

PRAIRIE WOMEN'S HEALTH
CENTRE OF EXCELLENCE

RESEARCH ■ POLICY ■ COMMUNITY

Improving
*Women's
Health*



**Better Evidence to Improve Women's
Health with Gender and Health Statistics:
Health Indicator Frameworks**

M. Haworth-Brockman
H. Isfeld

Prairie Women's Health Centre of Excellence (PWHCE) is one of the Centres of Excellence for Women's Health, funded by the Women's Health Contribution Program of Health Canada. PWHCE supports new knowledge and research on women's health issues; and provides policy advice, analysis and information to governments, health organizations and non-governmental organizations. Production of this document has been made possible through a financial contribution from Health Canada. The views expressed herein do not necessarily represent the views of PWHCE or Health Canada.

This paper was an invited concept paper, developed in preparation for a World Health Organization meeting, *A Policy Dialogue for Better Evidence to Improve Women's Health through Gender and Health Statistics*, held October 25-27, 2010 in Washington DC.

The Prairie Women's Health Centre of Excellence
56 The Promenade
Winnipeg, Manitoba R3B 3H9
Telephone: (204) 982-6630
Fax: (204) 982-6637
Email: pwhce@uwinnipeg.ca

This report is also available on our website: www.pwhce.ca

This is project #253 of Prairie Women's Health Centre of Excellence

ISBN # 978-1-897250-37-2

Better Evidence to Improve Women's Health with Gender and Health Statistics: Health Indicator Frameworks

M. Haworth-Brockman
H. Isfeld



centres of excellence
for WOMEN'S HEALTH

centres d'excellence
pour LA SANTÉ DES FEMMES

PRAIRIE WOMEN'S HEALTH

CENTRE OF EXCELLENCE
RESEARCH ■ POLICY ■ COMMUNITY

Acknowledgements

This paper was an invited concept paper, developed in preparation for a World Health Organization meeting, *A Policy Dialogue for Better Evidence to Improve Women's Health through Gender and Health Statistics*, held October 25-27, 2010 in Washington DC. We are grateful to the WHO for the opportunity to collaborate and in particular we thank Dr Avni Amin for her leadership and thoughtful comments. We are also grateful to Shelly Abdool and Lilia Jara of the Pan-American Health Organization for their contributions and reviews of earlier versions of this manuscript.

Table of Contents

Executive Summary	i
Introduction	1
A. The Need to Strengthen the Evidence Base About Women’s Health	3
Gaps in Knowledge.....	5
B. Review and Examples of Frameworks for Monitoring Gender and Health Equity	7
1. OECD/ISO Health Indicator Framework	7
2. Pan-American Health Organization – Basic Indicators for Gender Equity Analysis in Health	13
3. WHO Health Statistics	15
4. Social Determinants of Health.....	18
5. WHO - Women and Health.....	20
6. Alternative Frameworks	21
Summary	21
C. Indicators, Frameworks and Analysis: Factors to Consider	23
Project Objectives	23
Scope.....	25
Analysis	25
D. Dissemination	31
Knowledge of Stakeholders	31
Tools & Mechanisms for Communication	32
Producer-user Relationships	33
Communication Principles & Practices	33
Conclusions	35
References	37

Executive Summary

Health indicator frameworks provide a purposeful and systematic means to conceptualize health-influencing factors and their relationships to health status (or outcomes). Frameworks are shaped by current health policy priorities and availability of useable data, but also should reflect factors that have meaning in people's lives, and point to action that can be taken to improve health (Jackson and Willson 2005). This paper describes frameworks and processes to bring sensitivity to both sex (biology and physiology) and gender (personal and societal roles, responsibilities, access to resources and power) to indicators of health and health determinants. It discusses how health indicator frameworks can be used to organize, record and monitor health information, incorporate gender equity considerations and thus provide evidence of health inequities between and among women and men, and indicate where interventions can improve health. There is an emphasis in this paper on women's health because women's health is disproportionately poor, and there is disproportionately poor evidence about women's health and health determinants.

The paper was commissioned to contribute to the consultation, *A Policy Dialogue for Better Evidence to Improve Women's Health through Gender and Health Statistics*, hosted by the World Health Organization and the Pan-American Health Organization in Washington DC in October, 2010. The consultation brought together *users* and *producers* of gender and health data to discuss frameworks, approaches, country experiences, lessons learned and challenges in generating, analyzing and using gender and health data for informing policies to improve women's health. In particular, the consultation aimed to build a shared understanding among participants of key concepts, analysis frameworks, and approaches to gender equity and health statistics. To contribute to these aims, the paper focuses on:

- A. Why we need to develop and strengthen gender and health information as the evidence base for improving women's health;
- B. A review of different frameworks and their ability to monitor and respond to trends and disparities in women's health;
- C. The need to situate women's health in the gender equality and women's empowerment framework; and
- D. Ensuring that gendered women's health information is available in a form that can be used to effect change in policy and programming.

The Need to Strengthen the Evidence Base about Women

The development of evidence and data about women's health has been a global challenge for the past 30 or more years. While there is growing agreement that more attention should be paid to the multiple aspects of women's health, and even as research evidence about women's health is also growing, there are still many gaps to be filled. A robust evidence base is critical to targeting health care and program delivery, and thus to improving women's health in all nations (Colman 1999, Lin et al. 2003, Ben Abdelaziz 2007a, WHO 2009). Global action to improve health surveillance and monitoring, and to reduce health inequities have not consistently integrated evidence of how women's and men's health differs, and how health differs *among* women and *among* men. There has been movement to consider equity across dimensions of health, without clear articulation of the means and mechanisms to ensure that data are recorded, reported and analyzed with systematic attention to where differences may lie, and how they can be addressed.

Furthermore, as the concepts and techniques for gender-based analysis have matured, it has also become clear that not only does analysis of women's health require specific figures and data about women, but also must be presented in a context that takes into account political, social and systemic factors that influence women's individual health and the health of women as a population (Colman 1999, Lin et al. 2003, DesMeules et al. 2004, Östlin et al. 2007, Haworth-Brockman & Isfeld 2009). These factors, related to women's *gendered* responsibilities, roles, and power in access to resources and decision-making all provide significant context to understanding the figures and data.

Health Indicator Frameworks

Five international health indicator frameworks are reviewed:

- OECD/ISO Health Indicator Framework
- PAHO Basic Indicators for Gender Equity Analysis in Health
- WHO Health Statistics
- Social Determinants of Health (WHO)
- Women and Health

The possibility of developing culturally-specific alternative frameworks is also considered.

