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Original article

Gender-based analysis, women's health surveillance and women's health indicators – Working together to promote equity in health in Canada

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Summary

Objectives: This paper examines some of the ways gender-based analysis can be applied to health surveillance systems and to the development of gender-sensitive health indicators.
Methods: Several initiatives in Canada are described to show how gender-sensitive mechanisms for tracking and monitoring health trends at the population level can be used to identify and begin to address health disparities and promote equity in health.
Results: Research, policy, and practice in Canada and internationally continue to reveal the interactive and dynamic nature of health determinants.
Conclusions: Mapping the pathways by which social inequalities and inequities become embodied across the lifespan remains a central challenge in the design of innovative and effective surveillance systems, health indicators, and policy interventions to improve population health.

Keywords: Gender-based analysis – Women's health – Surveillance – Indicators.

What is measured reflects underlying assumptions about what is seen as worth measuring in society. For example, until child advocates and women's groups called attention to the health effects of child maltreatment and violence against women, there was a lack of scientific and public attention to these issues. The now classic 1962 study by C. Henry Kempe and colleagues brought many years of work on family violence into the realm of health science, policy and decision-making (Kempe et al. 1962). The first ever *Violence Against Women Survey* undertaken by Statistics Canada did not occur until 1993 (Statistics Canada 1993). Similarly, today, the harmful health consequences of racism are increasingly being researched and recognized as important, following decades of awareness raising (Krieger 2003; Krieger 2005).

Policies, programs and legislation to address inequities and inequalities in health require the combined efforts of researchers, policy-makers, decision-makers, and advocates making small but meaningful changes in ways of gathering data to ensure they are sensitive to similarities and differences in health status within and between populations. National surveys, surveillance systems, and other data gathering strategies enable us to track and analyse patterns of disease and health over time, within specific populations. When these methodologies allow for the identification and analysis of the role of sex, age, ethnicity, Aboriginal status, geographic region, and socio-economic status, among other variables, we are better able to grasp the complex nature of population health. Canada has been recognized as a leader in the area of gender equity in health. However, gaps still remain in our ability to systematically analyse the ways sex and gender interact with other determinants of health[1] across the lifespan.

This paper will discuss how gender-based analysis applied to health surveillance systems and to the development of gender-sensitive health indicators can be used to identify and address health disparities and thereby promote equity in health. In particular, the paper will describe some of the initiatives that have been undertaken in Canada to address conceptual, methodological and systemic gaps in our knowledge and action in women's health. This paper concludes with some of the lessons learned along the way.

[1] The determinants of health include income and social status, social support networks, education and literacy, employment and working conditions, social environments, physical environments, personal health practices and coping skills, healthy child development, biology and genetic endowment, health services, gender, and culture (Health Canada and Public Health Agency of Canada 2006)

Gender-based analysis

The Federal Plan for Gender Equality (Status of Women Canada 1995), Health Canada's Gender-Based Analysis Policy (Health Canada 2000a) and Health Canada's Women's Health Strategy (Health Canada 1999a) provide the mandate and policy guidelines for the consistent application of gender-based analysis to all relevant programs, policies, legislation, research and surveillance activities in Canada. Gender-based analysis (GBA) is an analytical tool that systematically integrates an understanding of sex, gender and diversity into the development of policies, programs and legislation, as well as planning and decision-making processes. It helps to identify and clarify the differences between women and men, boys and girls, and demonstrates how these differences and similarities can affect health status, as well as access to, and interaction with, the health care system. GBA improves our understanding of the interplay between sex and gender[2] as determinants of health, and how they interact with other determinants. The GBA framework recognizes that differences between men and women are influenced by diverse factors, such as class, socio-economic status, age, sexual orientation, gender identity, race, ethnicity, geographic location, education and physical and mental ability. GBA identifies the potential for differential impacts of policies, programs, legislation or therapeutic agents on women and men across the lifespan, and can help in the development of options that reduce disadvantage and lead toward gender equality.

