



SILENT SPRING REVIEW

RESEARCHING THE ENVIRONMENT AND WOMEN'S HEALTH

WINTER 2002

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"Every human being is now subjected to contact with dangerous chemicals, from the moment of conception until death."

—Rachel Carson, *Silent Spring*

This newsletter is published by Silent Spring Institute, named in recognition of Rachel Carson, whose pioneering book tied the use of pesticides to adverse effects on wildlife and humans. Carson herself died of breast cancer in 1964, just two years after Silent Spring was published. In her memory, and for women—and men—everywhere, Silent Spring Institute is dedicated to identifying the links between the environment and women's health, especially breast cancer.

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From the Executive Director



Silent Spring Institute is dedicated to identifying the links between the environment and women's health, especially breast cancer.

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When Rachel Carson published *Silent Spring* in 1962, she sounded one of the earliest alarms about the dangers of releasing untested, human-made chemicals into the complex ecosystem of our planet. In her congressional testimony against DDT, she said, "I hope this committee will give attention to the right of the citizen to be secure in his own home against the intrusion of poisons applied by other persons. This should be one of the basic human rights."

The power of Carson's message launched the environmental movement. Yet this courageous woman was afraid to let anyone know she had breast cancer. She wore a wig the day she testified before Congress, hiding the effects of radiation treatments.

In the nearly 40 years since Carson died, breast cancer risk has more than doubled in the United States. Yet breast cancer has also been transformed from a hidden disease to a catalytic issue at the core of an activist movement that is transforming cancer policy. I believe that the policy innovations of the breast cancer movement over the past decade will drive scientific innovation in the decade to come, in part because the questions raised by activists are ones for which existing research tools are inadequate.

In the past, we have tended to learn about cancer and the environment from studies of highly exposed workers or from environmental disasters such as atomic bombs. It's easiest to find associations when exposures are high, producing strong effects that can be discerned despite the myriad complications of the world. But few studies of cancer and workplace exposures include women. And women's historically different work experience requires research in other settings, using methods that can evaluate lower and more diverse exposures across a lifetime.

Studies of laboratory animals have been another source of evidence about chemicals and cancer. Most chemicals have not been tested for carcinogenicity; but among those that have, more than 100 have been identified as causing mammary tumors in animals. These include chemicals we encounter every day, such as those in gasoline and motor vehicle exhaust.

Wildlife provides other leads. Observations of fish, birds, and amphibians have drawn attention to a new set of pollutants: endocrine-disrupting compounds, which are chemicals that mimic or otherwise interfere with natural hormones. More than 150 chemical pollutants have been identified in this category.

In addition, we have synthetic estrogens, whose unfamiliar names won't pass your spellchecker. But they are in our workplaces and in our homes, in such common products as detergents, plastics, cosmetics, and pesticides. Clearly we have an important question here: If natural and pharmaceutical estrogens increase breast cancer risk, what about other synthetic estrogens?

To answer such questions, we need a more comprehensive picture, a national infrastructure of environmental data that is tailored to health rather than regulation. With the development of state cancer registries, we know more about where cancer lives, but we don't yet have data about environmental factors that may underlie the patterns we observe. Building knowledge about exposure is a priority.

Targeting public health policies to reduce exposures *has* worked. Since lead gasoline was banned, blood concentrations of lead have decreased in the United States, and IQ deficits once caused by children's exposures are much less common. And this year, the National Center for Environmental Health reported lower blood levels of cotinine from environmental tobacco smoke now that many public places are smoke-free. The center's director, Dr. Richard Jackson, has called on Americans to set other goals, such as reducing the levels of environmental contaminants in breast milk.

Just as women and men have spoken out so that breast cancer is no longer a hidden disease, we must also join together as scientists, physicians, activists, and public leaders to advance the research agenda and to take action on each new piece of information.

Julia G. Brody, PhD

Piecing Together the Cape Cod Puzzle

Since 1957, when Patti Page first sang about the sand dunes and salty air of old Cape Cod, Jane Chase has lived at the same address on the elbow of the Cape. Her white clapboard house overlooks a marsh, where great blue herons feed, sometimes year-round. From her deck, she can hear the chirping of ospreys as she watches waves lapping against the nearby shores of Nantucket Sound.

