Breast Cancer and the Environment

by Megan Williams

Cet article analyse les liens qui existent entre toxines environnementales et augmentation du cancer du sein chez les Canadiennes. L'auteure concentre son analyse sur les chlorures organiques, comme par exemple les dioxines et les PCB, qui sont produits en masse depuis la deuxième guerre mondiale.

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Today an alarming one in eight women in North America will contract breast cancer, a rate that has risen steadily from one in twenty in 1950. This makes it the most prevalent type of cancer in women, and the leading cause of death for those between the ages of 40 and 55.

Canada has one of the highest rates of the disease in the world, second only to the United States. Five thousand Canadian women die of the disease yearly. Yet despite the fact that breast cancer is the most common cancer afflicting North American women—and notwithstanding the millions of dollars of research money poured into seeking its cure—the cause has steadfastly eluded researchers. And surgery, chemotherapy, and radiation—sardonically referred to by women with the disease and health workers alike as "slash, poison, and burn"—have endured for over 50 years as the only treatment options.

In face of this frustrating lack of progress in combating breast cancer, a growing body of breast cancer survivors, environmentalists, and a handful of researchers have begun to actively challenge scientists' and doctors' reassurances that the cure for cancer is close at hand. Instead, they have begun to demand attention be paid to prevention, pointing to environmental contaminants as the epidemic's central culprit.

Judy Brady, American breast cancer activist and editor of *One in Three,* a collection of essays on breast cancer, spoke of the need to focus on pollution prevention at a conference of the Breast Cancer Action Montreal group in April, 1994.

"If we are serious about stopping cancer, we must be serious about stopping pollution," she told the audience at McGill University.

University of Illinois epidemiologist Samuel Epstein, a long-time outspoken foe of the cancer establishment—medical professionals, cancer agencies, pharmaceutical companies, and insurance companies—says the present thrust of research towards elusive cures, reflects the interests of those who have much to gain financially by pursuing all too often ineffective and expensive drugs.

"In spite of decades of research and millions of dollars spent, the cancer establishment remains myopically fixated on obsolete 'blame-the-victim' theories of breast cancer causations, while ignoring growing evidence of the role of environmental contaminants," says Epstein.

A Greenpeace report entitled *Breast Cancer and the Environment: The Chlorine Connection* renewed attention to the issue in 1992.

"The worldwide increase in breast cancer rates has occurred during the same period in which the global environment has become contaminated with industrial synthetic chemicals, including the toxic and persistent organochlorines," states the report.

Organochlorines were first produced in the early 1900s and have been made on a large scale since World War II when they were used as poison gases. They include DDT, PCBs, dioxin, Agent Orange, and thousands of lesser known chemical products and by-products. Each year in North America 13 million tons of chlorine are produced, Greenpeace reports. Only one per cent is used to chlorinate drinking water—the rest are employed in the production of plastics, pesticides, and to bleach paper.

Drawing on evidence from countries as diverse as Finland, Israel, and the United States, the report concludes that women with breast cancer "tend to have higher levels of organochlorines in the tissues than women without breast cancer."

Brady says she is angry that a link between the rise in breast cancer rates since World War II and the corresponding rise in both chemical and nuclear agents has not been taken seriously by governments and scientists.

"We've known about the effects of DDT on wildlife for fifty years," she says. "Now we're suddenly discovering that DDT is implicated in breast cancer. What I would like to know is what the scientists and lawmakers have been doing for half a century?"

Not much—until recently. The first study to look at the environmental link to breast cancer took place in 1992 in Hartford, Connecticut. Its findings showed that women with breast cancer have 50 to 60 per cent higher levels of organochlorines in their breast tissue than in the tissue of women without breast cancer.

Mary Wolff, an epidemiologist at the Mount Sinai Medical Centre in New York who led the study, has since followed up her findings by looking at blood samples of over 14,000 women who visited a mammography screening clinic between 1985 and 1991. She reported finding a fourfold increase in the amount of DDE, the major

metabolite of DDT and a widespread contaminant of animal food products, for women with breast cancer. Marginally higher amounts of PCBs were found in the blood of women with breast cancer. Her findings also suggested that older women are more at risk to the disease due to cumulative exposure to DDT, a major agent in the pesticides that were sprayed widely across North American between 1945 and 1972.

"This is the first new evidence that could be a clue about the rising breast cancer rates," says Wolff. "I've personally been a skeptic all along about the environmental connections to breast cancer, but I keep being proven wrong."