Applying GBA to research and surveillance allows for the development of health surveillance data that tell us more about health determinants, behaviours, and outcomes. Health information that is sensitive to gender and other forms of diversity is needed in order to ensure that health policy and health decision-making rely on the best possible evidence. For example, gender-based analysis is useful in addressing gaps in surveillance data on the rates of women and men undergoing diagnostics for cardiovascular disease (CVD), on the gendered risks of developing CVD, and on differences in treatment and rehabilitation (Heart and Stroke Foundation 2003). It also provides a framework for posing questions about why such differences occur and what can be done to address health inequities. Similarly, using GBA in health indicator development contributes to the production of indicators that are more sensitive and accurate measures of health determinants, health status and health system performance. The work of the Prairie Women's Health Centre of Excellence on gender-sensitive indicators illustrates the potential of such indicators for health research, policy, planning, and decision-making at the provincial level in Manitoba, Canada [Haworth-Brockman et al. 2006 (this volume)].

The incorporation of gender-based analysis in surveillance, policy development, implementation, and evaluation – throughout the policy cycle – would ensure greater coherence and appropriate attention to the diversity of populations. GBA reinforces an understanding that "sex and gender are more than independent variables, since exploring these differences often challenges the assumptions underlying analytic frameworks, including interpretation of behaviours, and points to the need for different levels and types of data collection, analysis and intervention" (Tudiver et al. 2003). A seamless process where GBA, health surveillance and health indicators *work together* to inform health policy and decision-making is increasingly recognized as essential to healthy public policy (WHO 2002). Concerted efforts to build GBA capacity have been made through training opportunities, policy pilot projects, network building, and resource sharing. Several examples of how GBA can be applied to health surveillance and health indicator development follow.

Women's Health Surveillance

Surveillance is defined as "the process of describing and monitoring a health event in the population through ongoing systematic collection, analysis and interpretation of health data as well as closely integrated and timely dissemination of information to those who need to know. Surveillance data is information used for planning, implementing, and evaluating policies, services and programs" (Public Health Agency of Canada 2005a). Since the mid 1990s, surveillance activity focused specifically on women's health has been building momentum. In 1998, the Laboratory Centre for Disease Control (LCDC) at Health Canada identified gaps in its surveillance data related to women. An Advisory Committee on Women's Health Surveillance, chaired by the Honorable Monique Bégin – former Minister of Health – was established to oversee the development of a Plan of Action for Health Canada (Health Canada 1999b).

Among the results of the work conducted by the Advisory Committee between January and August 1999 were nine detailed recommendations for action. Some recommendations were specific to women's health concerns, or to domains where sex and gender differences impacted women's illnesses. For example, it was recommended that the cancer surveillance system integrate a gender-based analysis and be enhanced to include prevention, early detection, treatment and supportive care and that the existing cardiovascular

[2] Sex refers to the biological characteristics that distinguish males and females such as physiology and anatomy. Gender refers to socially constructed roles and relationships, personality traits, attitudes, behaviours, values, relative power and influence that society ascribes to women and men on a differential basis (Health Canada 2003a).

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surveillance system integrate a gender-based analysis in its surveillance of prevention, diagnosis, management, treatment, and outcomes. Expanded surveillance in the areas of musculo-skeletal disorders, mental health, and violence was also recommended. Organizational structures to facilitate the development of a comprehensive women's health surveillance system were also proposed.