Despite its tranquillity, Chase fears her beloved landscape may not be as idyllic as it seems. In 1993, she learned that women on Cape Cod have been disproportionately affected by breast cancer, which led her to wonder about her own diagnosis, two years earlier. Like many other Cape women with the disease, she had no family history of breast cancer. Could she have been exposed to pesticides through spraying for mosquitoes

on the marsh decades ago, or through another, as yet unidentified environmental source?

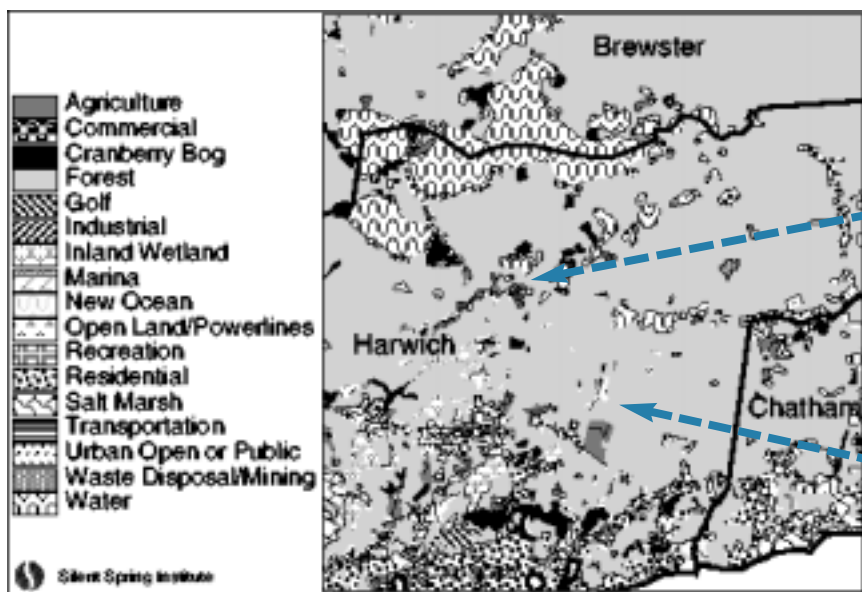
In 1994, Chase's questions led her to begin volunteering with Silent Spring Institute, which had just launched the Cape Cod Breast Cancer and Environment Study. "The Institute's scientists are working with those of us in the community to investigate possible relationships between environmental pollution and breast cancer," Chase says. "Our goal is to identify preventable causes of the disease not just for Cape residents, but for everyone."

Cape Study researchers have since undertaken many stages of research, from tracking pesticide spraying on golf courses to interviewing women about their gardening habits. Central to the investigators' work is their geographic

information system (GIS), a sophisticated computer mapping database that now represents the most comprehensive source of information about health and the environment on Cape Cod.

The GIS allows researchers to overlay environmental data from many sources, such as the area maps that they have painstakingly reconstructed to document pesticide applications made in the past 50 years. Maps of drinking water supply wells have been overlaid onto historical land use maps to identify potential sources of contamination. And, with land use information dating back to the 1950s, the researchers can assess how transformations to the land—from forests to farms to residences—may have contributed to chemical exposures in humans.

In the most recent phase of the study, the research team interviewed more than



Researchers are combining information about historical land use on Cape Cod with the location of a woman's home to determine her exposure to compounds being studied for breast cancer. She would likely have been exposed to pesticides if her home was built, for example, on old farmland or downwind from a cranberry bog.



Eleven communities on Cape Cod have breast cancer rates that are at least 15 percent higher than those of the rest of Massachusetts. Pesticide use is one factor Silent Spring Institute scientists are analyzing closely. Historically, pesticide use on Cape Cod may have been unusually high because of the large number of cranberry bogs, such as the one pictured here; wetlands harboring mosquitoes; and wooded areas susceptible to gypsy moths and other pests.

2,100 Cape Cod women—both those with and without breast cancer—about personal health, exercise habits, and household product use. “We asked women about their use of pesticides and certain products that may contain estrogen mimics,” says Julia Brody, PhD, executive director of the Institute. “Because we know that a woman’s exposure to her own estrogen increases breast cancer risk, researchers have been asking whether estrogen mimics in household products and environmental pollutants can also increase risk. The Cape Study will help answer that question.”

The estrogen-like compounds the scientists are investigating can be found in everyday products, including pesticides, detergents, plastics, and cosmetics. “Some of the compounds we are studying are also a focus of research on prostate cancer, asthma, and reproductive health problems,” Brody says. “We hope the data we collect will help to identify causes not only of breast cancer but also a variety of health problems.”