Examples of modifications to the frameworks demonstrate the strengths and weaknesses of each. As Lin et al. (2003) suggested, global and national level reporting cannot systematically uncover gender and diversity inequities without explicit inclusion of

gender-sensitive indicators and stratifiers by sex, ethnicity, geography or income (among other possibilities). While it should not be necessary to create new data bases, it is essential to consistently **collect and report** indicators by sex, and provide contextual analysis to understand how women's health is influenced by the political and social circumstances of their lives.

In short, health indicator frameworks should explicitly include gender and analysis of women's diversity in health status, health determinants and the response of health care systems. Additionally, gender statistics provide needed context of women's opportunities to be involved in decisions related to their own health and the delivery of health services and programs. Frameworks and indicators should be clearly linked to explicit goals to improve health and reduce health inequities for women (Jackson and Willson 2005).

Factors to Consider

The overall intent of a gender and health project varies. Planning, policy decisions, monitoring progress, generating awareness, program evaluation, generating evidence of the breadth and determinants of a problem are some typical reasons for producing gender and health data. Users and community members should participate in the design, as they will have knowledge of indicators where there is clear authority to address policy implications and there is capacity for response. Although the greatest potential for the value added by gender and equity data and analyses are to be gained when these aspects are considered early in project planning, they can also be revisited or newly introduced at the outset of a new cycle of a project's implementation.

The scope of the framework and indicators can be broad or specific to a health area or topic that is of particular concern. The scope is often determined by the interests of the users, where a political directive or targeted funding may be the catalyst for supporting the gathering of new evidence. Whether the project scope is fairly narrow or not, the framework should include indicators that fall outside of clinical and medical factors. Violence against women and unpaid work, for example, are two gendered aspects of women's lives that have significant influence on women's health.

Gendered based analysis of a framework and indicators should bring together other disaggregations (age, socio-economic level, ethnicity, geography, as possible), current literature and a working knowledge of existing policies and local politics, and community expertise. The analysis is strengthened by understanding that social locations (like gender, race, class) are not simply attributes of individuals, they are the product of social relations and should be situated within social structures (e.g. diagnostic practices, gendered relations of care). The analysis should move between different levels of analysis and diverse sources and types of evidence, moving both horizontally (from

situation to situation) and vertically (from particular to general, micro to macro-structural). The analysis remains open to both generalized knowledge (e.g. prevalence of osteoarthritis in women and men) and particular experience (e.g. an individual's reports of pain and disability).

The global challenge to improve women's health depends in part on systematic inclusion of women's health concerns, and monitoring and surveillance that includes gendered considerations of health determinants. Health indicator frameworks can purposefully and systematically integrate women's health and gender statistics and thus be used to take action in policies and programs to improve women's health

Dissemination

Producing evidence on women's health with gender and equity informed frameworks provides a rich resource for policy and planning, effecting change and ultimately reducing gender inequities. *Using* the evidence is made possible through ensuring that the information collected and reported is the information needed, but also by effective communication and dissemination of the information.

The starting point is the identification of relevant audiences or stakeholders. Most often, these are the decision makers in national, regional, and local governments, the policy makers, planners and program managers who continually need new insight on issues affecting public health and welfare. Other stakeholders, including civil society organizations, NGOs, community-based advocates, the media, and the broader public, also carry considerable influence or have intermediary roles in the larger policy context, as those who activate broad support for policy change.

Communicating the results of gender and equity analysis to stakeholders requires a conscious and systematic plan, not only for appropriate audiences, but for the mechanisms, message, form and format suitable to the potential users of data. Moreover, it involves fostering relationships and cultivating active dialogue between the producers of data and intended beneficiaries of their work. User consultations both strengthen the appropriate development of indicators and promote wider application and utilization (Ben Abdelaziz 2007a).

Because gender-sensitive indicators are increasingly adopted by mainstream users who are more diverse than data users of the past, the need to understand and account for users' distinct needs and interests has grown (Fong 2007). There is an inherent tension between producers' goals of maintaining consistency in the provision of indicator data and data users' needs for innovation to remain responsive to emerging priorities. Regular

consultation with stakeholders is suggested as the key to maintaining relevance and timeliness in the face of changing priorities.

The channels of communication between data producers and users of data often remain underdeveloped. A number of tools and mechanisms for communication may be considered for their suitability for the range of stakeholders involved. Regardless of the specific communication tool that is used, several basic principles and practices can increase uptake of the products of data analysis among a wide range of stakeholders, including community organizations, relating to language use and terminology and data descriptions.

Better Evidence to Improve Women’s Health with Gender and Health Statistics: Health Indicator Frameworks

“The key reason for using gender sensitive health indicators is to provide a rigorous information base for policy actions that can improve health outcomes and reduce unjust health inequities that are a result of the social construction of gender.” (Lin et al. 2005)

Introduction

A robust evidence base is critical to targeting health care and program delivery, and thus to reducing health disparities in all nations. Policy and interventions taken to improve health outcomes and reduce health disparities are more effective where there are basic systems in place to record and report health data needed, and when there are also processes in place to make sure the evidence is understood and can be applied to effective interventions. The World Health Organization (WHO) Commission on the Social Determinants of Health 2008 final report, *Closing the Gap in a Generation: Health equity through action on the social determinants of health*, emphasized the need to ensure “routine monitoring systems are in place locally, nationally and internationally” (WHO 2008, page 178). As the Commission’s report argued, biomedical health data are not sufficient, as evidence is also needed about the determinants which influence health. Furthermore, evidence is considerably improved when data are collected and reported in ways that allow for the exposure of health inequities, which can then be addressed. In particular, the WHO has made women’s and girls’ health a priority as it has become increasingly apparent that women and girls are more likely to face greater burdens of poor health and have more distinct, complex and diverse health needs than have generally been taken into account by health systems.

Global action to improve health surveillance and monitoring and to reduce health inequities has not consistently integrated evidence of how women’s and men’s health differs, and how health differs *among* women and *among* men. There has been movement to consider equity across dimensions of health but without clear articulation of the means and mechanisms to ensure that data are recorded, reported and analyzed with systematic attention to where differences may lie, and how they can be addressed.

Equity: is achieved when avoidable, systematic differences in health are removed, so that all women and men have access to the health sustaining resources and health services they need (WHO 2008).

Health indicator frameworks provide a purposeful and systematic means to conceptualize health-influencing factors and their relationships to health status (or outcomes). Frameworks are shaped by current health policy priorities and the availability of useable data, but also should reflect factors that have meaning in people's lives, and point to action that can be taken to improve health (Jackson and Willson 2005). This paper reviews examples of health indicator frameworks and analytical methods to incorporate sensitivity to sex (biology and physiology) and gender (personal and societal roles, responsibilities, access to resources and power) (Clow et al. 2009) in indicators of health and health determinants. It discusses how health indicator frameworks can be used to organize, record and monitor health information, incorporate gender equity considerations and thus provide evidence of health inequities between and among women and men, and indicate where interventions can improve health. There is an emphasis in this paper on women's health because women's health is disproportionately poor, and there is disproportionately poor evidence about women's health and health determinants.

