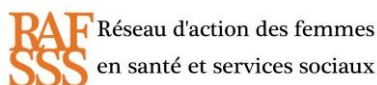


# Toxic Exposures are a Feminist Issue!

## *Canadian Women against Toxic Substances*<sup>1</sup>



Gender, biology and determinants of health, such as socio-economic status, geographic location, employment, bearing of children, and belonging to racialized groups and Indigenous communities, all play important roles affecting Canadian women's health in relation to exposures to toxic substances. *Canadian Women against Toxic Substances* are concerned that the present-day laws which oversee the regulation and control of toxic substances do not adequately account for these factors, leaving women and the next generation vulnerable to a wide range of long-term negative health effects. The *Canadian Environmental Protection Act, 1999 (CEPA)* is the foundation of our environmental regulations and is currently under review by the federal government. As our government is committed to using a GBA+ approach when developing policy, we expect that the reform of CEPA will address many of the following feminist issues regarding "Controlling Toxic Substances," Part 5 of the Act.

### **1. Male models of toxics research still dominate the scientific evidence despite fundamental differences in biology between men and women**

The scientific evidence and research used to formulate legislation is problematic for women. To protect women from the effects of hazardous chemicals, appropriate research that accounts for women's biology should be the standard. Unfortunately, animal studies have too frequently relied on male-only models and as such ignore "the potential magnitude of the effect of sex on the outcome being measured."<sup>2,3</sup> One key factor is that women are likely to bioaccumulate larger

<sup>1</sup> Text written by Patricia Kearns, Breast Cancer Action Quebec. Revised by Lise Parent, PhD., Teluq, Meg Sears, PhD, and Ellen Sweeney, PhD, Prevent Cancer Now and Jennifer Beeman, Breast Cancer Action Quebec.

<sup>2</sup> Clayton, J.A. and Collins F.S., "Policy: NIH to balance sex in cell and animal studies" Nature News (14 May 2014) <https://www.nature.com/news/policy-nih-to-balance-sex-in-cell-and-animal-studies-1.15195>

quantities of toxic chemicals such as persistent organic pollutants (POPs) and endocrine disrupting chemicals (EDCs), which are stored in body fat. Women generally have a higher proportion of fatty tissue to muscle than men, which is ignored in male-only models of research.<sup>4</sup> This is only one case in point. There are many other sex-specific differences such as hormones and metabolism, which render women susceptible to chemicals in ways that are not presently considered in risk assessment testing.<sup>5</sup>

When it comes to establishing thresholds – limits differentiating between safe and harmful exposures – norms are often based on average male height and body weight.<sup>6</sup> New sex disaggregated data is needed to understand vulnerabilities of women and children that they bear, in order to protect them from the harms of exposure to environmental contaminants.

In fact, the issue of determining thresholds goes beyond using male norms as measures. Current regulatory approaches rely on dated principles of toxicology where single substances are tested for safe thresholds where the dose makes the poison. It is now well established that chemicals such as EDCs have complex dose-response curves and can interfere with the body's exquisitely balanced hormonal system at very low doses and in synergistic and additive mechanisms.<sup>7,8</sup>

## **2. Women are affected over a larger range of windows of vulnerability by endocrine disrupting chemicals (EDCs) and racialized women face even greater risks from EDCs.**

Women are vulnerable to the effects of chemicals on their health at particular stages of their lives connected to reproductive cycles such as prepubescence, puberty, pregnancy, lactation, and menopause when their bodies undergo rapid physiological change.<sup>9</sup> When women are exposed to EDCs during these *critical windows of vulnerability* it can be their children and grandchildren whose

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<sup>3</sup> Gochfeld, Michael. "Sex Differences in Human and Animal Toxicology: Toxicokinetics." *Toxicologic Pathology* 45, no. 1 (January 2017): 172–89. <https://doi.org/10.1177/0192623316677327>.