As part of the interview phase of the study, women provided the addresses of

all the houses on the Cape in which they had lived since 1948. Working with a GIS consulting firm, Applied Geographics, Inc., Institute researchers created a “spatial proximity tool” aimed at evaluating the likely exposure of each residence to potentially hazardous chemicals. The considerations are numerous: a nearby forest may have acted as a buffer against previous pesticide sprayings, for example, or a house may have been built on the site of a former farm, which had undergone repeated applications of chemicals that can persist in soil for decades. With the GIS, the investigators are now able to recreate for each woman a history of possible environmental exposures as she has moved from house to house.

With the interviews now completed, Institute researchers are turning their attention to linking the women’s personal details with environmental data in the GIS. In addition, from the homes of 120 of the women interviewed, the scientists are taking air and dust samples that will be analyzed for more than 80 chemicals.

Throughout their work, the researchers have made much of the information in the GIS available through an atlas on the Institute’s website. With information about breast cancer incidence, historical pesticide use, drinking water quality, census data, and land use, the atlas serves as a source of information about the Cape environment and as a resource for those who want to explore possible effects of the environment on health.

The investigators hope that the overlays of information they have entered into the GIS will help them detect any associations between areas of likely environmental impact and patterns of breast cancer incidence. For Jane Chase, who has four children and nine grandchildren living on the Cape, the study results cannot come too soon. “Cancer has changed a lot in my life and in how I think about things,” she says. “This study gives me hope that we don’t have to accept breast cancer as a fact of life. It’s important that we keep pushing forward to find the answers so that we can protect future generations.” ■

Measuring Indoor Risks to Health

How can we determine what chemicals we are exposed to indoors, where most of us spend much of our time? Silent Spring Institute researchers have developed methods to test for more than 80 chemicals in the air and dust in homes and businesses. These chemicals were targeted because they may have implications for breast cancer and other health concerns.

The pilot study, conducted by Ruthann Rudel, a senior scientist at Silent Spring Institute, and colleagues at Southwest Research Institute and the Harvard School of Public Health, appeared in the April 2001 issue of the *Journal of Air and Waste Management Association*. In this study, the researchers sought to develop new methods to investigate compounds in indoor air and dust that may cause mammary tumors in animals or disrupt the human endocrine system—and thus may be linked to breast cancer development.

“There are few steps that women can take to lower their risk of breast cancer,” Rudel says. “Identifying breast carcinogens could be an important advance in leading to risk reduction. With the development of these new environmental testing methods, researchers can identify what women are exposed to and begin to prioritize the chemicals most urgently in need of further study.”

The study involved seven homes and workplaces, as well as air collected during an 11-hour shopping trip. The researchers set up pumps to draw air samples from women’s homes, vacuumed living areas to collect dust, and packed their equipment in a tote bag for a day of errands at a dry cleaner, a variety of stores, and a gas station. Dust samples in particular can be excellent markers for historical exposures for some compounds.

In most of the samples they collected, the researchers detected phthalates, which derive from plastics;

alkylphenols, which are found in detergents; and pesticides. Overall, they found 12 different pesticides and high levels of endocrine disruptors from plastics. In one home, the researchers found 27 target compounds in dust and 15 in air samples, providing an indication of chemical mixtures to which humans are typically exposed.

The researchers are now applying these new methods to 120 homes on Cape Cod as part of the Institute’s ongoing study of breast cancer there. This larger data set is expected to yield a fuller picture of the most common contaminants.

“We don’t need to wait until we have exhaustive data,” says Julia Brody, PhD, executive director of Silent Spring Institute. “We can use sampling results now to design pollution prevention programs, toxicologic testing, and health research for the compounds we find most often and at the highest concentrations.” ■

Chemical Classes Detected in the Pilot Study

CHEMICAL CLASS (IN ORDER OF ABUNDANCE IN DUST)	SOURCES
Phthalates	Plastics, adhesives, personal care products, and other sources
Alkylphenols	Surfactants in cleaners, inerts in pesticides, personal care products, plastics, and other sources
Pesticides, pesticide metabolites	Pesticides
Polycyclic aromatic hydrocarbons (PAHs)	Products of combustion
Parabens	Personal care products and other sources
Phenolics (e.g., bisphenol A)	Plastics, personal care products, and other sources
Miscellaneous (e.g., dichlorophenol, nitrophenol)	Miscellaneous household products
Polychlorinated biphenyls (PCBs)	Electrical equipment



Jennifer Roberts Kachajian, a research assistant at Silent Spring Institute, labels dust samples collected from the living room of a woman’s home.

