



Protecting Our Health: **New Debates**

Women and Health Protection
in collaboration with *DES Action Canada*

Preventing Disease

Are Pills the Answer?

When a cholera epidemic swept London in 1854, the cause of the disease was unknown. Dr. John Snow suspected sewage from the River Thames was contaminating the water supply. Plotting the city's fatalities on a map, he discovered that one neighbourhood was especially hard hit. In the area around the town square at Broad Street more than 500 had died from cholera within 10 days. Acting on a hunch, Snow removed the handle from the Broad Street pump, which supplied drinking water to homes and businesses in the adjoining streets. The deaths subsided. Snow became a legend of the rising public health movement, dedicated to improving health through social reforms. Today, at the corner of Broad Street and Lexington, a pump without its handle reminds Londoners that no community can be healthy without potable water.

This story has an eerie resonance in Canada today. Seven people died in Walkerton, Ontario in May 2000, and more than 2,300 fell ill, when deadly bacteria from farm manure contaminated the town's water supply. Although the dangers of contaminated drinking water are now well understood, budget cuts led to slipshod monitoring of Walkerton's water. With health and environment budgets slashed across the country in the past decade, Walkerton is a sign of the times.

Public health and medicine are complementary but separate fields. Public health seeks to prevent health problems; medicine seeks to treat them. Traditional concerns of public health include sanitation and water supply, air and noise pollution, food hygiene, nutrition, housing conditions, and the health and safety of people at work. Public health targets populations while medicine helps one patient at a time.

Although medicine has done much to ease human suffering, public health has done more to prevent it. The gains in life expectancy from public health measures far outstrip the gains from medical treatments. In fact, drugs and other treatments have risks of their own; by contrast, public health interventions are risk-free or very low risk.

Recent experiments that test potent drugs to prevent disease are blurring the boundary between public health and medicine. This new use of drugs (called “chemoprevention”) has emerged at the same time that safety standards for environmental contaminants, medications and medical devices are quietly eroding.

We need health protection legislation that truly protects Canadians. Policymakers must affirm our commitment to public health principles and strategies and recognise the threats posed by chemoprevention.

Pills for Prevention: An Alarming Trend

In April 1998, front-page headlines described a “breakthrough” in preventing breast cancer: “We know for the first time in history that we can prevent cancer through pharmaceuticals,” said one of the researchers. The story reported the results of the Breast Cancer Prevention Trial (BCPT), an experiment involving 13,388 Canadian and American women. Six months later the U.S. Food and Drug Administration (FDA) approved the use of tamoxifen – previously approved only to treat breast cancer – for women “at high risk” of developing the disease. Health Canada has not approved tamoxifen for breast cancer risk reduction, which means pharmaceutical companies cannot promote the drug for that purpose in this country. Women in Canada see ads in American media, however, and Canadian physicians – who are exposed to American publicity and practices – can prescribe the drug to healthy women at their own discretion.

In 1998, recruitment of 22,000 healthy Canadian and American women to a new clinical trial began. The Study of Tamoxifen Against Raloxifene (STAR), a follow-up to the BCPT, compares tamoxifen to a similar drug, raloxifene. Nor is breast cancer the only disease for which treatment drugs are being tested for prevention. In April 2000, a trial to test a schizophrenia treatment on people considered high risk for that disease was launched in Toronto, with participating hospitals in Calgary and at Yale University. A contraceptive cocktail being tested in the United States uses a drug called a GnRH agonist to shut down a woman’s reproductive hormones, then adds estrogen and progestin to stimulate three or four menstrual periods per year. Researchers hope to simultaneously lower the rates of breast, ovarian and uterine cancers.

Many observers have expressed alarm at the use of powerful drugs to prevent disease. As one physician said of the BCPT, “this isn’t disease prevention, it’s disease substitution.”¹ Her remark proved prophetic: significantly fewer women taking tamoxifen developed breast cancer within a four-year period, but more women taking the medication developed endometrial cancer, blood clots and cataracts.² Three women in the tamoxifen arm of the trial died from blood clots in their lungs. Furthermore, an update of the trial results after 6.9 years showed a continued increase in the rate of endometrial cancers among the women taking tamoxifen, including four cases of uterine sarcoma, a rare, aggressive form of cancer. These results prompted changes to the tamoxifen risk information. In May 2002 the FDA and tamoxifen’s manufacturer, AstraZeneca, changed the label and package inserts to include a boxed warning about potentially fatal strokes, pulmonary emboli and uterine malignancies. The wording particularly cautions women using the drug for breast cancer prevention to be aware of its toxic effects.³

All women in the STAR trial are exposed to either raloxifene or tamoxifen, and both drugs cause blood clots. The schizophrenia prevention study is viewed as so risky that an international panel of schizophrenia researchers debated whether it should go ahead. Women in the pilot study to test the contraceptive cocktail showed a 1.9% annual bone loss.