Some enhancement of the surveillance systems for cancer, musculo-skeletal disorders and mental health has been acted upon. In addition, a project involving many of the members of the Advisory Committee was undertaken to assess the state of data holdings in women's health in Canada, identify the major data gaps and serve as the basis for further indicator development to track changes in women's health over time. This initiative produced the *Women's Health Surveillance Report* (Canadian Institute for Health Information & Health Canada, 2003). Authors from across Canada contributed more than 30 chapters on the determinants of health, the health status of Canadian women, health related conditions, health care utilization and policy implications of women's health surveillance. Among the wide range of topics included were women's multiple roles and mental health, the impacts of a reduced fertility rate on women's health, breast and gynecological cancers, and factors associated with women's medication use[3]. Significantly, the report identified the need for more contextual data pertaining to diverse women's circumstances, such as women's roles in the work force, at home, and as caregivers. It also called for more longitudinal data that would "allow a better understanding of the links between health behaviours and health outcomes." The report noted that, qualitative and quantitative research should complement each other and help to determine the most useful contextual variables (CIHI & Health Canada 2003). (See Appendix I for key findings from the *WHSR*).

Another initiative in Canada related to women's health surveillance is the Canadian Perinatal Surveillance System (CPSS). This national health surveillance program delivered through the Maternal and Infant Health Section in the Public Health Agency of Canada has as its mission: "to contribute to improved health for pregnant women, mothers and infants in Canada" (PHAC 2005b). The CPSS is guided by a steering committee who represent a range of sectors concerned with perinatal health, including expert representatives of national health professional associations, provincial and territorial governments, consumer and advocacy groups and federal government departments, as well as Canadian and international experts in perinatal health and epidemiology. The CPSS currently reports on 27 perinatal health indicators (see Appendix II), including indicators of health behaviours and practices (e. g., rate of breastfeeding, low maternal education, and births to teenage and to older mothers); indicators of health services (e. g., rate of cesarean delivery, labour induction, and operative vaginal delivery); and indicators of maternal, fetal and infant health outcomes (Health Canada 2000b). This surveillance system exemplifies the value of systematically monitoring indicators that go beyond women's reproductive roles by beginning to track some broader determinants of health. Regular reporting on these indicators will help to identify changes and track trends in women's health over time.

In 2005 funding was announced to support an integrated approach to surveillance in Canada, as part of the Integrated Strategy on Healthy Living and Chronic Disease. Led by the Public Health Agency of Canada, the goal of these enhanced surveillance capabilities is to help build the foundation of a comprehensive approach to chronic disease surveillance that will "improve our ability to monitor: risk conditions in society; disease risk factors; the existence of pre-disease states and disease; and treatments and their outcomes. It will add to, and bring together, results from existing surveillance efforts in the areas of cancer, cardiovascular disease and diabetes, in which the National Diabetes Surveillance System is a key element" (PHAC 2005c).

Through the efforts of those who have identified and sought to remedy the gaps in women's health surveillance in Canada, small changes have been made in existing surveillance systems to include data that are relevant to women's health and to better understand gender and health. Having valid and reliable health indicators that are sensitive to gender and diversity is another critical dimension of health surveillance. As the synthesis chapter of the *Women's Health Surveillance Report* makes clear "agreement on a framework and a core set of gender-sensitive women's health indicators will be an important step towards establishing a comprehensive and valid scope for future reports" (DesMeules et al. 2003).

Women's health indicators

In Canada, considerable attention has been placed on health indicators since the late 1990s. Governments and non-governmental organisations have been developing measures to track health trends similar to those developed to monitor economic trends. In 1998, the Canadian Institute of Health Information (CIHI), Statistics Canada, and Health Canada hosted a meeting to identify health information needs in Canada. More than 500 health administrators, researchers, care providers, government representatives, consumer groups and public interest

[3] A notable exception was the absence of a chapter on Aboriginal women's health in Canada.

groups came together to assess the existence and availability of comparable data for population health and health service indicators, and to provide support to regional health authorities in an effort to enhance their monitoring capabilities (CIHI & Statistics Canada 1999). CIHI, Statistics Canada, and Health Canada continue to play a national coordination role in the development and reporting of comparable health indicators across jurisdictions in Canada.