This paper was commissioned to contribute to the consultation, *A Policy Dialogue for Better Evidence to Improve Women's Health through Gender and Health Statistics*, hosted by the World Health Organization and the Pan-American Health Organization in Washington, DC, in October 2010. The consultation brought together *users* and *producers* of gender and health data to discuss frameworks, approaches, country experiences, lessons learned and challenges in generating, analyzing and using gender and health data for informing policies to improve women's health. Based on principles of dialogue and equal participation by diverse stakeholders, the goal was to build a common understanding of perspectives on gender, equity and health data and to identify practical actions to strengthen the generation and use of health data to reduce gender-based health inequalities and improve the health of women. In particular, the consultation aimed to build a shared understanding among participants of key concepts, analysis frameworks, and approaches to gender equity and health statistics. To contribute to these aims, this paper focuses on:

- A. Why we need to develop and strengthen gender and health information as the evidence base for improving women's health;
- B. A review of different frameworks and their ability to monitor and respond to trends and disparities in women's health;
- C. The need to situate women's health in the gender equality and women's empowerment framework; and
- D. Ensuring that gendered women's health information is available in a form that can be used to effect change in policy and programming.

As will be demonstrated, a framework for reporting and interpreting health data provides more complex, robust and meaningful evidence needed to take action on women's health.

A. The Need to Strengthen the Evidence Base About Women's Health¹

Women generally live longer than men because of both biological and behavioural advantages. But in some setting ... these advantages are overridden by gender-based discrimination so that female life expectancy at birth is lower than or equal to that of males. Moreover, women's longer lives are not necessarily healthy lives.” (WHO 2009, page xi)

Women's health has long been a concern for the World Health Organization, a commitment reaffirmed in the 2009 report, *Women and Health*. According to the report it has become increasingly apparent that women and girls have particular health needs that health systems are not meeting. As the report noted, “While women and men share many similar health challenges, the differences are such that the health of women deserves particular attention” (WHO 2009, page xi). Thus the WHO and several other international agencies, including the United Nations Secretary General,² have placed a renewed priority on the health of women.

While some health issues are specific to women, such as pregnancy and birth, other “health challenges affect both women and men, but have a greater or different impact on women and so require responses that are tailored specifically to women's needs” (WHO 2009, page xii) – such as programs that acknowledge that tobacco smoking or body weight have social contexts that put women at different risks than men. In other cases women and men may be affected similarly by conditions, but women are less able to reach or receive the good quality health care they need – such as women's greater likelihood of not having employment benefits to cover out-of-pocket health costs. Gender-based inequalities in income, employment and education (among other factors) can greatly limit how well women and girls can protect their health. As these inequalities are often based on remediable conditions and political and social structures, it is essential to understand these factors better so as to develop responsive health policies and programmes.

Women are the majority of adults in most populations, they are the primary users of health care (taking childbearing and reproductive health into consideration), seek health care for their families, provide unpaid care in the home and community, are the majority of front-line health care workers and are significantly less likely to be involved in health care decision-making (Lin et al. 2004). Thus, women have considerable vested interest in

¹ We thank A. Amin, S. Abdool and L. Jara for their contributions to this section.

² The UN Secretary General has initiated campaigns to end violence against women and a recent global strategy on the health of women and children, towards reaching the 2015 Millennium Development Goal targets.

health and health services and yet they often lack power to protect their health or to shape the services that would better address their needs. Globally, women are at increased risk for poor health outcomes, which is a function of both biology (sex) and the roles, responsibilities and lesser power women typically have in their own homes, in their local communities and in wider society (gender). As the Women and Gender Equity Knowledge Network (WGEKN) noted, biological differences are important but they are not the only factors that determine health differences between men and women, or among different groups of women (Östlin et al. 2007). That is, women's vulnerability arises out of biological factors in some cases (childbirth or the transmission of HIV, for example), but especially out of gendered factors, including violence against women, poverty, poor education, denial of human rights, among others (Östlin et al. 2007, Lin et al. 2003, WHO 2008).

Gender statistics are drawn from different sectors and provide important information about women's and men's lives, particularly about their participation in public and political spheres, as well as their employment, education and literacy.

Investing in better surveillance evidence and analysis that take both sex and gender into account is essential to improving health policies, programs and care delivery for women. Improving data on women's health from a gender equality framework requires going beyond indicators that narrowly reflect biomedical metrics. It requires data that are meaningful to women and sensitive to their status and circumstances.

Globally, many countries have endeavoured to advance gender statistics and women's health data as part of their commitments to international agreements made during the International Conference on Population and Development in Cairo (1994), the Fourth World Conference on Women in Beijing (1995) and in the Millennium Development Goals (2000). Certainly, considerable progress has been made in the past 20 years. However, several challenges impede the ability to identify gender-related health vulnerabilities, to monitor progress in addressing gender equality and health equity and to strengthen the evidence base to improve the health of women. Firstly, there is a confusing range of terms and concepts in use, and likewise a range of frameworks for data collection, reporting and analysis have been used to monitor progress on gender equality, health equity and women's health. Secondly, the need to monitor gender and health equity as part of monitoring health outcomes is not always understood or accepted. Health data disaggregated by sex, age, ethnic group, and other variables are not systematically collected or reported in many countries. Thirdly, even where such data are available, there is often an unwillingness or a lack of technical expertise to apply frameworks that

Gender inequality arises when women or men (usually women) are prevented from having access to the same resources and opportunities they require for full and equal participation in society.

capture determinants of health and aspects of gender inequality, and to integrate the information as a basis for policy-making. Fourthly, in many countries health sector and other stakeholders who *produce* health statistics and gender statistics, those who *work on* gender and health equity issues and those who *use* such data (such as policy makers, health managers, civil society organizations implementing and/or monitoring programmes, etc.) are often operating in completely separate silos. Finally, data on gender, women's health specifically and health equity may not be available in user friendly formats or may not meet the needs of decision-makers and programme planners.

Gaps in Knowledge

In 2007 the WGEKN submitted its final report to the WHO Commission on Social Determinants of Health. In their report, the WGEKN discussed how the absence of information on women and on women's health affects policies, programs, service delivery, and public health endeavours to enrol program participants or change personal behaviours (Östlin et al. 2007). Health administrative and survey data collected may include responses and records about women and girls, but historically the information has been lost in analyses and reports that do not consider the interactions of sex and gender with other health-related factors. The authors noted, "The importance of having good quality data and indicators for health status disaggregated by sex and age from infancy through old age cannot be overstated" (Östlin et al. 2007, page 85).

