for similar transformation in the larger society."

Magee is a natural fit for this work. With nearly 9,000 births each year, it's southwestern Pennsylvania's most trusted advocate for women's health. Half of the 1.2 million residents of Allegheny County were born right here, at the red-brick heart of UPMC's Oakland campus. Its patient-education programs and community outreach touch women of all ages.

Its designation as a Center for Excellence by the U.S. Department of Health and Human Services makes it one of only six hospitals deemed leaders in education, as well as clinical, research and professional development.

When Magee invested in environmental health, its efforts rippled through all those areas.

In research, the hospital's expertise in gynecological and breast cancers is well known. It currently conducts 21 clinical trials in the prevention and treatment of breast cancer. Researchers are part of the University of Pittsburgh Cancer Institute, which houses the nation's first Center for Environmental Oncology, a recipient of \$400,000 in Endowments support. The unique partnership has led to work on the underlying causes of breast cancer, particularly among young women.

Everyday chemicals, like the pesticide DDT, have been linked to both breast and endometrial cancer. Another culprit is a well-known hormone: estrogen.

Widely prescribed in birth control pills and hormone replacement therapy, estrogen is also synthesized for over-the-counter beauty products. An overload in the body — built up through decades of a woman's life — is being held responsible for an increase in breast and gynecological cancers. The connection was illustrated in December headlines about U.S. breast cancer rates. The recent 7 percent decrease was ascribed to women who rejected hormone replacement drugs after 2002 headlines verified the cancer link.

PVC AND PHTHALATES

PVC, or vinyl plastic, is the most widely used plastic in medical devices such as IV bags, but it can contain chemicals that are harmful to patients, the environment and public health. Because phthalates, used to soften PVC plastic, have been linked to reproductive birth defects and other illnesses, Magee banned the substances from its neonatal intensive care unit.

EDUCATION

Magee offers classes on practices that can help keep families healthy and safe in their homes. Recommendations include breastfeeding; exercising; consuming fresh foods; and avoiding pesticides, harsh cleaners and lead contamination in paint and pipes.

DIET

Food plays an important role in public health, not only in terms of nutritional value, but also in the way it is cultivated, packaged, shipped, consumed and discarded. To ensure that Magee patients receive healthy hospital meals, the nutrition department has streamlined menus and reduced pesticides and hormones in the produce and milk served.

Sonia Hoover of Carnegie gently holds her son, Braden, who was born on Jan. 29 at Magee.

A woman with long brown hair, wearing a black t-shirt and pink sleeves, is sitting in a hospital bed. She is smiling and looking down at a newborn baby wrapped in a blue blanket, whom she is holding in her arms. The baby is wearing a blue hospital gown. The background shows a hospital room with a white pillow, a blue blanket, and a bedside table with some papers. A medical monitor is visible on the wall behind her.

MERCURY

Mercury is often found in health care products such as thermometers and blood pressure devices. Recognizing that there are safe, cost-effective alternatives to mercury, Magee officials phased out using the element over two decades. Certification that the hospital was mercury-free and the neonatal intensive care unit was phthalates-free gained the hospital two recent international awards.

RESEARCH

Magee-Womens Research Institute is part of a Pittsburgh consortium that is one of the country's 11 Specialized Centers of Research on Sex and Gender Factors Affecting Women's Health, sponsored by the National Institutes of Health. Research has included examining genetic and environmental factors that impact pregnancy and looking at how the transfer of medications into breast milk affects babies' health.

CLEANSERS

Many hospitals and other health care institutions use cleaning products containing highly toxic chemicals that contribute to poor indoor air quality and are associated with various health problems. Magee housekeepers have found safe substitutes for potentially harmful cleansers.

All Magee hospital nurses, like those at this nurses' station, have the opportunity to take classes on environmental health issues. Nurses in the post-partum unit receive the most training because they provide parents with information about using environmentally safe practices in their homes.