<sup>4</sup> Cantarero, Lourdes, and Isabel Yordi Aguirre, 2010 "Gender Inequities in Environment and Health." In *Environment and Health Risks: A Review of the Influence and Effects of Social Inequities*, edited by the World Health Organization, 217-37. Copenhagen: World Health Organization. [http://www.euro.who.int/\\_data/assets/pdf\\_file/0003/78069/E93670.pdf](http://www.euro.who.int/_data/assets/pdf_file/0003/78069/E93670.pdf)

<sup>5</sup> Lewis, S and Scott, D. (2014). *Regulating Toxics: Sex and Gender in Canada's Chemicals Management Plan*. In Scott, Dayna Nadine (ED.), *Our Chemical Selves: Gender, Toxics, and Environmental Health* (pp.78-104). Vancouver, British Columbia, UBC Press. 2015.

<sup>6</sup> Caterbow, A. and Hausmann, J. (2016) *Women and Chemicals The impact of hazardous chemicals on women* (2016). WECF | Women in Europe for a Common Future Women International for a Common Future WICF [http://www.wecf.eu/download/2016/March/WomenAndChemicals\\_PublicationIWD2016.pdf](http://www.wecf.eu/download/2016/March/WomenAndChemicals_PublicationIWD2016.pdf)

<sup>7</sup> Schug TT, Johnson AF, Birnbaum LS, et al. Minireview: Endocrine Disruptors: Past Lessons and Future Directions. *Molecular Endocrinology*. 2016;30(8):833-847. doi:10.1210/me.2016-1096.

<sup>8</sup> Bergman, Å, Heindel, J.J., Jobling, S., Kidd, A.K., and Zoeller, R.T. (Eds). 2012. *State of the Science of Endocrine Disrupting Chemicals 2012*. United Nations Environment Programme and the World Health Organization. [http://drustage.unep.org/chemicalsandwaste/sites/unep.org.chemicalsandwaste/files/publications/EDC\\_report\\_layout\\_cover\\_draft\\_290113.pdf](http://drustage.unep.org/chemicalsandwaste/sites/unep.org.chemicalsandwaste/files/publications/EDC_report_layout_cover_draft_290113.pdf)

<sup>9</sup> Lewis, S and Scott, D. (2014). Op. cit.

health outcomes are impacted. It is already well established that the in utero and perinatal environment play major roles in the risk of later life disease.<sup>10</sup> Evidence of these trans-generational effects have been understood since the cases of pregnant women who were prescribed the EDC, diethylstilbestrol (DES) between 1938 and 1971 to safeguard them against miscarriages, and whose daughters ultimately developed a rare type of vaginal cancer at a very young age.<sup>11</sup> Now the grandchildren of the women who took DES face health problems as well.<sup>12</sup> Finally, all toxic burdens, particularly EDCs, are disproportionately greater for women of marginalized and racialized communities due to the cumulative environmental exposures related to the geographic locations of their homes, the food and consumer products they have access to, the cosmetics and personal care products aimed at them, and the workplace exposures they are more likely to face.<sup>13</sup>

### **3. Women experience specific exposures to toxic substances due to the social roles they assume and women from marginalized populations even more so.**

Besides women's physiology, women's social roles play a significant role influencing their exposure to toxic chemicals. Women are most often responsible for managing the home, including cleaning, food preparation and shopping for their families; they are the largest group of consumers making daily purchasing choices. They are exposed to toxic chemicals commonly found in cleaning products, food and its packaging as well as clothing. Societal, media and marketing messages encourage women's use of cosmetics, personal care and hair products and perfumes known to include chemicals linked to breast cancer, asthma, reproductive health issues and more. Toxic exposures for Black women through specific hair and beauty products such as hair relaxers and skin lighteners are more hazardous.<sup>14</sup> Finally, women's social roles as mothers and caregivers mean they most often bear the primary responsibility for ensuring their families' health. This means they find themselves in the unenviable position of being responsible for "managing" the toxic exposures of their families through decisions such as where to live, what to eat and what products to use as a household.

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<sup>10</sup> Cooper K, Marshall L, Vanderlinden L, and Ursitti F (2011) Early Exposures to Hazardous Chemicals/Pollution and Associations with Chronic Disease: A Scoping Review. A report from the Canadian Environmental Law Association, the Ontario College of Family Physicians and the Environmental Health Institute of Canada <https://www.healthyenvironmentforkids.ca/sites/healthyenvironmentforkids.ca/files/EarlyExpandCDScopingReview-lowres.pdf>

<sup>11</sup> Caterbow, A. and Hausmann, J. (2016) Op. cit.