For example the *Women's Health Data Book* from the USA (Misra 2001) is broad in its approach to health, but is limited by a lack of nationally representative data on mental health issues for women, a serious gap in a health domain that is vital to women. An analysis of American women's access to care is prevented by gaps in data related to sub-populations of women (including young women and older women), and there is even a scarcity of data on reproductive health issues that are not strictly related to childbirth and fertility. And while there are acknowledged disparities among women in the US, there is insufficient research and surveillance data to examine those differences (Misra 2001).

The editors of WHO's *Women and Health* similarly note that there are "major gaps in knowledge that seriously limit what we can say with real authority about the health of women in different parts of the world" (WHO 2009, page xvi). The report found, for instance, that there are insufficient data available on poverty levels by age and sex in developing countries, making it difficult to understand fully the lives of older women who are widows.

Furthermore, as the concepts and techniques for gender-based analysis have matured, it has also become clear that not only does analysis of women's health require specific figures and data about women, but they must be presented in a context that takes into

account political, social and systemic factors that influence women's individual health and the health of women as a population (Colman 1999, Lin et al. 2003, DesMeules et al. 2004, Östlin et al. 2007, Haworth-Brockman & Isfeld 2009). These factors, related to women's *gendered* responsibilities, roles, and power in access to resources and decision-making all provide significant context to understanding figures and data.

Gender based analysis (GBA) examines how the experiences between women and men differ, as well as among women and among men. In health, GBA illuminates disparities in health status, health care utilization, ability to get and pay for care and participation in decision-making.

The development of evidence and data about women's health has been a global challenge for the past 30 or more years. While there is growing agreement that more attention should be paid to the multiple aspects of women's health, and even as research evidence about women's health is also growing, there are still many gaps to be filled. A robust evidence base is critical to targeting health care and program delivery, and thus to improving women's health in all nations (Colman 1999, Lin et al. 2003, Ben Abdelaziz 2007a, WHO 2009).

B. Review and Examples of Frameworks for Monitoring Gender and Health Equity

Health indicator frameworks provide an organizational structure for recording, reporting and monitoring health and health system measures. Ideally, health indicator frameworks should show the links between and among measures, so that the relationships between health determinants and systems and health status are understandable (Lin et al. 2003). The focus should be on the role of gender relations in creating disadvantage, specifically inequality between the sexes in access to and use of health care services (Standing 1997 in Lin et al. 2003).

Frameworks underscore the emphasis desired. The indicator framework recommended in the WHO report *Closing the Gap* (2008), for example, focuses on the influence of social determinants on health conditions. Health information frameworks, on the other hand, have been used for some years and provide an opportunity to mainstream gender considerations in existing process and mechanisms. The health indicator frameworks reviewed in this section have varying utility for recording and reflecting aspects of gender and equity; each of them has strengths and shortcomings. Adopting and modifying a framework will create opportunities for ensuring that indicators and subsequent analysis will consider gender and illuminate health inequities and disparities. As will be seen in Section C, once conceived and used, a framework can be used for comprehensive reporting from a country or region, or can be tailored to one portion of a population (women, for example), or to describe and monitor changes in one health area alone (diabetes or injuries, for example).

1. OECD/ISO Health Indicator Framework

The indicator framework developed by the OECD (2002) and the ISO (2001) has been adapted and used for nearly 10 years. Figure 1 illustrates a version of the framework published by the Canadian Institute for Health Information (CIHI 2010) and adapted and modified by a number of other agencies³.

Indicators in the first tier, *Health Status*, may be a single measure of self-related health (Lin et al. 2003), or can allow for monitoring issues of particular concern: for example HIV/AIDS, new infections such as Pandemic Influenza H1N1 A, or conditions that are

³ See for example http://www.ccyhc.org/work_indicators_about.html, http://ec.europa.eu/health/ph_projects/2001/monitoring/fp_monitoring_2001_a2_frep_08_en.pdf and http://www.amhb.ab.ca/Initiatives/statistics/Documents/Performance%20Monitoring%20Framework_Background_Feb%2008.pdf

changing in women (such as COPD). Mental health indicators should be included in this domain.

Indicators of *Human Function* can be used to monitor quality of life, and have been used for measures of disability or health-adjusted life expectancy. As women in many parts of the world live longer than men but often experience poorer health as they age, indicators in this tier can get beyond the presence or absence of disease, uncovering areas where targeted, gender-specific interventions may be of most value.

Gender-sensitive indicators can be chosen for the second tier, *Non-Medical Determinants of Health*, related to structural and environmental conditions (such as workplace conditions, availability of drinking water or environmental hazards) that can strongly influence women’s health and their ability to get health care when they need it. Gendered analysis of personal behaviour and lifestyle (e.g. smoking tobacco or illicit drug use) can reveal how much choice women really have; while overall rates may be lower for women than for men, for instance, sub-groups of women may have particular vulnerabilities.

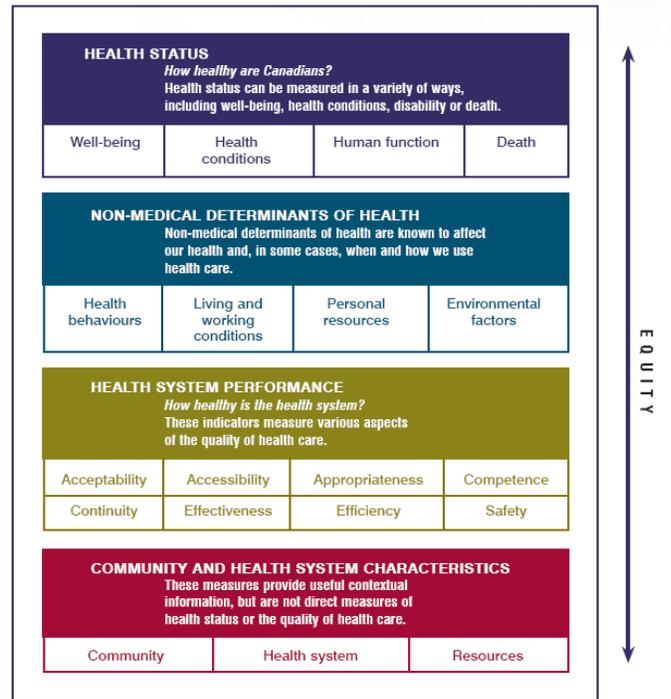


Figure 1. Health indicator framework as published by the Canadian Institute for Health Information (2010).

The tier for *Health System Performance* poses particular difficulties. The areas of accountability, appropriateness and continuity for example, are acknowledged to be important, but effective measures remain elusive. A 2003 audit of frameworks and indicators by Lin et al. found few indicators in this tier, most concentrated broadly in the dimensions of *Accountability* and *Effectiveness*, and almost all related to hospital performance: “The absence of gender-sensitive indicators for health system performance points to a glaring absence of engagement between those working on gender equity and those working on health sector reform” (Lin et al. 2003, page 47). Beck and Stelcner (1997) pointed out that qualitative evidence measuring respondents’ perceptions of health systems would provide information on how well health care meets the needs of users.