At What Price Beauty?

“Satura combines three scientific discoveries to help your skin look younger and chiffon-fine,” the advertisement proclaims. “The minute you smooth on a film of fluffy petal-pink Satura it disappears into your skin and begins working.” One of those key ingredients in the woman’s quest for chiffon-fine skin? Estrogenic hormones, a possible contributor to breast cancer.

This advertisement, published in *Ladies’ Home Journal* in 1956, was one of 8,000 tracked by Silent Spring Institute researchers in a study of magazine advertisements for beauty products that might affect women’s risk of breast cancer. In November 2000, the researchers released their results, which showed that endocrine disruptors and other controversial compounds in many personal care products have been marketed in popular women’s magazines to both white and African American women since the 1950s. While a few of these chemicals have since been taken off the market, some continue to be used today.

“At the heart of Silent Spring Institute’s inquiry is the fact that breast cancer risk is related to lifetime exposure to estrogen,” says Nancy Maxwell, DSc, the study’s principal investigator. “Research over the past ten years has revealed that many compounds in everyday products can weakly mimic hormones, including estrogen, or block the action of natural hormones. These compounds are called endocrine disruptors because they alter the body’s natural endocrine system.”

The study tracked advertisements from 1950 through 1994 in sample issues of four magazines: *Mademoiselle*, whose principal audience is younger white women; *Ladies’ Home Journal*, which appeals to older white women; and *Essence* and *Ebony*, which target African Americans. “We were concerned with identifying differences in product use across age, ethnic, and socioeconomic groups—differences that could affect women’s risk of breast cancer or other health problems,” Maxwell says. “This study gives a picture of products that are likely to have been widely used by women since the advent of synthetic organic chemicals.”



NEW MUM. CREAM

The doctor's deodorant discovery
that now safely stops odor 24 hours a day

You're serene. You're sure of yourself. You're hairless, perfect from the skin out. And you stay that way night and day with New Mum Cream. Because New Mum Cream contains M-3 (hexachlorophene) which clings to your skin—keeps on stopping perspiration odor 24 hours a day. So safe you can use it daily—won't irritate normal skin or damage fabrics.

Endocrine comparisons tests made by the Silent Spring Institute showed that M-3 stopped odor only a few hours—while New Mum Cream M-3 stopped odor a full 24 hours!

Another fine product of G.P. Gillette & Co. Made in your own and others' best interests.

This advertisement for Mum Cream appeared in *Ladies’ Home Journal* in 1956. The ad copy touts the deodorant’s special ingredient: hexachlorophene, a chemical that has since been banned from personal care products.

The researchers found that some skin products, mostly facial moisturizers and foundations, were marketed as containing hormones. The investigators further discovered that advertisements for hair products containing hormones or placenta appeared more often in issues of *Essence* and *Ebony* than in *Mademoiselle* and *Ladies’ Home Journal*. This finding is particularly compelling in light of recent research suggesting that the use of hair products with placenta or hormones might be linked to premature sexual development in African American children.

The study also revealed that, from 1970 to 1994, the sample issues of *Mademoiselle* advertised nearly 250 nail polish and nail strengthening products—more than twice the number in *Essence* and more than three times the number in *Ladies' Home Journal*. The U.S. Centers for Disease Control and Prevention (CDC) has found that the phthalates in nail care and other products commonly appear in people's urine, with the highest levels found in women in their childbearing years. Many of these phthalates have been identified as endocrine-disrupting compounds.

"While the recent research done by the CDC indicates that use of these products results in measurable exposures," Maxwell says, "we don't know yet whether exposure at these levels affects breast cancer or other health risks."

The study also called attention to the prolonged advertising of two chemical ingredients that were later restricted because of their health effects. The antibacterial hexachlorophene was often advertised in deodorant products during the 1950s and 1960s and, to a lesser extent, in scalp treatments. During that same time, ammoniated mercury was regularly advertised in *Ebony* as the active ingredient in skin bleaching creams. In the early 1970s, the U.S. Food and Drug Administration restricted use of both hexachlorophene and mercury in cosmetics.