“The science [behind toxins] is complicated, but recent research about their long-term effects is compelling,” notes the Endowments’ Dorsey. “Science is telling us that it’s not as simple as one exposure to one disease, but a multitude of low-dose exposures, that can have a lasting effect on women’s health.”

Those incremental exposures imply thousands of daily decisions about off-the shelf-products, from hair straighteners and deodorants to nail polish and cosmetics. Teenagers trying their first lipsticks, gels and powders are already vulnerable.

“We have to let consumers know they can make an educated choice,” says Joyce Lewis, director of community education at Magee.

The hospital is taking its message about non-toxic options to pre-teens enrolled in its Growing Up Together for Daughters classes. Girls learn about reading the contents on product labels and using pure deodorants rather than antiperspirants that contain aluminum. The program also is researching safe cosmetics to incorporate into future sessions.

To reach adult women, Magee’s outreach has joined a pink-ribboned army of breast cancer activists.

The Pittsburgh chapter of the Susan G. Komen Race For the Cure, which enlists 35,000 runners each year, is a natural ally for Magee’s environmental health lessons. The group includes environmental research findings in hundreds of presentations a year, offering handouts on preventing toxic exposure. Magee provided the same materials to 5,000 registrants at the Pennsylvania Governor’s Conference for Women held last year in Pittsburgh.

“Connections [between toxins and health] seem to be getting stronger and stronger, estrogens especially,” says Jo Ann Meier, Pittsburgh director of the Komen Foundation.

“Our breast cancer rates were one in 40 in 1920. They’re one in eight today. We have to operate on the precautionary principle: We must provide the public with as much information as we have at this moment.” To further that effort, the group has been a steady funder of breast cancer research fellowships at Magee.

Pre-pregnancy and childbirth classes also incorporate the precautionary message. After delivery, Magee gives families safe-home guidelines for newborns. The easy-to-follow suggestions include breastfeeding, shunning pesticides and harsh cleaners, avoiding lead contamination in paint and pipes, and encouraging fresh foods and exercise.

“Childbearing families are already reading and seeing so much information on environmental hazards,” says Judy Focareta, a Magee clinical education specialist. “They’re very receptive to our efforts.”

But often, a wealth of information can be intimidating. First-time moms turn to Magee to reduce the information overload.

“When you’re pregnant, you read a lot of contradictory materials,” notes 29-year-old Cassandra Imm. After enrolling in the hospital’s Baby Care Basics course, she switched from using chlorine bleach and anti-bacterial cleaners to safer, simpler products. Magee’s safe-home guidelines gave her a long-term strategy for keeping her suburban Wexford home environmentally sound.

“Every first-time parent makes mistakes. I’m really interested in the safety issue, and the hospital is the best source for this information,” says Imm. “The class setting is conducive to asking questions.”

Equally receptive to the green message is hospital staff. A volunteer “green team” from every Magee department is energetically reconsidering the hospital’s energy use, materials, nutrients and attitudes.

Interest in the effort was apparent from the beginning. At the first green team meeting in 2005, all 20 of those invited showed up. They asked others to join in and moved quickly.

WOMEN'S ENVIRONMENTAL HEALTH CONFERENCE

A celebrity connect-the-dots would rarely link comedienne Fran Drescher, Harlem activist Peggy Shepherd and pioneering researcher Dr. Herbert Needleman. But all three are committed experts who will participate in a groundbreaking Pittsburgh conference on women's environmental health April 20 at the David L. Lawrence Convention Center.

"I am delighted that we are taking this conference on the road to Pittsburgh," says Teresa Heinz, who has convened a parallel conference annually in Boston for the past decade. She is hosting "Women's Health & the Environment: New Science, New Solutions" in Pittsburgh, and will deliver the opening address to an audience of regional researchers, public health advocates, corporate leaders and funders.

"We will focus on science, but also on solutions. And I can't think of a better place to bring this conversation than to my hometown, which more than any other city in America has demonstrated both the will and the way to overcome the consequences of environmental degradation."