Estrogen replacement therapy (ERT) and hormone replacement therapy (HRT) for menopausal and post-menopausal women were adopted as preventives largely on the basis of manufacturer promotion and physician endorsements. Many doctors and women believed these drugs – promoted for nearly 50 years as a youth potion for women after menopause – prevented heart disease, colon cancer, Alzheimer’s, urinary incontinence and broken bones due to osteoporosis. These myths were shattered in July 2002, when a large clinical trial examining the risks and benefits of HRT was halted because the medication’s long-term risks were found to outweigh its benefits. While the trial confirmed that HRT alleviates hot flashes and night sweats and helps prevent bone fractures, estrogen and progestin supplements increase the risk of invasive breast cancer when used for five years or more. Furthermore, rather than protecting women from heart attacks and strokes, HRT increases their risk.⁴

Public Health Prevention: The Gold Standard

Public health seeks to prevent disease and other causes of disability by “identifying the factors that cause a condition and then reducing or eliminating them.”⁵ Chemoprevention trials, in holding out the promise of “miracle pills,” threaten to undermine the proven strategy of identifying and eliminating the causes of disease. At the same time, these medications pose new threats to health by introducing iatrogenic (i.e., medically caused) illnesses and deaths, as the previous examples illustrate.

The single most important public health measure in history is clean drinking water. Even in recent times, medication contributes relatively little to overall gains in health. In the 20th century, Americans added 30 years to their life span. Public health initiatives, such as safer workplaces, seat belts in cars, and better nutrition for mothers and babies, account for 25 of those years.⁶

Public health policy accepts small risks for large benefits. Examples include vaccination for smallpox, the addition of iodine to salt, and vitamin D-enriched milk. The chemoprevention trials described above introduce a troubling new standard, in which small or ambiguous benefits justify large risks. They blur the boundary between disease prevention, where safety is paramount, and disease treatment, where risks to the sick are weighed against potential improvements in a debilitating or life-threatening condition.

In very limited cases, chemoprevention may be an acceptable way to prevent or delay onset of a medical problem. Examples are Pepto-Bismol, which prevents traveler’s diarrhea, and the anticoagulant heparin, which prevents blood clots in patients who undergo major surgery.

Bioethicist Charles Weijer lists four criteria he believes should be met before testing a drug for disease prevention in healthy subjects.

- 1) The drug should be relatively safe and certainly free from life-threatening side-effects;
- 2) Subjects should be drawn from a population clearly at risk for the disease, not one defined merely by superficial demographic conditions, such as being a 61-year-old woman;
- 3) Risk factors for the disease should be fairly well understood, so that the drug will not harm too many and benefit too few;
- 4) The drug must stand on its own merits. If a drug is tested as a means of preventing heart disease, other potential benefits it may have, such as rendering the skin baby-soft, are irrelevant.

“The tamoxifen study fails on all four counts,” Dr. Weijer concludes.⁷

The Precautionary Principle and Chemoprevention

Chemoprevention is one of many recent and risky scientific innovations. Alarmed by the hasty introduction of these technologies, as well as by a perceived slippage in government resolve to eliminate environmental health risks, citizen groups and concerned scientists have begun to promote a formal statement of the old adage, “an ounce of prevention is worth a pound of cure.” The Precautionary Principle states that when there are reasonable scientific grounds for believing a process or product may be unsafe, we should take precautionary measures, even if cause and effect relationships are not established scientifically. The Precautionary Principle also places the burden of demonstrating safety on the innovator or manufacturer, not on the public.

If the Precautionary Principle were made our standard for health protection, it would prevail over all others. In regulating food, drugs and medical devices, for example, and in protecting the environment, the Precautionary Principle would make the prevention of disease a priority. The Principle would protect the public from the testing and marketing of chemoprevention drugs that introduce threats to health.