The investigators further discovered that nonoxynol-9 has been regularly touted as the active ingredient in vaginal spermicides since 1970. Although researchers' understanding of the possible effects of nonoxynol-9 in women's bodies is still limited, several advertisements for spermicides claimed that nonoxynol-9 has no hormonal side effects. Yet a breakdown product of this chemical has been shown to have estrogen-like effects on cultured breast cancer cells in laboratory experiments.

"The process of finding out how chemicals affect health is painstaking and slow," says Julia Brody, PhD, executive director of Silent Spring Institute. "There is increasing interest in applying the precautionary principle—the idea that we need to make decisions now based on what we know now—in this type of situation. If future studies can make the link between a woman's breast cancer risk and everyday products, this research could one day help prevent breast cancer. We're not there yet, but breast cancer prevention is our ultimate goal." ■



This advertisement for Le Kair Hair Treatment, a hair care product containing hormones, appeared in *Essence* in 1980.

Body of Evidence

In March, the U.S. Centers for Disease Control and Prevention (CDC) released a report that showed, for the first time, that detectable amounts of plastics, pesticides, and heavy metals can be found in the blood and urine of most Americans. This report—the National Report on Human Exposure to Environmental Chemicals—provides better information on levels of exposure to environmental chemicals, establishes a base against which changes can be evaluated over time, and helps elucidate what those levels mean for public health.

The report details the exposure of the U.S. population to 27 environmental chemicals, including metals, such as lead and mercury; pesticides; phthalates; and cotinine, from exposure to tobacco smoke. It marks the first time that national exposure levels have been known for 24 of these 27 chemicals.

Among the major findings of the report: blood lead levels have declined among children since the early 1990s, and the U.S. population has reduced exposure to environmental tobacco smoke. These reductions point to the importance of recent public policy changes that mandated the removal of lead from gasoline and restricted smoking in public.

Another key finding involved the measurement in people's bodies of phthalates, which are commonly found in consumer products such as soap, shampoo, hair spray, and nail polish, as well as flexible plastics such as blood bags and tubing. Contrary to expectations, the phthalates in the highest concentrations were not those produced in the greatest quantity. The highest were in personal care products. Phthalates are of concern in breast cancer research because they are endocrine disruptors, compounds that disrupt the functioning of the hormone system.

The measurements in this report reflect recent advances in bio-monitoring that now allow researchers to measure chemicals directly in blood and urine samples rather than relying solely on estimates from air, water, and soil samples. Levels of environmental chemicals were measured from participants in the CDC's National Health and Nutrition Examination Survey (NHANES), an ongoing national health survey of the U.S. population. The report provides results from the 1999 survey; data from future years will help confirm those findings and allow researchers to determine possible health effects.

"The report is a major step toward assessing in the U.S. population which environmental chemicals are present in blood and urine samples, who is exposed, trends in exposure over time, and whether interventions to reduce exposure are working," said Richard J. Jackson, MD, MPH, director of the CDC's National Center for Environmental Health.

To access the full report, visit www.cdc.gov/nceh/dls/report. ■



A researcher from the U.S. Centers for Disease Control and Prevention prepares to test urine samples for environmental chemicals using an instrument known as an isotope dilution high-resolution mass spectrometer. Recent advances in bio-monitoring now allow scientists to measure chemicals directly in blood and urine samples rather than relying solely on estimates from air, water, and soil samples.

The Burden of Proof

By Kathleen Schuler

In the early 1980s, while pursuing a master's degree in public health, I researched a paper on the causes of breast cancer. My hypothesis was simple: could breastfeeding help prevent the disease? If only it were that easy.

At that time, we didn't know that breastfeeding may be protective against breast cancer, even if it can't prevent the disease. In fact, breast cancer research had little to say about possible risk factors, and researchers had only just begun to explore hormonal links to the disease. None of the studies focused on environmental factors as possible links to breast cancer.

My early interest in the causes of breast cancer remained latent for many years, as I pursued other research areas. What I didn't know was that breast cancer also was latent in my own body. In 1994, when I was diagnosed with the disease, I was stunned because I didn't have any known risk factors. I was vegetarian, exercised regularly, had an average age of menarche, and had no family history. I had even breastfed all three of my children.

