Xenoestrogens & Breast Cancer

Chemical Risk and Policy Implications

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Breast Cancer in Canada

- Over 22,000 women diagnosed with breast cancer this year
- Leading cause of death in women ages 20-44
- 25% increased incidence of breast cancer in the past 30 years
- Incidence trends are pointing to **preventable environmental influences**

Risk Factors

- Known risk factors for breast cancer only account for 30-40% of cases:
  90% of which are related to one's lifetime **exposure to estrogen**

- **Remaining 60-70% of risk** related to environmental and gene-environment interactions

XENOESTROGEN EXPOSURE

Endocrine Disruptors - chemicals that mimic estrogen in the human body

Xenos are everywhere: in the food we eat, the air we breathe, the water we drink, the household detergents and personal care products we use, and the plastics that come along with every product we buy.

Xenoestrogens

- Long acting chemicals like pesticides and PCBs

  Bio-accumulate in fatty tissue and consistently release in small amounts throughout the body

- Short acting chemicals like BPA and parabens

  Water soluble and exit the body fairly quickly but we are constantly being exposed to them

Xenoestrogens and Breast Cancer Risk

- Xenoestrogens promote the development of cancer by inducing cell proliferation
- Cell line studies and animal studies are implicating xenoestrogens in breast cancer, including **216 chemicals shown to act as mammary carcinogens**, over 73 of which are present in consumer products
- Human toxicology studies find that over **95% of breast tissue samples have xenoestrogens**
- Xenoestrogens act additively/synergistically, creating a cocktail effect in the body thereby increasing cancer risk

OCCUPATIONS AT RISK

agriculture workers - Ontario study of 500 women, those with breast cancer were three times more likely to have worked in the agriculture industry

- factory workers, the aesthetics industry, house cleaners and flight attendants (41% elevated risk of breast cancer)

GEOGRAPHIC LOCATION

- In 1994, the New York State Department released a study showing that women living near a chemical plant on Long Island had a 62% higher risk of having breast cancer compared to those who did not live near a chemical plant
- Over 750 million tons of chemical waste has been dumped into 50,000 hazardous waste sites in the US

FOOD SECURITY

- Pesticides used generously on crops
- BPA used in food wrappers, tin cans, plastic bottles
- PCB’s in high levels in fish and wildlife
- Cadmium in high levels in soil

Why the Government Needs to Act Now

- Ontarians are Surrounded By a Chemical Soup:
  - Ontario is the fourth highest emitter of cancer causing chemicals into the air in all of North America's jurisdictions!
  - Emitting over 4 million kilograms of reproductive toxins into the air each year, Ontario has the second highest levels in all of North America!!
  - And yet, its GDP is far below many of the States in the US

POLICY RECOMMENDATIONS

- Expand Implementation of the Precautionary Principle as set out in the Canadian Environmental Protection Act of 1999 by creating a **Toxics Use Reduction Law**

- The toxic reduction law rests on the principle that every toxic chemical should be reduced or eliminated, bypassing the debate about which chemicals pose what kind of risk

Toxic Use Reduction Law

- Promotes preventive strategies that include the phasing out known carcinogens and reproductive toxicants and replaces them with **safer alternatives**

- **Cost-Benefit Ratio**: Massachussetts toxic reduction law, in effect for over 20 years shows that the cost of implementation was $71m, and the benefits were $91m, effectively saving industry millions while cleaning up the environment

Target and Reduce Cancer-causing Chemicals Results in:

- Less pollution, cleaner environments and safer consumer products
- Better health
- Safer working environment
- Less cost for purchasing of chemicals for company
- More innovative green technologies
- Lower compliance costs for companies and lower enforcement costs for govt agencies
- Reduces the need for further management of hazardous wastes off site

The Right to Know Who is Polluting and Where

Follow the lead of The Community right to know by law in Toronto: it is a huge achievement for the advancement of transparency and citizen’s rights.

Enact a Consumer Right to Know Law

- Canadians have a right to know what chemicals are in ALL household and personal care products – cosmetics is a start but not nearly enough

- California and the EU have enacted legislation requiring warning labels on numerous products which has motivated companies to remove harmful chemicals from their products

Increase Research into Communities most at Risk for Chemical Exposures

- The Great Lakes Basin study in Nov 2008 by Pollution watch found a direct correlation between areas of increased pollution and areas of poverty amongst those living in the great lakes basin region

- Conduct further **research into interconnection** between health pollution and poverty and integrate this into environmental decision making processes

Increase Research into Occupations and Chemical Exposures

- Occupational studies highlight increased breast cancer risk for women working in industries where heavy chemical use is occurring
- Reduced income levels translates into reduced ability and know how to fight for their rights
- The government needs to ensure they are not facing increased risk of disease from their workplaces

Incorporate Environmental Justice Concerns

Studies like the Long Island Study led to a presidential executive order in the US requiring all federal agencies to **incorporate environmental justice concerns**

- the result is that the EPA can consider environmental justice issues in its decisions to provide permits to industrial facilities

ADDITIONAL RECOMMENDATIONS

- Reduce Allowance Levels for Pesticide Residues
- Regulate industry to stop using BPA altogether
- Create an Ethnic Cancer Registry

Create a National Environmental Health Strategy

- Canadian researchers have determined that 3,400-10,200 cancer deaths and 8,000-24,000 new cases of cancer are directly attributable to exposures to toxins in our environment.
- We need a national environmental health strategy that incorporates new laws, regulations, research funding and knowledge transfer mechanisms

These policies could go a long way in changing the political, economic and environmental landscape of breast cancer in our society.

CONCLUSION

‘If we enact prevention tactics and the precautionary principle with xenoestrogens we could significantly reduce breast cancer in Canada. We need to encourage Government policy change at all levels and mobilize the public through education.’

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