Although Canada has signed many international treaties that endorse a precautionary approach, the government has been hesitant to acknowledge the Precautionary Principle at home. Environmental lawyer David VanderZwaag observes that when Canada revised the Canadian Environmental Protection Act (CEPA) in 1999, the Precautionary Principle was cited in the preamble and invoked as an administrative duty. “However,” he writes, “the revamped CEPA stops short of strong precautionary approaches.” Industry lobbying secured last-minute changes that weakened the Act. One Liberal Member of Parliament, the Hon. Charles Caccia, expressed his dismay: “What comfort is it to Canadians if toxic chemicals get catalogued and assessed, but not necessarily eliminated? We had a strong articulation of the Precautionary Principle. It was defeated.”⁸

Health Canada's Framework for Disease Prevention

This ambivalent attitude toward the Precautionary Principle is apparent throughout the federal government's 1998 discussion paper on health protection, *Health Protection for the 21st Century: Renewing the Federal Health Protection Legislation*. The document explains that health protection helps Canadians to avoid illness or injury, and acknowledges that health risks may arise from prescription drugs, food and water contaminants, air pollution, radiation and chemical hazards. These statements set the stage for a public health strategy to reduce or eliminate exposures to health hazards. Rather than discussing ways to remove or minimise the causes of disease, however, the document embraces a "modern risk management framework."

U.S. president Ronald Reagan's administration introduced risk management to American health and environment agencies in 1983. In a radical shift from health and environmental protection policies of the previous two decades, risk management frames risk as an unavoidable fact of life. No longer is pollution viewed as a problem to be remedied; rather, toxins in the environment are acceptable trade-offs for economic gains. Using risk management, risk assessors (scientists) estimate the magnitude of a given risk, while risk managers (policy makers) determine whether that risk is acceptable. "The net effect was almost invariably to stymie health and environmental regulations," says American Science historian, Robert Proctor.⁹

Risk management invokes the ALARA Principle, an acronym which means human exposures to risks are kept "*As Low As Reasonably Achievable, social and economic factors being taken into account.*" By appealing to the ALARA Principle, which factors *financial* risks and benefits into the same equation as *health* risks and benefits, risk management frames illness as an acceptable trade-off for economic prosperity and/or jobs.

A risk assessment typically compares a narrow range of options, such as the risks and benefits of tamoxifen compared to raloxifene for reducing breast cancer risk. Other approaches, such as reducing our exposure to carcinogenic drugs and toxins in the environment, are not even considered. Risk assessments that look only at harmful activities are not a legitimate process of assessing possible harms, argues environmental consultant Mary O'Brien. Instead, they illustrate our society's pattern of acting as if we have no safe alternatives.¹⁰

Risk managers seldom agree on the acceptable level of risk. In one risk management exercise, Health Canada assembled a working group to examine how the ALARA Principle was applied to radiation and chemical exposures. Members found that levels of acceptable risk varied up to a million-fold. They concluded, nonetheless, that risk management strategies to regulate both radiation and chemicals "provide a high degree

of health protection based on the absence of *observable health effects using epidemiological methodology*" [italics added]."¹¹ If the Precautionary Principle were followed, by contrast, one would not assume that measurable levels of radiation, genotoxic chemicals and endocrine-disrupting substances are safe simply because epidemiological studies do not yet show observable health effects. This reasoning hinges on a logical fallacy: that absence of evidence is the same as evidence of absence.¹²

Political climate and budgetary pressures affect a government manager's willingness to accept health risks. In a deficit-reduction climate, government decision-makers are concerned about immediate economies: profits are maximised at the expense of risks to health and the environment. In the short term, removing the causes of disease may reduce industry profits by requiring clean-up of toxic substances, changes to polluting technologies and workplace measures to prevent accidents or exposure to agents that cause disease. In the long-term, however, such steps promote sustainable development and may save industry money. Strategies that reduce and eliminate the causes of disease have finite costs, provide long-term health benefits to entire populations, and usually alleviate a range of illnesses, not just one.

"Those who suffer the costs of pollution are often not the ones who reap the benefits," says Robert Proctor. "Discussions of the costs of regulation too often fail to ask: Costs to whom? Benefits to whom?"¹³

Women's Health and Disease Prevention

Feminists have been particularly critical of drugs used to prevent disease, for reasons rooted in medicine's treatment of women. A history of unnecessary surgery and of the marketing of unsafe medical devices and drugs to women has sensitised women's health activists to the issues of over-medicalisation and iatrogenesis. Drugs and medical devices marketed to women with tragic consequences include diethylstilbestrol (DES), thalidomide, the Mème breast implant and the Dalkon Shield.