I realized that if I could develop breast cancer, just about any woman could. I became involved with the Women's Cancer Resource Center (WCRC), a grassroots organization in Minneapolis that not only supports women through the cancer experience, but also promotes cancer prevention. In 1996, I helped plan WCRC's first environmental conference, which painted a depressing picture of the many health hazards—including cancer—of our increasingly polluted world. This conference served as my wake-up call. I wondered why there wasn't more focus on the probable role of environmental factors in increasing cancer rates.

Since then, I have been devoted to studying environmental links to cancer, research that has made me acutely aware of the alarming increases in childhood cancers. Why is cancer affecting so many people, especially children, for whom lifestyle factors should not be important contributors? I have wondered whether doing more research into the causes of childhood cancers could provide clues to

the causes of breast cancer. Does exposure in the womb or during early childhood predispose women to developing breast cancer, for example? Does the increased incidence of reproductive cancers in teens and young adults provide clues to the causes of the disease? Are endocrine-disrupting chemicals the common link?

The endocrine-disruption hypothesis and environmental factors in general are ripe for research. The Cape Cod and Long Island breast cancer studies hold promise for finding some answers in the tangled web of environmental factors. Unfortunately, most research continues to focus on hereditary and lifestyle factors.

Although research is important, we cannot wait for study results before acting to prevent cancer. First, we need more information on the chemicals in products we use every day. We have the right to this information, and we need the assurance that chemicals have been tested for human health effects before being used. One day, a seventh grader to whom I was explaining the dangers of pesticides astutely asked, "If these chemicals are so dangerous, why are companies allowed to sell them?" Why indeed? Why do we have to prove that chemicals are not safe only after they have already been released into the environment?

To protect our future, we must adopt the "precautionary principle." Whenever we have strong evidence that a harmful link exists, we must take steps to protect people's health and lives. We cannot wait for science to provide definitive proof that such chemicals are contributing to the high rates of breast cancer and other diseases. It's time we asserted our right to good health in a clean environment and to make public health a priority over profits. We can achieve these goals only by respecting our planet and all the life it holds. ■

Kathleen Schuler is the project coordinator for the Reducing Pesticides in Minnesota Schools Pilot Project at St. Paul Neighborhood Energy Consortium in Minneapolis. She also volunteers with the Minnesota Children's Health Environmental Coalition and the Women's Cancer Resource Center's Environmental Activism Committee, which was a finalist for the Leadership for a Changing World 2001 award sponsored by the Ford Foundation and the Minnesota Children's Health Environmental Coalition.



"My early interest in the causes of breast cancer remained latent for many years, as I pursued other research areas. What I didn't know was that breast cancer also was latent in my own body. "

Tracking Down Chemical Suspects

At a unique session during the Society of Toxicology's 40th annual meeting in March, toxicologists evaluated new techniques for identifying breast carcinogens. The scientists also expressed hope that these techniques could help lead to breast cancer risk reduction.

Speakers at the session, "Breast Cancer: Issues in Screening and Testing of Potential Human Carcinogens," reviewed the importance of a girl's or woman's developmental stage at the time of an environmental exposure and differences in individual susceptibility to chemical exposures. They also emphasized the most urgent needs in gender-specific risk assessments.

Based on evidence from animal models, some of the compounds the speakers identified as prime suspects for human studies included common solvents such as benzene and methylene chloride and pesticides such as dichlorvos and dichloroethane. Other chemical suspects that they reviewed are found in textiles, dyes, paint removers, antiknock agents, flame retardants, and air pollutants.

Among the speakers was Christine Ambrosone of the Mt. Sinai School of Medicine, who urged new epidemiologic studies to take into account common genetic variations that affect the metabolism of pollutants. In a discussion about the timing of exposures, Sue Fenton of the U.S. Environmental Protection Agency presented studies showing that prenatal dioxin exposure permanently affects mammary gland development in rats, leaving the animals more susceptible to tumors in response to other chemical exposures.

The session was co-chaired by Ruthann Rudel, senior scientist at Silent Spring Institute, and Barbara Davis, director of the Laboratory of Women's Health Research at the National Institute for Environmental Health Sciences. Rudel's presentation pointed out that although chemical exposures may account for only a small percentage of new diagnoses, controlling exposures to carcinogens could provide women with one of their only means to prevent breast cancer. She also noted that many of the 65 chemicals that are classified as known human carcinogens were identified from occupational studies. Because worker studies have rarely included women, she said, breast carcinogens have not yet been identified in this way. "This session provided new direction for the development of more sensitive and efficient methods to identify breast carcinogens," Rudel added. ■



Patricia Hunt

Just a few weeks after being diagnosed with breast cancer, Pat Hunt attended a Silent Spring Institute information session at her church on Cape Cod and immediately became involved, first as a volunteer and then as a member of the Institute's Board of Directors. Her passionate activism was coupled with a quiet grace and elegance. Pat died of breast cancer in May 2001. She was one of a kind, and she will be sorely missed.