In 2000, First Ministers committed to regularly inform Canadians of the state of population health and the health care system (Canadian Intergovernmental Conference Secretariat 2000; Government of Canada 2003; Government of Canada 2004). As one result, a Federal Report on Comparable Health Indicators has been released every two years since 2002 (Health Canada 2002; Health Canada 2004). Provincial and territorial reports on comparable health indicators have also been published, [e.g. Manitoba Health (2004)]. Regular updates on the state of population health and the health care system follow from recommendations made in other recent health care Commissions such as the Kirby Report (Kirby 2002) and the Romanow Report on the Future of Health Care in Canada (Romanow 2002). In 2004, the Health Council of Canada released its report on the progress that has been made in First Ministers' commitments to strengthen health care.

However, as noted by many women's health researchers and women's organizations, these processes and reports have not adequately integrated a gender-based analysis to systematically assess the impacts of sex, gender, and diversity on health (National Coordinating Group on Health Care Reform and Women 2003, 2006; Armstrong et al. 2002). The case of health system reform shows some of the limitations in existing health indicators. For example, the use of shortened hospital stays as an indicator of health care cost savings and better health outcomes is not appropriately gender-sensitive because it does not reflect the impact of early discharges on unpaid family caregivers, most of whom are women. Research has begun to demonstrate how added caregiving responsibilities affect women's mortality and morbidity (Lee et al. 2003). More research is needed into the economic, social, physical and mental health effects of caregiving to develop health indicators sensitive enough to measure the impacts of health system changes on the health and well-being of caregivers, both male and female.

Tracking and reporting on sex and gender specific health indicators can help health planners and policy-makers understand how the system is performing and where it can improve. With the appropriate indicators, trends in women's health can be monitored over time. Without gender and diversity sensitive health indicators, subpopulations such as Aboriginal women, immigrant and refugee women, women with disabilities and young women are at risk of being rendered "invisible" and relevant information about health determinants, health status and health care performance may be missed (Horne et al. 1999; Abdool et al. 2003).

The Bureau of Women's Health and Gender Analysis (formerly the Women's Health Bureau) at Health Canada has been leading a project on women's health indicators since 2002 in an attempt to promote the development of gender and diversity sensitive health indicators that address women's health determinants, health status, and the performance of the health care system. The Bureau commissioned a *Profile of Women's Health Indicators in Canada* (Health Canada 2003b) that surveyed the landscape of data that are available in Canada for regular reporting on dimensions of women's health. This report revealed gaps in what is captured through available indicators, such as unpaid household work, where women still carry almost 2/3 of the burden. It noted that the *Canadian Community Health Survey* in 2000–01 did not include women's unpaid work and that employment and unemployment statistics alone provide only a partial view of women's work and its impact on their health. Also missing are rates of family and domestic violence, and rates of sexual assault. These are essential indicators of women's health. Important gaps were also identified in information related to health determinants and outcomes for Aboriginal women, immigrant women and women with disabilities. Measures to identify and analyse environmental determinants of health were also lacking.

To address some of these gaps, Health Canada initiated a call for external research proposals to develop women's health indicators in the areas of women's socio-cultural roles, and social inequalities in women's health. Two research projects have been funded. One project is called "Measuring Health Inequalities among Canadian Women: Developing a Basket of Indicators". The research objective is to develop a set of evidence-based women's health indicators to measure and monitor inequalities in health and health care associated with income, education, and ethnicity. Improving our use of existing data sets to describe women's health will help to identify public policy measures that hold the potential to reduce health inequalities and inequities between men and women. The project's results will provide an analysis of a "basket of indicators" from which federal, provincial, and local officials can select measures based on their needs and priorities. The final report from this project will be available in April 2007.