Women's health groups have also been critical of guilt-inducing messages aimed at women that hold them personally responsible for their health problems and those of their families. Feminists point out that "lifestyle" explanations usually ignore power inequities and assume a level of freedom that only the very privileged enjoy. Although diet, smoking, exercise and other personal behaviors certainly influence health, health policies must also address the larger context. Our lifestyle choices, far from being autonomous decisions, are strongly influenced by social, economic and political factors.¹⁴

Ethicist Susan Sherwin illustrates how the lifestyle perspective has skewed breast cancer research and policy: "The mainstream scientific and medical communities respond to the growth of breast cancer rates by promoting individual responsibility for self-examination and by searching for the gene(s) that makes some women particularly susceptible to the disease ... [F]ew physicians demand examination of the potential contributory role played by the use of pesticides or chlorine, or the practice of feeding artificial hormones to agricultural animals."¹⁵

The debate over tamoxifen for prevention has been the subject of media coverage, meetings of community groups and, in the United States, FDA hearings. Canada's health protection agency has yet to provide a policy forum to which women could bring their concerns, even though hundreds of Canadian women have been recruited to the BCPT and STAR trials, and many more took HRT before risks had been adequately assessed. Canada's drug approval process is secretive and, as of this writing, has no mechanism for input from non-governmental organisations.¹⁶

In theory, the Canadian government subscribes to the ideals of health protection for women put forward in visionary documents such as the Beijing Platform for Action and Health Canada's Women's Health Strategy. These action plans commit Canada to protecting women's health by reducing exposure to toxic substances in the environment, workplace and food supply; similarly, they state that women should be protected from over-medicalisation and from the over-prescribing of drugs. Our

own health protection legislation should embody these goals in a concrete way. Our laws should truly apply the Precautionary Principle rather than rely on a risk assessment framework in which health takes a back seat to trade and profits.

How can we combat the drift to chemoprevention?

Recommendations

MAKE THE PRECAUTIONARY PRINCIPLE, rather than risk assessment, the basis for disease prevention in Canada.

MODERNISE AND STRENGTHEN THE FEDERAL FOOD SAFETY PROGRAM with new measures to enhance surveillance systems, improve scientific capacity and increase regulatory activities (*Objective 4.17, Health Canada's Women's Health Strategy*).

REGULATE drugs, food, radiation equipment, and the environment through a system that is independent from industry.

PROVIDE VENUES FOR PUBLIC INPUT at all stages of chemoprevention drug testing and chemoprevention approvals, as part of a wider move to end secrecy in Canada's health regulatory bodies. Post transcripts of these meetings on the Internet to ensure public access to the information.

REQUIRE DETAILED AND PUBLIC DISCLOSURE OF FUNDING from witnesses who testify at regulatory drug hearings and from health organizations engaged in advocacy, in order to identify those who are backed by industries with an interest in the products in question.

MAKE THE REDUCTION OF ENVIRONMENTAL HAZARDS that threaten women's health the focus of prevention activities; accelerate screening and assessment of new and existing substances, develop alternatives, reduce (and where possible eliminate) the use of harmful toxins and track progress (*adapted from Objective 4.7, Health Canada's Women's Health Strategy*).

REDUCE THE PHYSICAL AND PSYCHOLOGICAL OCCUPATIONAL HEALTH HAZARDS that undermine women's health and well-being (*Objective 4.8, Health Canada's Women's Health Strategy*).

SUPPORT IN-DEPTH RESEARCH on the causes of breast cancer, including environmental concerns (*Objective 2.11 in Canada's Women's Health Strategy*). Translate research findings into policy.

CREATE AN OFFICE TO OVERSEE CLINICAL TRIALS IN CANADA in consultation with relevant professionals and public interest health groups. The office should be mandated to protect volunteers in clinical trials and should designate certain types of trials, including chemoprevention trials, as subject to particularly vigilant regulatory efforts as well as public scrutiny.

MANDATE HEALTH CANADA TO INTERVENE AT REGULATORY HEARINGS in the United States, and other countries carrying out clinical trials that involve Canadian participants, to demand that the safety of Canadian participants be protected.

FUND STUDIES to determine the prevalence of off-label prescription drug use for chemoprevention, to assess the factors that contribute to such use over time, and to assess any harm such drug use may cause.

STRENGTHEN THE POST-MARKETING SURVEILLANCE SYSTEM FOR PRESCRIPTION DRUGS. Monitor adverse effects of chemoprevention drugs separately from adverse effects of drugs used for treatment.