—Julia Brody, PhD

Research Briefs

Most studies in the past five years have failed to confirm earlier results showing a significant relationship between breast cancer risk and serum or adipose tissue levels of DDE or DDT. This inconsistency may result from different routes of exposure for different populations. Most recent studies focus on Caucasian women in the United States, Canada, and Europe who may be exposed primarily to DDE ingested in diet, rather than to DDT, the more estrogenic parent compound. DDT was banned in the United States in the 1970s but is still used for pest control in other parts of the world. (Suzanne Snedeker, et al., *Environmental Health Perspectives*, 2001;109:35–47)

A review of research about pollutants in breast milk shows that a mother's exposures to persistent organochlorines, such as DDT and PCBs, can contribute substantially to levels of these compounds in breastfed babies. New research is needed to characterize breast-milk levels of additional contaminants, including solvents, carbamate and organophosphate pesticides, and phenols. Preliminary data suggest that hormonally active pollutants in breast milk may affect puberty, raising questions about later effects on breast cancer risk. Efforts to help women avoid chemical exposures are needed to maximize the substantial benefits of breastfeeding. (Anderson and Wolff, *Journal of Exposure Analysis and Environmental Epidemiology*, 2000;10:755–760)

As part of the Nurses' Health Study, researchers found an inverse association between estradiol levels and total fat intake averaged over four to five years. This result is inconsistent, the researchers wrote, with the hypothesis that fat intake contributes to breast cancer risk by raising endogenous estrogen levels. (Michelle Holmes, et al., *Journal of Clinical Oncology*, 2000;18:3668–3676)

Did You Know?

- **The pesticide lindane, which may be an endocrine disruptor, has been found to cause seizures in children and even cancer. Despite the availability of alternative methods for treating lice and removing scabies, and despite bans by the European Union and the State of California, the U.S. Food and Drug Administration still considers lindane acceptable when used according to the labeled instructions. The U.S. Environmental Protection Agency has launched an investigation into the health and environmental risks of lindane.**
- **Steroidal estrogens will be formally listed as known human carcinogens in early 2002, when the National Toxicology Board issues its tenth edition of *Report on Carcinogens*.**
- **A sticky chemical that oozes from very old Barbie dolls and some other toys made with polyvinyl chloride in the 1950s poses a potential health risk to children. Studies in Europe show that the chemical—which is not generally used in current toys—can mimic estrogen and disrupt development in the very young.**
- **Magazine advertisements for Bloussant Breast Enhancement Tablets have sparked off a debate over the wisdom—and ethics—of marketing to teenage girls the idea that breast enlargement will boost their self-esteem. If the tablets, which consist of four herbal ingredients—don quai, black cohosh, fennel seed, and saw palmetto—work at all, they could also increase estrogenic activity, thereby elevating the girls' risk of breast cancer.**

Strengthening Our Commitment

Congressman William Delahunt (D-Massachusetts) sponsored a **Capitol Hill briefing on the environmental links to breast cancer** in March. Presenters included Congresswoman Nancy Pelosi (D-California); Julia Brody, executive director of Silent Spring Institute; Carol Rubin, chief of the Health Studies Branch of Environmental Hazards and Health Effects at the CDC's National Center for Environmental Health; and Deb Forter, executive director of the Massachusetts Breast Cancer Coalition.

In April, the American Cancer Society awarded its prestigious **Sword of Hope Media Awards for Excellence in Communications about Cancer**. Boston radio station WUMB won the New England-area radio award for its Breast Cancer Awareness Campaign, which featured an interview with Silent Spring Institute Executive Director Julia Brody about the Institute's research on environmental links to breast cancer.