The fourth tier provides information at a structural and systemic level, making it distinct from the individual or household level data at which the health determinant indicators are measured. Resources such as numbers of doctors⁴ or hospital beds are included in this tier, and often population statistics.

Running from top to bottom is a prompt for producers and users to consider equity in both collecting and reporting indicator data. Over the years there has been considerable debate about how to include notions of equity and what they should be. Unfortunately, international discourse on health inequities and the development of a health equity perspective does not always include gender analysis, and unless gender is explicitly included, like equity it becomes invisible and thus forgotten (Lin et al. 2005).

An example from Australia illustrates how this OECD/ISO framework has been adapted to examine health issues for young people.

Example: Australian National Youth Survey

The Australian National Youth Survey (Figure 2) modifies the ISO/OECD framework using indicators relevant to the lives of young people who are not yet employed (for instance) but who also are likely to be more healthy than adults in the country. This framework does not explicitly add the equity dimension, and there are only three places where sex or gender-specific considerations or gender-sensitivity requirements for the indicators will be used (cervical screening and birth for young women, greater likelihood for young men to drink heavily or be the victims of violence). It would be essential to consider, however, the very different health influences and risks that young males and young females face, as there is considerable research evidence about violence and risk-taking behaviours that make young men vulnerable, and the social pressures young women face that can lead to tobacco smoking, to name two examples.

⁴ In fact, whether doctors are male or female may also be relevant, since research has shown that more women prefer a female physician, but at the same time, female physicians are more likely to work part-time (at least in developed countries), which affects availability and access.

Figure 2. National Youth Information Framework (AIHW 2010)

Table 1: National Youth Information Framework

Tier 1: Health status	
Health conditions	Prevalence of disease, disorder, injury or trauma, or other health-related states.
Human function	Alterations to body structure or function (impairment), activity limitations and restrictions in participation.
Wellbeing	Measures of physical, mental, and social wellbeing of individuals.
Deaths	Mortality rates and life expectancy measures.
Tier 2: Determinants of health	
Environmental factors	Physical, chemical and biological factors, such as, air, water, food and soil quality.
Community and socioeconomic factors	Community factors, such as, social capital, support services, family function and environment, and socioeconomic factors, such as, housing, education, employment and income.
Health behaviours ^(a)	Attitudes, beliefs, knowledge and behaviours such as patterns of eating, physical activity, smoking and alcohol consumption.
Tier 3: Health system performance	
Effectiveness	Care/intervention/action provided is relevant to the client's needs and based on established standards. Care, intervention or action achieves the desired outcome.
Safety	The avoidance, or reduction to acceptable limits, of actual or potential harm from health-care management or the environment in which health care is delivered.
Responsiveness	Service is client oriented. Clients are treated with dignity, confidentiality, and encouraged to participate in choices related to their care.
Continuity of care	Ability to provide uninterrupted, coordinated care or service across programs, practitioners, organisations and levels over time.
Accessibility	People can obtain health care at the right place and the right time, irrespective of income, physical location and cultural background.
Efficiency and sustainability	Achieving desired results with most cost-effective use of resources. Capacity of system to sustain workforce and infrastructure, to innovate and respond to emerging needs.

(a) The NHPF includes an additional dimension on biomedical factors in the Determinants of health tier. This dimension has been incorporated into the Health behaviours dimension as most of the biomedical factors are not relevant for young people.

Note: Based on the revised National Health Performance Framework. Slight revisions were made to the NHPF in 2008–09, such as, merging life expectancy with deaths, combining socioeconomic factors and community capacity, and reducing the number of health system performance dimensions from nine to six (NHSSC 2009).

It is interesting that additional qualitative indicators are being considered for the framework that would report on young women's and men's perceptions of themselves in Australian society, and the influences of public media in their lives, among others (AIHW 2009).

Example: WHO Core Set of Leading Gender-Sensitive Health Indicators

Following an audit of over 1,000 indicators for women’s health and numerous indicator framework, La Trobe Consortium and an Expert Working Group convened by the Women’s Health Programme of the WHO Kobe Collaborating Centre arrived at a framework of 37 Core Set of Leading Gender-Sensitive Health Indicators (Table 1) based on the OECD/ISO framework (Ben Abdelaziz 2007b). As the fourth tier is used for national and global reporting, describing system inputs or system characteristics, they are least likely to be sex-disaggregated and were not included (Lin et al. 2007).

Leading health indicators can be used to denote indicators that could point to underlying issues that are common for a range of health problems (e.g. upstream determinants of health); suggest current issues that require priority attention; and act as alerts for future problems (Lin et al. 2004).

Table 1. Core Set of Leading Gender-sensitive Health Indicators
(Exact wording for the indicators can be found in WHO Kobe 2005)

Health Status		
Maternal mortality Low Birthweight Infant Mortality Child Mortality (1 to 4 years)	Life Expectancy at age 65 Self-rate depression Self-rated health Domestic violence	Sexual violence Suicide HIV prevalence
Health Determinants		
Access to potable water & adequate sanitation Biomass fuel use Literacy Poverty Decision-making over own income	Tobacco Use Heavy drinking Illicit drug use Overweight and obesity Condom use during high risk sex Contraceptive use	Access to safe abortions Regular health exams Prevalence of (iron-deficiency) anemia in women
Health System Performance		
Ambulance (medical transport) Cataract surgery rate Use of medications for CVD Births attended by skilled professionals	Health facilities offering gender-sensitive patient care Respectful treatment Wait time for coronary or cataract intervention Access to provider of choice	Proportion of population covered by insurance Out-of-pocket health expenses Deferred health costs

A field test of the Core Set (Haworth-Brockman et al. 2007) found, as Lin et al. (2004) predicted, that while it serves as a manageable framework of a small but comprehensive list of indicators, there were limits to how well gender and equity could be considered:

- National-level can be used to find inequities between men and women, but as women are not a homogeneous population, sub-national or more local level data are needed to see where the specific vulnerabilities lie.
- The data alone do not provide information about gender equity, and each indicator requires a gender-based analysis. The addition of gender statistics would provide more context.
- In high income countries where maternal and premature mortality may be low, additional measures of morbidity or health quality are needed to uncover inequities. Maternal morbidity for example, can be a proxy for access to ante- and post-natal care, illustrating how well vulnerable women receive the care they need before reaching the extreme of death in childbirth.
- A blend of survey and administrative data is beneficial. Administrative data provide information about treatments and hospitalizations, but surveyed women can report whether or not they have sought and found care they need.
- Qualitative studies provide insights about local disparities and women's experience of inequities (see Section C).
- In jurisdictions with universal health care there may be hidden out-of-pocket medical expenses that are not regularly or formally reported. As women are more likely to have precarious, seasonal, low-paying or part-time jobs that do not include additional health benefits, they are more likely to be disadvantaged when paying out-of-pocket.