The second project, "Psychotropic Drug Use as a Gender-Sensitive Marker of Emotional Health for Women in Canada", seeks to better understand the interplay of factors that influence gender differences in rates of psychotropic drug use to treat emotional distress in society. The research will contribute evidence towards the validity of anti-anxiety and anti-

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depressant drug use as a gender-sensitive marker of emotional health for women. The project's results will contribute to our understanding of women's emotional well-being and will bring to light gender differences in the occurrence and over-medicalization of life stresses and anxieties for women compared to men, as well as for various vulnerable sub-groups of women. By understanding the relative contribution of patient, physician, and drug factors to psychotropic prescribing within the context of different social roles and cultures, the results will help guide policies for improving women's health at the population level. The final report from this project will be available in December 2006.

Conclusion: What have we learned?

This paper has discussed some of the ways gender-based analysis is being applied to health surveillance and health indicators in Canada to identify and address health disparities and thereby promote equity in health. Identifying and redressing the sex and gender gaps in health surveillance can contribute to a more robust and accurate system of health surveillance in Canada and provide a stronger evidence base for the development and implementation of policies to improve population health outcomes and reduce health disparities.

Despite encouraging initiatives, barriers still exist in the uptake of gender-based analysis and in its coordination across large and diverse government departments and other institutions. Working across administrative and jurisdictional boundaries, as well as across disciplines, can be difficult because people come with varying assumptions, constraints, priorities and paradigms. The discourse used by some may be unfamiliar to others. We have found that collaborative projects involving people with varied backgrounds, training and expertise, committed to common goals, offer the opportunity to clarify how sex, gender and diversity can enhance an understanding of issues and contribute to better surveillance, research, policies and programs.

We see a need for dynamic theoretical frameworks that help to explain the interrelationships between sex, gender and other health determinants. Processes of human resilience and vulnerabilities, causal pathways and cumulative effects of circumstances and risks over the life span of women and men need to be woven into an understanding of health determinants and captured in health indicators. There needs to be commitment and capacity to use and refine knowledge. As has been documented, the best available evidence is not always shared and applied (Dobbins et al. 2002).

There is a need for systematic health and social policy research and for assessments on the impacts of current and past policies. There is much to be learned through international collaboration to measure the impacts of particular health and social policies on health outcomes. Such initiatives are enhanced by the application of gender and diversity-sensitive analysis.

The initiatives discussed above have benefited from processes of public involvement. For example, women's groups and organizations in Canada have a long and vibrant history of advocacy and engagement with all levels of government to improve women's health. Women from diverse backgrounds, regions, with differing abilities, of different ages, and different sexual orientations bring creative ideas, life experiences, and diverse opinions to discussions about surveillance, research, policy and how to improve the development of appropriate indicators. They have challenged assumptions and concepts, contributing to a more transparent process of policy development and to ensuring accountability to the goals of equity in health. Innovative projects, such as one led by the Native Women's Association of Canada and supported by Health Canada, in the area of Aboriginal women's health indicators, provides an example of how the application of different approaches and methodologies can contribute to a better understanding of health that captures the realities of Aboriginal women's experiences. Similarly, collaboration between consumers, researchers and policy makers is broadening the approach to mental health surveillance through the inclusion of indicators such as the proportion of income spent on housing, rates of physical and emotional abuse and indicators of neighbourhood safety.

Opportunities for more concerted and coordinated action across national boundaries exist in many spheres – in surveillance, research, policy, indicator development, and reporting. The initiatives described above contribute to a 'global synergy' to promote equity in health in Canada and internationally. Learning is a lifelong process and is enriched through dialogue across boundaries.

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Appendix I

Key findings from the Women's Health Surveillance Report
According to the latest statistics from 1997–99, Canadian women have a life expectancy of 81.4 years, compared to 75.9 years for men. But when deaths from smoking-related diseases and other preventable causes are excluded, women's Health-Adjusted Life Expectancy is actually slightly lower than men's – 73.5 years for women, compared to 73.9 years for men. Furthermore, 14.7 % of women report having occasional activity limitations compared to 13.1 % of men, according to Statistics Canada's 2000-01 *Canadian Community Health Survey*; 5.3 % of women report 8-14 disability days per year, compared to 4.2 % of men. Women are further disadvantaged by lower levels of income and social support: 20–27 % of disabled women have low income compared to 13–18 % of disabled men; 35–41 % of disabled women report receiving social support all of the time compared to 40–58 % of men.