The fourth annual dinner in support of the **Susan S. Bailis Breast Cancer Research Fund** was held in June at Boston's John F. Kennedy Library and Museum. The first Bailis dinner since Susan's death from metastatic breast cancer in September 2000, the evening was a moving tribute to Susan's life and work, especially with the participation of her husband, Larry; her children, Kathryn and David; and dinner co-chairs Alan and Susan Lewis Solomont. More than \$340,000 was raised for the Institute's ongoing work in search of preventable environmental causes of breast cancer.

Silent Spring Institute would like to extend special thanks to the following for recent events raising funds to support its ongoing research: the **Davis Salon** of Newton Highlands for its Cut-a-thon; Cape Cod artist **Harriet Korim**, for donation of the proceeds from the sale of a collage; the **Lehman-Trabich family** for their New York Evening of Song; **Christina Lessa**, author-photographer of *Women to Women*, for her New York book premiere gala/auction; the **Spiral Singers of Newton** for their winter concert; and **Susannah Wood and Opera Piccola**, for their performance to benefit the Institute; and **BodyScapes** of Newton, Massachusetts, for its



This fall, for the second consecutive year, dancers from the Bennett Dance Company held a season kickoff to benefit Silent Spring Institute. The dancers are a group of women who present compelling choreography through collaborative performances and educational programs through-out the Northeast.

Breast Cancer PowerWalk. In addition, last December, California resident **Sherri Porter-Osaka** ran the California International Marathon in honor of her mother, who died of breast cancer; in celebration of life after her own diagnosis with breast cancer at age 39; and to raise \$2,100 in support of Silent Spring Institute.

Silent Spring Institute has been chosen for inclusion in the **website of the Massachusetts Catalogue for Philanthropy** for 2001. The catalogue is a compendium of nonprofit institutions from throughout Massachusetts that have been selected for excellence in their respective fields, cost-effectiveness, and record of achievement. ■

Internet Tools



Rachel Carson

"It has been 30 years since the so-called 'war against cancer' was declared, yet in the U.S. one out of two men and one out of three women will get cancer. And what would our environmental heroine Rachel Carson say if she were alive today? Probably that we're still poisoning ourselves and the planet."

—Bella Abzug, in a letter campaign urging support of cancer research a year before her death in 1998

Agency for Toxic Substances and Disease Registry
www.atsdr.cdc.gov

Includes "ToxFAQs," frequently asked questions about contaminants found at hazardous waste sites; an interactive map server; and HazDat, the Hazardous Substance Release/Health Effects Database, which provides information about the release of hazardous substances from Superfund sites or emergency events and the effects of hazardous substances on human health.

Environmental Defense
www.environmentaldefense.org

Provides a link to "Scorecard," which gives detailed reports on chemicals being released from more than 21,000 manufacturing plants, as well as summary reports for any area of the country. (Scorecard can also be accessed directly at www.scorecard.org.)

Environmental Working Group
www.ewg.org

Includes "Chemical Industry Archives," which contains thousands of internal documents from chemical companies. "Chemical companies say that their products are rigorously tested for health and safety, their facilities are safe for workers and nearby communities, and their industry is tightly regulated," the website states. "Can we believe their claims? Not based on their own internal documents."

Long Island Breast Cancer Study Project
www.healthgis-li.com

Provides researchers with a detailed view of the environment and breast

cancer on Long Island, where women have experienced a disproportionately high incidence of the disease.

The National Cancer Institute's Atlas of Cancer Mortality in the United States, 1950-94
www.nci.nih.gov/atlas

Offers an electronic version of The Atlas of Cancer Mortality in the United States, 1950-94, a book of maps, text, tables, and figures showing the geographic patterns of death rates throughout the United States for about 40 cancers.

The Pesticide Database of the Pesticide Action Network
www.pesticideinfo.org

Includes current toxicity and regulatory information for about 5,400 pesticide active ingredients and their transformation products. The database brings together pesticide information from a variety of sources, including the U.S. Environmental Protection Agency, the World Health Organization, the National Institutes of Health, the U.S. National Toxicology Program, the International Agency for Research on Cancer, the European Union, and the State of California.

Silent Spring Institute
www.silentspring.org

Offers the Cape Cod Breast Cancer and Environment Atlas, an interactive tool that allows assessment of the history of land use on Cape Cod, where breast cancer rates are significantly higher than the state average. The atlas also incorporates breast cancer incidence, drinking water sources, pesticide use, and census data.



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"The health of the land is inextricably tied to our own. Body: Earth—no separation. How can we forget? When will we learn?"

—Terry Tempest Williams