A Profile of Women's Health in Manitoba

A comprehensive profile of women's health was developed for the province of Manitoba in Canada to illustrate women's health issues and disparities across a population that is highly varied in terms of geography, availability of health services, income and ancestry (Donner et al.2008). Based on WHO Core Set of Indicators the Profile included gender-specific measures of sexual and domestic violence, unpaid work, and time stress. Housing was added in response to policy discussions and women's own reports of the effects of inadequate housing on their health. Sexual and reproductive health indicators were analyzed in detail as they are a central area of women's health and a primary reason women seek health care, and because there are policy concerns about maternity health services in the province. The Profile also included information about breastfeeding and menopause as women's sexual health goes beyond childbearing.

The Manitoba framework examined diversity among women, although comparisons to men were also made. Thus the Profile uncovered differences between indigenous women, young women, and women in the remote areas.

The indicators used were based on available administrative and survey data, which were not always comparable. Analyses were limited where data could not identify vulnerable sub-populations of women (such as women with disabilities or new immigrants and refugees), but comparisons between rural and urban residents, and by income quintile were usually possible.

2. Pan-American Health Organization – Basic Indicators for Gender Equity Analysis in Health

PAHO developed a comprehensive gender and equity framework to facilitate integration of a gender equity perspective in state health analysis, the development and assessment of health-related policies, and to monitor advances in health (PAHO 2005). Four key concepts are defined: health, equity, gender, and citizen participation. The goal of gender equity is sought in health status, access to health care services, health care cost coverage, and health care management (Table 2). Notably the tiers of socio-economic determinants and health management provide opportunities to monitor and take action upon women’s inclusion in policy decisions, how well women’s rights are upheld, and the opportunities they have to direct health care for other women and the community.

Table 2. Basic Indicators for Gender Equity Analysis in Health (PAHO 2005)

Pan American Health Organization	
Socio-economic Determinants of Health	Demography Socio-economic factors (income, employment, education, environment, laws and regulations)
Health Situation	Mortality Morbidity Risk factors Sexual and reproductive health Gender based violence
Access and Utilization of Health Services	Coverage Utilization in health promotion and prevention Health expenditures
Health Management	Formal and informal health care Making decisions

The health situation tier specifically notes both sexual and reproductive health, as well as gender-based violence. Violence against women is a serious women’s health problem, and PAHO suggests indicators of how a society deals with offenders, providing context about whether governments and society take gender-based violence seriously enough to record and report on incidents. If women feel safe enough to report violence, the information can be used to understand women’s vulnerability (such as in HIV transmission) and dependence (having to stay with perpetrators for income and shelter).

Importantly, PAHO promotes the inclusion of indicators concerning policy and legislation that protect women’s legal and reproductive rights, their participation in formal and informal labour markets (unpaid work), and women’s participation in political decision-making. Thus, it is possible to situate women’s health in a country or region within the overall context of women’s empowerment and gendered control over their own lives.

Example: Gender and Health Profile of HIV/AIDS in Belize

The PAHO framework was modified to make use of data available to record and monitor trends in HIV/AIDS in Belize (Table 3). With the assistance of country level epidemiologists and PAHO staff, the report integrates a gender-based analysis to look at risks to women and men, as well as boys and girls. Combined with other local and relevant health studies, the information can be used to develop recommendation for targeted action and policies.

Table 3. HIV/AIDS in Belize (PAHO 2009)

Health Situation	
Incidence of HIV Cumulative rates, by age, by sex New infections by sex, by district Risks: <ul style="list-style-type: none"> • Newly reported co-infections TB & HIV, by sex • Total cases co-infections TB & HIV • Total number STIs • Incidence of sexual violence 	AIDS diagnoses by sex New counts and cumulative rates by age, by sex New AIDS diagnoses by age, by sex Mortality: <ul style="list-style-type: none"> • AIDS related deaths • Aids related deaths by age, district, sex
Access and Utilization of Health Services	
Adults and children on ART, by age, by sex	Adults and children in need of ART, by age, by sex
Other related research on education, income, gender expectations for women and men’s behaviour and related to seeking health care.	

Example: Women of South-East Asia: A Health Profile

Although developed some years earlier, the framework used for a profile of women’s health in South-East Asia also reflects the intent of the PAHO framework (Table 4). The tier concerning women’s health status includes women’s occupational health (often overlooked) and also gender-based violence. The third tier reports on country-to-country comparisons on gender statistics.

Table 4. Framework for Women of South-East Asia: A Health Profile (2000)

Women of South-East Asia: A Health Profile	
Women’s Health Status	Mortality and Morbidity Disease Burden Reproductive Health Nutrition Health Problems in Work & Environment Violence against women
Determinants and Responses	Factors determining health: poverty, position in family and society education, role in the economy, political participation, access to health services National initiatives for the advancement of women
Women’s Health and Development-related Indicators	Regional Tables Country descriptions.

3. WHO Health Statistics

Every year the WHO releases global health statistics, highlighting new trends and worldwide concerns. Country to country comparisons are made for a large number of health issues, including risk factors, health system infrastructure, and proportion of government expenditures on health care. The data are used internally at WHO for estimation, advocacy, policy development and evaluation, and are also published and disseminated widely for external users (WHO 2005). The framework was developed to monitor progress towards the Millennium Development Goals, and designed to provide an overall “snap-shot” of current health situations in countries. WHO intended to be able to modify the framework over time, while the health and health-related indicators are selected based on their availability and the quality of data. Table 5 provides the 2010 framework and indicators.

Table 5. WHO Health Statistics Framework 2010.

<p>WHO Health Statistics Report for 2010 includes indicators in the following domains:</p> <p>Mortality and burden of disease Cause-specific mortality and morbidity Selected infectious diseases: number of reported cases Health service coverage Risk factors: individual behaviours and knowledge, and infrastructure (drinking water, sanitation) Health workforce, infrastructure and essential medicines Health expenditure: including private, personal and public spending Health inequities Demographic and socio-economic statistics</p>
--

This indicator framework allows for high level, country-to-country comparisons. It is notable that in the 2010 report the domain of health inequities is limited to mortality for children under the age of 5, immunization against measles by 12 months, and birth attendance by skilled personnel. Within country comparisons and analyses that use this framework may uncover other disparities but there is no explicit instruction to consider equity, and unless the last domain (demographics and socio-economic statistics) purposefully include gender statistics, such as proportions of women per indicator, analyses will fail to have the context needed to understand where and how disparities exist for women specifically.