Younger women's health
Young women in Canada face some disturbing health risks. They experience higher rates of depression (11 % of women age 18–24 compared to 3.6 % of women 45–64); and while more young men die by suicide, young women have nearly three times the rate of hospitalization for suicide attempts compared to men (221 women age 15–19 per 100 000, compared to 85 men). Women age 15–24 report three times as much partner violence as older women (42.4 % among women age 15–24, compared to 15.8 % among women over 45). Young women's sexual health is also of great concern. Forty per cent of sexually active unmarried girls age 15–17 report not using contraception consistently. Women age 15–19 have six times the average rates of chlamydia and gonorrhoea infections (1 236 cases of chlamydia per 100 000 age 15–19 compared to 212 among all women; 96 cases of gonorrhoea compared to an average of 15). Women age 15–29 currently account for 44.5 % of new positive HIV tests among women, compared to 14.6 % in 1985.[4]

Older women's health
Older women also face greater disease burden than men. For example, 55 % of women age 75 and over have been diagnosed with osteoporosis or arthritis, compared to 38 % of men. Women over 70 are also at increased risk due to low levels of physical activity: 72 % are inactive, which contributes to high blood pressure, diabetes, and other health problems. Indeed, 53 % of women age 55–64 have high blood pressure compared to 43 % of men.

[4] The overall incidence of HIV among women has been steady for the past few years, while the rate is declining among men (WHSR 2003).

Canadian women's health behaviours
There are also important gender differences in health-related behaviours. Smoking prevalence among women, although lower than among men, has decreased less than among men over the last few decades. From 1965 to 2001, the smoking rate among men dropped 36 % (from 61 % to 25 %) while among women the rate dropped 17 % (from 38 % to 21 %). The rate of smoking uptake among teenaged girls now exceeds that among boys. Although the prevalence of overweight and obesity among women is lower than among men, the prevalence of overweight among women has steadily increased from 1985 to 2000–01, while a slight decrease has been noted for men in the last 5 years. Additionally, more women than men in all age groups are physically inactive. Among sub-groups of women, the prevalence of obesity varies. It is highest among women in low and lower middle income groups compared to other income groups, and among Aboriginal women compared to non-Aboriginal women.

Appendix II

Canadian Perinatal Surveillance System – List of indicators

A: Determinants of Maternal, Fetal and Infant Health

Behaviours and practices
Rate of Maternal Smoking during Pregnancy
Rate of Maternal Alcohol Consumption during Pregnancy
Rate of Breastfeeding
Rate of Low Maternal Education
Rate of Live Births to Teenage Mothers
Rate of Live Births to Older Mothers

Health services
Rate of Labour Induction
Rate of Cesarean Delivery
Rate of Operative Vaginal Delivery
Rate of Trauma to the Perineum
Rate of Early Maternal Discharge from Hospital after Childbirth
Rate of Early Neonatal Discharge from Hospital after Birth

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B: Maternal, Fetal and Infant Health Outcomes

Maternal Health Outcomes
Maternal Mortality Ratio
Severe Maternal Morbidity Ratio
Induced Abortion Ratio
Rate of Ectopic Pregnancy
Rate of Maternal Readmission after Discharge following Childbirth

Fetal and Infant Health Outcomes

Preterm Birth Rate
Postterm Birth Rate
Small-for-Gestational-Age Rate
Large-for-Gestational-Age Rate
Fetal Mortality Rate
Infant Mortality Rate and Causes of Death
Severe Neonatal Morbidity Rate
Multiple Birth Rate
Prevalence of Congenital Anomalies
Rate of Neonatal Hospital Readmission after discharge following Birth