REGULATE ADVERTISING OF CHEMOPREVENTION DRUGS aimed at physicians. Regulations should be developed in consultation with concerned physicians and public interest health groups.

MAINTAIN AND ENFORCE THE BAN on direct-to-consumer advertising (DTCA) of prescription drugs in Canada.

Women and Health Protection, in collaboration with DES Action Canada, published this booklet to raise public awareness about the importance of public health principles of disease prevention.

This publication is one in a series that examines new debates related to health protection. Health Canada is currently modifying the federal health protection legislation that regulates medicines, food and harmful substances in the environment. The interests of the pharmaceutical and biotechnology industries, the food industry, the chemical industry and the nuclear industry are well represented in Ottawa, while ordinary citizens are virtually excluded from the development of health policies. Health protection for Canadians must be the legislation's first priority.

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- 16 ► In 2002, the Health Products and Food Branch announced its intention to create a Public Advisory Committee (PAC) to be comprised of up to 15 members of the public. The PAC will advise the Assistant Deputy Minister on issues and initiatives of the Branch. According to Health Canada's web site, the PAC is "part of a strategy to increase transparency and public involvement through the consultation process." At the time of this writing (October 2002), the PAC had not been struck. We hope that this mechanism will allow non-governmental women's health organisations to have meaningful input into health policy decisions. See: http://www.hc-sc.gc.ca/hpfb-dgpsa/pac_tor_e.html#6

DEFINITIONS

Chemoprevention is the strategy of using drugs to prevent disease.

The Precautionary Principle states that if there are reasonable scientific grounds for believing that a new process or product may not be safe, it should not be introduced until we have convincing evidence that the risks are small and outweighed by the benefits. The Precautionary Principle puts the burden of proof on the innovator or perpetrator to demonstrate beyond reasonable doubt that the innovation is safe, rather than requiring the rest of society to prove that it is not.

Public health is a specialty within medicine that seeks to identify and prevent the environmental and social causes of ill health. It is based on epidemiology, the study of disease within a population. Traditional concerns of public health include sanitation and water supply, air and noise pollution, food hygiene, nutrition, housing conditions, and the health and safety of people at work.

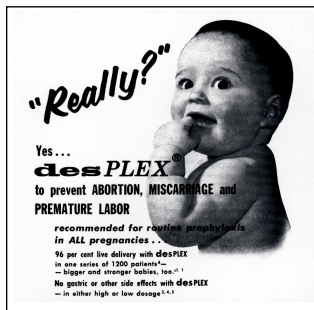
Tamoxifen is an estrogen antagonist used to treat women with some forms of breast cancer. It is also used to reduce the risk of a recurrence of breast cancer. Following a controversial clinical trial, the drug may also be advertised in the United States to healthy women at high risk of developing of breast cancer to lower their short-term risk of developing the disease.

Risk assessment is a policy framework introduced by the Reagan administration in the United States and now used by governments worldwide, including Canada, to set health and environmental policies. Risk is regarded as an unavoidable fact of life. Using a process called "risk management," government policy makers determine acceptable levels of risk [see below].

Risk management uses the ALARA Principle, according to which exposures to potential hazardous substances are kept "as low as reasonably achievable," with social and economic factors being taken into account.

Iatrogenic illness is illness caused by a physician or by medical treatment

DES (diethylstilbestrol) was one of the first “prevention pills” and one of Canada’s worst drug disasters. Between 200,000 and 400,000 pregnant women and their children were unnecessarily exposed to a harmful medicine, with tragic results.



DES was the first synthetic estrogen. The drug was prescribed to prevent miscarriage between 1941 and 1971 in North America (longer in Europe), but proved ineffective. Although good evidence from animal studies indicated that DES might cause cancer, the drug

- ▶ Was prescribed to millions of women worldwide.
- ▶ Continued to be used in pregnancy nearly 20 years after it was found to be ineffective.
- ▶ Was found to cause cancer in young women in 1971, thirty years after it was first prescribed.

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Other titles in this series include:

“How Safe Are Our Medicines? Monitoring the risks of drugs after they are approved for marketing”

“Direct-to-consumer Prescription Drug Advertising: When public health is no longer a priority”

“Who benefits? International Harmonisation of the Regulation of New Pharmaceutical Drugs”

For more information about **Women and Health Protection**, visit the website at <http://www.whp-apsf.ca>

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