Example: WHO Core Indicators South-East Asia & Western Pacific Regions (2005)

The South-East Asia and Western Pacific Region core indicators framework is a modification of the one used for the WHO Health statistics (Table 7), with tiers for *Socio-economic Indicators*, *Primary Health Care Coverage*, *Health Resources*, and significantly, *Gender Equity* indicators. Building in the gender equity indicators provides an at-a-glance look at how the health status and the health delivery indicators may relate to women's overall status in the Pacific countries listed (WHO Western Pacific Region 2005)

Table 7. World Health Organization Western Pacific Region Core Indicators (2005)

Socio-Economic Indicators		
Gross national income Gross per capita of GDP Average annual change in consumer price index	Human development index Dependency ratio (over 65 years and 0-14 years)	Adult literacy rate Gross primary school enrollment Gross secondary school enrolment
Primary Health Care Coverage		
Infants immunized: DTP, OPV3, BCG, HEPB3, Measles	Pregnant women immunized with tetanus toxoid Attended by skilled personnel: pregnant women & deliveries	Women of child-bearing years using contraception Population with access to safe water Population with adequate sanitation
Health Status		
Life Expectancy at birth Health-adjusted life expectancy Infant mortality rate Under five-mortality rate	Total fertility rate Maternal mortality ratio	Low birth-rate newborns Children with low-weight-for- age
Health Resources		
Total expenditure on health (% GDP) Public share to total health expenditure Per capita of total health expenditure	Physicians Dentists Nurses Midwives	Pharmacists Hospital beds
Gender Equity		
Life expectancy at birth ratio (female as a % of male) Gender-related development index Gender empowerment measure	Ratio of earned income (female as % of male) Seats in parliament held by women Women professional and technical workers	Adult literacy ratio Primary school enrolment ratio Secondary school enrolment ratio

This framework not only reports totals for country populations, but also data for males and for females separately. Importantly, the framework addresses the likelihood there will be sex and gender differences in access to health-related resources, including immunizations and access to clean drinking water and appropriate sanitation, throughout the lifespan by including indicators of male:female ratios for these health resources,

while also accounting for the sex-specific need for skilled attendants through pregnancy and birth.

The framework goes further in its sensitivity to gender issues. Note that in the gender equity components, the ratios of females to males who are literate, enrolled in school and their relative life expectancy are also included. These indicators can represent a more complete picture of where and how resources are or are not equitably distributed, and how this influences health equity, without increasing or changing the data sets required.

By adapting existing data sets and conducting more in-depth analyses a much clearer picture can emerge. Within countries it would be possible to do this for sub-populations: rural residents, indigenous women, women with disabilities, for example.

4. Social Determinants of Health

Chapter 16 of the 2008 WHO report, *Closing the Gap in a Generation*, makes recommendations for data collection and analysis on the most important social determinants of health in a surveillance system that allows causal pathways and time trends for women and men in different social strata to be followed separately. The report chapter consistently comments on the need to take gender into consideration. According to the report, “Health information should be presented in a stratified manner, using both social and regional stratifiers. While health information for specified social groups should be included, the absolute level of health of disadvantaged groups in particular is an important indicator for policy-makers. In addition, measures that summarize the magnitude of health inequity between population groups should be included” (WHO 2008, page 181). An example of such a framework is given in Box 16.3 in the report, and reproduced here:

BOX 16.3: TOWARDS A COMPREHENSIVE NATIONAL HEALTH EQUITY SURVEILLANCE FRAMEWORK

HEALTH INEQUITIES

Include information on:

health outcomes stratified by:

- sex
- at least two socioeconomic stratifiers (education, income/wealth, occupational class);
- ethnic group/race/indigeneity;
- other contextually relevant social stratifiers;
- place of residence (rural/urban and province or other relevant geographical unit);

the distribution of the population across the sub-groups;

a summary measure of relative health inequity: measures include the rate ratio, the relative index of inequality, the relative version of the population attributable risk, and the concentration index;

a summary measure of absolute health inequity: measures include the rate difference, the slope index of inequality, and the population attributable risk.

HEALTH OUTCOMES

mortality (all cause, cause specific, age specific);

ECD;

mental health;

morbidity and disability;

self-assessed physical and mental health;

cause-specific outcomes.

DETERMINANTS, WHERE APPLICABLE INCLUDING STRATIFIED DATA

Daily living conditions

health behaviours:

- smoking;
- alcohol;
- physical activity;
- diet and nutrition;

physical and social environment:

- water and sanitation;
- housing conditions;
- infrastructure, transport, and urban design;
- air quality;
- social capital;

working conditions:

- material working hazards;
- stress;

health care:

- coverage;
- health-care system infrastructure;

social protection:

- coverage;
- generosity.

Structural drivers of health inequity:

gender:

- norms and values;
- economic participation;
- sexual and reproductive health;

social inequities:

- social exclusion;
- income and wealth distribution;
- education;

sociopolitical context:

- civil rights;
- employment conditions;
- governance and public spending priorities;
- macroeconomic conditions.

CONSEQUENCES OF ILL-HEALTH

economic consequences;

social consequences.

Source: WHO 2008

As it is centred on the social determinants of health, this framework provides an excellent example of how gender and equity can be incorporated in national level surveillance. Where authority for health decisions is sub-national, it follows that this framework can be adapted accordingly, with the continued integration and attention to gender and inequalities. A federal-provincial network in Canada intends to provide leadership on systematic adoption and adaptation of the WHO Social Determinants framework (Pan-Canadian Public Health Network 2008), though it remains to be seen whether gender considerations and gender-sensitivity continue to be explicitly articulated, or whether “health equity” becomes an overarching concept in which gender is subsumed if the framework is used⁵.

⁵ In a 2008 report there is some confounding of gender and sex, but there *are* explicit suggestions to include gender statistics.

5. WHO - Women and Health

Women and Health is a global level examination of health and health-related indicators of women across the life span. Chapters in the report are arranged from the girl child to older women, preceded with an analysis of women's gender equity, inequalities in socio-economic status and women's participation in health care systems. The final chapter of the report makes recommendations for better health policies that include women and that will improve women's and girls' health.

This framework reflects the strengths of the previous frameworks reviewed in this paper, incorporating both gender-sensitive health indicators and gender statistics. The structure emphasizes how women's health changes throughout the life span. While there are currently considerable gaps in data especially regarding girls and elderly women (WHO 2009), the framework can be used to show leadership in monitoring and taking action that is targeted to age-related needs.