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The results of these two studies confirm similar results by Israeli researchers. Israel's breast cancer rates over the last decade have declined substantially. Many scientists point to an aggressive program to phase out organochlorine pesticides as a probable cause for the improvement. From 1951 to 1976, Israeli levels of organochlorine pesticides in cow's milk, human milk, and human tissues were among the highest in the world, and five to 800 times higher than U.S. levels. When the pesticide phase-out program commenced, breast cancer rates in Israel dropped by eight per cent over the first ten years—a stark contrast to the rising rates in other industrialized nations. The authors of the study examined all other known risk factors for breast cancer and say that commonly cited risk factors such as fat consumption had actually increased after 1976, strengthening the possible link to pollution.

A Long Island study released by the New York State Health Department in April, 1994 also points to pollution as a major cause of the disease. It found that women who lived in areas with two or more chemical plants nearby had three times higher cancer rates than women who did not live near chemical plants.

Even closer to home, a February, 1994 report by the International Joint Commission (IJC) that monitors Canadian-US boundary waters cited mounting evidence that toxins such as dioxins, furans, PCBs, and mercury could be responsible for the soaring breast cancer rates, along with decreasing sperm counts and learning disabilities in children. The IJC commissioners' recommendations reflect years of careful consideration of numerous studies linking cancer and birth defects in animals to the pollution being dumped into the Great Lakes and St. Lawrence River. The findings also come despite the intense lobbying commissioners faced from chlorine and other heavily toxic industries to downplay or dismiss evidence of harm caused by toxins. As a result of the IJC's findings, industrial polluters on the St. Lawrence River and its tributaries will soon be required to eliminate all discharges of persistent toxins under a $191-million federal-provincial clean-up deal signed in April, 1994. Enshrining a principle long advocated by environmentalists, the two governments have agreed "to virtually eliminate, in the long term, the emissions of persistent bioaccumulative toxic substances."

Also included in the IJC list of toxic substances are radio nuclides resulting from numerous nuclear plants lining the Great Lakes including the Darlington and Pickering Ontario plants. Irene Kock, spokesperson for the Ontario-based Nuclear Awareness Project, counts the inclusion of radiation as an important step in widening the public's awareness of toxic links to cancer beyond organochlorines.

"This allows us to reopen the debate with the Atomic Energy Control Board about the amount of radioactive pollution currently being dumped into the environment from Canada's nuclear facilities," she recently told *Earthkeeper Magazine.*

Despite this evidence, so far Canadian studies have failed to explore the link between breast cancer and environmental contaminants. Instead, researchers persist in concentrating heavily on the most commonly cited risk factors—heredity, age, a high fat diet, and hormonal changes in women (the early onset of a woman's period, late onset menopause, and late childbirth). This is despite the fact that the American National Cancer Institute has acknowledged that these factors play a part in fewer than 30 per cent of breast cancer cases. This was echoed in the Canadian House of Commons all-party subcommittee report on breast cancer released in June 1992. The remaining 70 per cent of cancers remain unexplained.

Devra Lee Davis, an epidemiologist and senior advisor to the U.S. Office of the Assistant Secretary for Health is one of the few researchers who has begun to explore the link between the commonly noted factors in breast cancer and pollution. The key, according to Davis, are estrogen-producing toxins.

"All risk factors have one thing in common," says Davis. "They are all tied to total lifetime exposure to estrogen. The more estrogen a woman is exposed to during her lifetime, the greater her risk of getting breast cancer."

Davis argues that a diet high in animal fat appears to increase the production of "bad" estrogen, or "xenoestrogen" as she has dubbed it, which in turn acts as a vehicle for certain toxic pollutants. Citing evidence from experiments on animals, she claims that environmental chemicals may function like hormones, inducing the production of increased levels of estrogen and rates of breast cancer. When so many women who have none of the supposed risk factors related to estrogen contract breast cancer, chemical pollutants that produce estrogen could be the mysterious culprit.

"The mothers of the baby boom generation are getting higher rates of breast cancer," says Davis. "Those are women who had their children earlier in life. If anything,

they should be having lower rates. Could it have something to do with the fact that they briefly worked as 'Rosie the Riveter' in industrialized factories and then went home when the feminine mystique took hold and kept their homes spotless with all those new chemicals?"

One of the main reasons why this possible connection between toxins and cancer has gone unexplored in Canada is the structure of research funding.

"Cancer research in Canada is curiosity driven," explains Donald Wigle, of the Laboratory Centre for Disease Control at Health and Welfare Canada. "It's based strictly on an individual's ability to compete for funds. This means there's no unified "mission" or target linking researchers."

The major funder of cancer research is the National Cancer Institute. It receives its money from the fundraising organization, The Canadian Cancer Society, and in turn gives research grants to scientists. Money is distributed under a "peer review" system, in which applicants submit research proposals that are anonymously reviewed by other physicians, scientists, and researchers in the field to determine if it will receive funding.