Mary Tyler Johnson of the Johnson Family Foundation, which is underwriting the conference along with the Endowments, agreed. "Being from Pittsburgh, our family has a deep and personal connection to institutions such as Magee-Womens Hospital, and we see The Heinz Endowments as our partner in our effort to seek a greener and healthier community. The opportunity to support the Women's Health & the Environment conference was an excellent way to bring a number of interests together, and we look forward to a gathering that we hope will have long-term effects."

The free conference opens at 8 a.m. with on-site registration and continental breakfast and ends at 4:30 p.m. Included in the program will be overviews from leading national researchers: UPMC's Devra Davis will discuss unexplained patterns in women's health and the environment; the University of Pittsburgh's Needleman will review new lessons on the impact of metals on human health; and Shepherd will highlight successes in community activism on environmental issues. Drescher, a cancer survivor, will emphasize women's responsibility to demand answers on gynecologic health issues.

The agenda "simultaneously gives information on science and how it relates to different stages of women's lives, from prenatal to post-menopausal," notes Ellen Dorsey of the Endowments. "And it offers solutions: actions that can be taken by individuals and communities to advance protective public policies."

The conference also will launch a new Web resource: a clearing-house for ripped-from-the-headlines news on women's environmental health. With links to other in-depth resources, www.womenshealth-andenvironment.org is designed to support networking and education on the issue worldwide. The Johnson Family Foundation and the Endowments are providing support for the site.

To register for the conference or for more information, go to www.womenshealthpittsburgh.org or call 412-641-4059. The Westin Convention Center Pittsburgh is offering special conference rates for accommodations that are booked by March 20. For information, call 1-800-WESTIN1. While the conference is free, the Rachel Carson Reception from 5 to 8 p.m. at the Senator John Heinz History Center is \$50. Hosted by Teresa Heinz, the event features a special appearance by the Indigo Girls. For registration and more information, visit www.rachelcarsonhomestead.org.

Housekeepers found safe substitutes for cleaners and switched to micro-fiber mops. (The same change throughout the UPMC network saves half a million gallons of water each year.) Laboratory staff bought a \$23,000 recycler to neutralize the alcohol and xylene used in preserving tissue samples. The nutrition department streamlined menus and reviewed ways to reduce pesticides and hormones in produce and milk. Nurses invited environmental experts to in-house seminars.

Mercury in thermometers and blood pressure gauges already had been phased out over nearly two decades. Another major step in eliminating environmental felons was the ban on di-2-ethyl phthalates, a reproductive toxicant especially damaging to infants, in plastic products used in the neonatal intensive care unit. Certification that the hospital was mercury free and that items in the neonatal intensive care unit no longer contained di-2-ethyl phthalates gained the hospital two recent international awards.

In practice, says green team member Ann Gatti, the cleanup was relatively easy to achieve. "These things are so dangerous to us all — especially mothers," notes the nurse clinician, a mother of four who's worked in the neonatal unit since 1973. "It wasn't hard to find replacement products. And the whole hospital's awareness level has changed. When we started a pilot to recycle batteries here, I noticed that people began bringing their spent ones from home to work."

Magee also will benefit from purchasing guidelines that are being drafted as part of UPMC's first system-wide environmental responsibility statement. As a \$2.7 billion power shopper for items from cotton swabs to computer networks, UPMC's preferences will reverberate through the supply chain.

"There's a leveraging opportunity in Pittsburgh," Health Care Without Harm's Cohen concludes. "Once UPMC models what a safer agenda could be, it can help the rest of the city to adopt it. That nurtures green business, green energy and green materials. It's all there."

For the infants clinging to life in Magee's neonatal beds, the old medical adage of "First, do no harm" seems like common sense. To their parents and caretakers, it's a complex, lifelong responsibility for a cleaner and safer world beyond the crib. *h*