<sup>12</sup> Kioumourtoglou M, Coull BA, O'Reilly EJ, Ascherio A, Weisskopf MG. Association of Exposure to Diethylstilbestrol During Pregnancy With Multigenerational Neurodevelopmental Deficits. *JAMA Pediatr.* Published online May 21, 2018. doi:10.1001/jamapediatrics.2018.0727

<sup>13</sup> Rudel, RA, Dodson RE, Perovich J et al. Semivolatile Endocrine-Disrupting Compounds in Paired Indoor and Outdoor Air in Two Northern California Communities. *Environmental Science & Technology* **2010** 44 (17), 6583-6590.

<sup>14</sup> Zota & Shamasunder. Beauty products, environmental chemicals, health disparities. *Am J Obstet Gynecol* 2017.

#### 4. Toxic exposures for women workers are ignored, trivialized or denied.

Toxic exposures in women's paid work in Canada are trivialized and women are rarely given the personal protective equipment they need. One example of vulnerable workers facing serious illnesses from toxic exposures are nail salon workers. These workers experience some of the worst constant, multiple and synergistic exposures leading to respiratory illnesses, skin conditions, reproductive disorders and birth defects in their babies, plus cancers and neurotoxic effects.<sup>15</sup> Women in a wide range of agricultural, manufacturing and service jobs from hair salons to housecleaners, waitresses and chambermaids and hospital cleaners, automotive plastics workers and food canning workers face toxic exposures with little or no health information.<sup>16</sup> Women in healthcare have specific exposures through medical devices, commercial soaps, disinfectants and sterilization products, and IV bags, plastic tubing and medication, all of which contribute to a disproportionate exposure to toxic substances.<sup>17</sup> Many sectors remain highly segregated by gender, with the health and safety issues faced by women workers hidden, trivialized or denied.

#### Urgent need for GBA+ analyses

For these reasons and many more, the current government must follow through with the commitment to use a GBA+ analysis when enacting policies, and must do so in the case of regulation of toxins. The risks of EDCs need to be better assessed and acted upon, given the understanding that we are exposed to a vast number of these substances daily, that certain populations are more vulnerable to their effects, that effects may be life-long, and that these substances are hazardous to our health at low doses. The reforms proposed in the [report](#) by the Standing Committee on the Environment and Sustainable Development to strengthen CEPA are an excellent step in this direction. A serious reform of this legislation is of vital importance to Canadian women, as workers, mothers, caregivers and for all the other essential roles they play in our communities and in all their diverse realities. It is a question of the most fundamental environmental health justice.

- *Breast Cancer Action Quebec*
- *Centre de santé des femmes de Montréal*
- *Prevent Cancer Now*
- *Regroupement Naissance Renaissance*
- *Réseau d'action des femmes en santé et services sociaux*
- *Réseau des femmes en environnement*
- *Réseau québécois d'action pour la santé des femmes*
- *Women's Healthy Environments Network*

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<sup>15</sup> Occupational Safety and Health Administration. U.S. Department of Labor. Health Hazards in Nail Salons. <https://www.osha.gov/SLTC/nailsalons/chemicalhazards.html>.

<sup>16</sup> Brophy, James T, Margaret M Keith, Andrew Watterson, et al.2012. "Breast Cancer Risk in Relation to Occupations with Exposure to Carcinogens and Endocrine Disruptors: A Canadian Case-Control Study." *Environmental Health* 11 (87). <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3533941/>

<sup>17</sup> Breast Cancer Fund. Working Women and Breast Cancer: The State of the Evidence. Breast Cancer Fund, 2015.

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[http://drustage.unep.org/chemicalsandwaste/sites/unep.org.chemicalsandwaste/files/publications/EDC\\_report\\_layout\\_cover\\_draft\\_test\\_290113.pdf](http://drustage.unep.org/chemicalsandwaste/sites/unep.org.chemicalsandwaste/files/publications/EDC_report_layout_cover_draft_test_290113.pdf)
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[http://www.wecf.eu/download/2016/March/WomenAndChemicals\\_PublicationIWD2016.pdf](http://www.wecf.eu/download/2016/March/WomenAndChemicals_PublicationIWD2016.pdf)
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Zota & Shamasunder. Beauty products, environmental chemicals, health disparities. *Am J Obstet Gynecol* 2017.