The lack of direction in Canadian cancer research that this system has spawned has sparked criticism of the peer review process in the House of Commons report on breast cancer. The report claims many important links to breast cancer have gone unexplored because research is carried out by a small number of scientists who know each other. Consequently, researchers with innovative proposals are likely to be excluded, the report says.

"If researchers do not perceive that a scientific 'problem' can be solved, they may be less likely to even propose research projects," the report reads. "If projects on difficult problems are not even proposed, these problems will never be solved."

Nancy Reid

The same problem exists in publishing results of studies outside common scientific beliefs. Wolff says it took her two years to find a publisher for her initial breast cancer study. It was rejected by top medical journals because, according to Wolff, "the idea of pollutants being linked to breast cancer was so new, and not considered important enough."

But for women who have had breast cancer and have fought to put the issue in the public realm, the scarcity of research money has seemed morally unacceptable. Almost six years ago some of them formed the Breast Cancer Action Group in order to become a voice for those outraged with the lack of money and attention to the disease.

"When you look at how little money is spent on breast cancer research period in this country, it's not surprising that so little is known about the environmental factors," says Pat Kelly of Burlington, founder of the group. "The total research budget in 1991-1992 was less than $4 million."

In 1992, the National Cancer Institute of Canada funded fewer than 20 per cent of all cancer studies. Less than eight per cent of them dealt in anyway with breast cancer. For the decade between 1983-1993, the entire federal government contribution to breast cancer research of almost $20 million was used up by the mammography study by University of Toronto scientist Anthony Miller.

The state of breast cancer research funding, however, took a dramatic turn for the better last year when the federal government committed $20 million into its research over the next five years. An additional $5 million has been earmarked for breast cancer support activities.

Kelly seems pleased, but cautious about the new funding. She says the involvement of breast cancer survivors in directing the research will be crucial to its success.

"We want the research to be survivor directed, not based on the medical model of the Canadian Cancer Society as it is now," she says. "Women with the disease have needlessly suffered because they've been excluded from decisions about research and treatment."

In November, 1993, Kelly and other breast cancer activists met with government officials, doctors, and researchers in Montreal to discuss the direction of breast cancer treatment and research over the next five years. Among the demands made by the activists at the conference was more money for research, increased accountability of funding agencies such as the Canadian Cancer Society, more alternative treatments, increased emphasis on prevention, and more inclusion of breast cancer survivors in decision-making.

Despite the increased attention to the disease, American breast cancer activist Judy Brady warns women to beware of being co-opted into scientists' agenda when receiving bigger funds for research. Brady told participants of the Breast Cancer Action Montreal conference that she feared

too many women's groups were "glowing in the light of praise from scientific circles," while submissively following the lead of those same scientists. Instead, she said, women should take the lead and define what changes are worthy of energy and focus. As far a Brady is concerned, the focus should be putting an end chemical and nuclear pollution.

"Even if there were a cure and we continued to do nothing to force the polluting industries to stop spewing the poisons which are causing many of the cancers," she concludes, "then what we'd be doing is no better than going after a forest fire with a water hose in one hand, and a gasoline hose in the other."

Megan Williams is a Toronto journalist who writes about women's health issues.

TARA A. NOLLET

Radical Surgery

Everything is in perspective
as i lie upon
the operating table,
not sure if i am colder
than the metal bed
beneath my weight.
Even in a soporific state
i am impatient, waiting
for the doctor's knife
to make me whole.
How strangely familiar
the room appears,
but i've always had
a bad case of déja-vu.
White masks hover
like bandaged angels.
You are amongst them
sabotaging my recovery,
not scrubbing your hands
before touching me.
Blackness presses down
like a giant thumb
and i see clearly.
You probe for a cure
but never understood
my healing process.
I need only blink
to remove you from existence.

Burial

she knows it's coming,
aware of the approaching
change in landscape.
the earth is sinking
beneath her weight.
she believes in order,
not the random behaviour of cells.
her fingers trace lumps;
braille messages under skin.
she dreams of women
wrapped in white gauze dresses,
blood stains where breasts
ought to be.
some carry coffins
the size of shoe boxes.
she cannot communicate with cancer;
relies upon the surgeon's knife
for dialogue.
somehow she must manage
without it, return
her flesh to solid ground.

Tara A. Nollet lives in Ottawa with her cats, Ariel and Chelsea. Her poems have appeared in The Carleton Arts Review, Contemporary Verse 2, Prairie Fire, Bywords *and* Hysteria.