

Guest Editorial

Introduction: Women's occupational and environmental health

From the early 1900s, researchers like Alice Hamilton (1943) repeatedly pointed out the differences in women's and men's working and living conditions and how these could differentially affect their health. However, it was not until toward the end of the century that these voices were heard and government agencies began to systematize the recognition of gender differences in occupational health. In 1991, Labour Canada¹ and Health Canada jointly produced a commissioned research report on women's occupational health, which encouraged the inclusion of women and gender-based analysis in work on occupational health. In 1992, the Women's Health Bureau (WHB) of Health Canada² sponsored a Research Round Table on Gender and Occupational Health for researchers and decision-makers. This gathering, followed by two further colloquia, reported on the studies presented in the book *Invisible: Issues in Women's Occupational Health/La santé des travailleuses* (Messing et al., 1995).

Further interest in women's occupational health was stimulated by the occupational health workshop of the WHB-sponsored Canada–USA Women's Health Forum (1996). In March 1998, an enlarged group of researchers organised a colloquium, "Improving the health of women in the work force: a meeting of representatives of women workers and researchers."³ Participants arrived at an "Action Plan"⁴ for recognition and prevention of women's occupational health problems. Meanwhile, interest in these questions was broadening internationally and several scientific meetings were held on women, work, and health (Valls-Llobet, 1997; Zahm and Blair, 2003). In 2003, given the growing interest in the research community, it was decided that the effort should be enlarged in two directions: by inclusion of environmental health and by deepening the interest in methodology. A fifth colloquium was held on March 26–28, 2003 (Tissot and Messing, 2004). This special section is one result.

From the papers included here and others presented in the workshop, it can be seen that many aspects of women's occupational exposures are still unknown. From the exclusion of women's breasts from biomechanical modeling (Tate, 2004) to the neglect of the relationship between women's endocrine status and metabolism of environmental chemicals (Arbuckle, 2006) to the exposures of women to household chemicals (Habib, 2006), a panoply of subjects need attention.

Studies and reflection on gender-related differences in environmental health are even more embryonic than those in occupational health (Hatch, 2000; Sims, 1994; London et al., 2002), and few do more than stratify for sex. While women and men have many shared experiences, there are nonetheless important differences in childhood activities, adolescent and adult lifestyles, home and workplace conditions, and retirement pursuits, which can affect exposure relations and subsequent health. Despite this, the pathways that explain gender differences are rarely examined, even though it is through the understanding of these pathways and the underlying mechanisms that adequate prevention and therapy can be put in place.

A major consensus from the 2003 workshop, visible in the discussion sections of all the papers presented in this special section, is that the usual methods used to deal with sex and gender must be expanded. It has been known for several years that it is no longer sufficient to control or adjust for gender (Messing et al., 2003; Mergler, 1995) but stratification of analyses, while an improvement, leaves researchers with many questions unanswered (Dimich-Ward et al., 2006; Howse et al., 2006). In addition, a major conclusion from reading these papers is that dichotomous thinking about sex and gender is likely to be erroneous (Messing and Stellman, 2006). Analyses using population descriptors such as sex and gender (and, for that matter, race, ethnicity, social class, and income) give only sketchy indications of the mechanisms through which they may work to influence health. Given the complex composition of human populations and the multilevel interactions between human health and environmental variables, from the molecular to the planetary levels, it will be necessary to develop more sophisticated statistical and conceptual tools so as to understand more broadly how variables like sex and gender should be treated. Science has developed ever

¹Now Human Resources and Skills Development Canada.

²Now the Bureau of Women's Health and Gender Analysis. Its head, the late Frieda Paltiel, played a critical role in stimulating research initiatives in women's occupational health.

³CD available from Bureau of Women's Health and Gender Analysis, http://www.hc-sc.gc.ca/home-accueil/contact/hpb-dgps/wh-sf_e.html.

⁴<http://www.unites.uqam.ca/cinbiose/ANGLAIS/WOMEN.HTML>.

more sophisticated molecular probes, but the meaning of human diversity for environmental and occupational health cannot be understood without an ecosystem approach that steps back and considers the multiple differences between the lived experience of men and women, and also the numerous similarities between the sexes.

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