Table 8. Framework of Indicators, *Women and Health* (WHO 2009)

Women around the World	Increasing life expectancy Health transition Socio-economic factors Gender inequities Conflicts & crisis Women & health care system
The Girl Child	Infant mortality Sex differentials in health Female genital mutilation Abuse, maltreatment
Adolescent Girls	Puberty, sexual debut Adolescent pregnancy Substance use Mental health
Adult Women: the Reproductive Years	Maternal mortality Attendance at births HIV Sexually transmitted infections Infertility
Adult Women	Mortality, Burden of disease Use of health services Mental disorders Physical, sexual violence
Older Women	Women and aging Caring for older women Dependant population Disability

6. Alternative Frameworks

Two projects from Canada illustrate the limitations of the preceding frameworks for some cultures. A community based project developed with rural and remote-dwelling indigenous peoples in Canada focuses on community health and its relationship to individual well-being (Jeffery et al. 2006). The project participants considered community and family to be the strongest factors over individual health indicators as Figure 3 illustrates. Gender is not mentioned and there is no stated requirement to disaggregate data by sex. A subsequent evaluation would assess how well the framework exposes and addresses any health inequities for women.



Figure 3. Diagram adapted from A Framework for Health Developed in a Rural, Indigenous Community (Jeffery et al. 2006)

In another case, the Native Women’s Association of Canada commissioned consultations and an analysis with indigenous women to learn about the health indicators important and relevant to them (Bent and Wilson 2006). The framework of indicators are arranged in four main areas, intellectual, physical, emotional and spiritual health, which reflect community and traditional beliefs and practices concerning the balance needed to achieve optimal health, personal growth and community harmony.

Summary

The five frameworks and adaptations reviewed here demonstrate a range of conceptual possibilities. In all cases the frameworks can be made gender-sensitive by including indicators that are meaningful to stakeholders, and can reflect how interventions improve health over time when the data are reported by sex. As the *Women and Health* and the Western Pacific Region frameworks demonstrate, data can purposefully be made more

gender-sensitive when they are reported in ways (by proportions compared to men, for example) that allow monitoring of women’s empowerment and involvement in health decisions and other sectors of society.

Lin et al. (2003, 2004, 2005) advise that creating new data collection and surveillance systems should not be necessary, as long as data are recorded by sex. The challenge, they note, “is to modify current health information systems to ensure that they can adequately reflect gender equity issues, if not other equity concerns” (Lin et al. 2005). Making health indicators gender sensitive includes defining the appropriate conceptual framework to link health determinants (including gender relations) and health outcomes; understanding the technical details of indicator and data definitions, collection methods and availability that make the best use of existing data sets; and a process of incorporating and using indicators that is participatory and meaningful. However, “using existing data and indicators which have not been examined for their gender bias can result in the creation of statistical pictures which do not accurately reflect gender (in)equity” (Lin et al. 2003, p 201). Thus an initial review of the assumptions that underlie indicators is valuable, which may include a review of some academic critiques of the gender sensitivity of indicators (see Beck and Stelcner 1997 for examples). Lin et al. (2003) determined that a comprehensive framework that could allow for both analysis of gender equity within mainstream health systems as well as recognize sex-specific issues is most appropriate.

In short, health indicator frameworks should explicitly include gender and analysis of women’s diversity in health status, health determinants and the response of health care systems. Additionally, gender statistics provide needed context of women’s opportunities to be involved in decisions related to their own health and the delivery of health services and programs. As Jackson and Willson (2005) recommended, frameworks and indicators should be clearly linked to explicit goals to improve health and reduce health inequities for women. Sections C and D describe how this can be done.

Making health indicators gender sensitive includes:

- Defining an appropriate framework;
- Understanding indicators details and definitions, to make best use of available data;
- Using indicators that are meaningful and relevant.

C. Indicators, Frameworks and Analysis: Factors to Consider

In 1997 Beck and Stelcner proposed criteria for gender-sensitive indicators that are still considered ideal (see also Beck 1999). The authors noted, “Gender-sensitive indicators have the special function of pointing out gender-related changes in society over time. Their usefulness lies in their ability to point to changes in the status and roles of women and men over time, and therefore to measure whether gender equity is being achieved” (Beck and Stelcner 1997, page 5). This applies to health as well as to other sectors. Bearing these criteria in mind, the objectives and scope of a report on women’s health indicators will depend upon a number of factors, both within and outside of the control of the producers and users. While a full and comprehensive review of the overall health of women may be a goal in one instance (for example *Women’s Health Data* in the US (Misra 2005)), in another case the need may be for an assessment of one area of women’s health only (such as a focus on HIV/AIDS done in Belize (PAHO 2009)).

Beck’s criteria for gender-sensitive health indicators:

- Developed through participation
- Relevant & understandable to the user
- Disaggregated by sex
- Use both qualitative and quantitative indicators
- Easy to use and understand
- Few in number
- Specific to the desired measure
- Technically sound
- Should measure trends over time
- Forward-looking & adaptable

Source: Beck 1999.

This section considers how the scope of a gender-sensitive health indicator framework can be defined, followed by an overview of the process of gender-based analysis needed to complement the health data.

Project Objectives

The overall intent of a gender and health project varies. Planning or policy decisions, monitoring progress, generating awareness, program evaluation, and new evidence about the breadth and determinants of a problem are some typical reasons for producing gender and health reports. Ben Abdelaziz (2007b) notes the need for consultation so that indicators and their reporting remain meaningful for users as well as for the populations (women) they describe and measure. Users and community members should participate in the design, as they will have knowledge of which indicators can be used to take action and improve policy. Although there is greatest value added when gender and equity are

considered early in project planning, they can also be revisited or newly introduced at any point of a project's implementation.

Decision makers may require information across a range of health topics, to inform high level policies and strategies, to monitor progress on the Millennium Development Goals, or to target strategies for high risk sub-populations. Consideration about which gender and equity framework to use may be made through an assessment of the value of numerous possible health indicators, some of which may be more informative in capturing relevant experiences of women and social minorities among women.

Alternatively, the objectives may be to monitor one issue only. One province in Canada, for example, conducted an analysis of injury data (Manitoba Health 2004). ICD-9 injury hospitalization codes were analyzed by sex, age, and by health authority (relating to geographical regions as well as administrative divisions). The analysis of the indicators then proceeded in depth for particular age groups, particularly young men, who frequently die from risky behaviours, and elderly women, who frequently die as a result of falls. The information was requested by government to allow for long-term planning and programming, including public health messages for safer transportation, and household injury prevention.

In either case, Beck and Stelcner (1997) pointed out that indicators typically carry a political heritage and bias. They have come to be seen as objective and legitimate, in part, only as a consequence of their long-term use. A critical challenge will be to assess what information is valuable, for whom, and how the population's diversity is represented in those goals and interests.

Gender analysis of indicators in a framework requires the use of a comparator or benchmark to evaluate equality and equity. However, it is important to note that this does not mean that women's health must be constantly measured against a standard of men's health. A comparator may also be chosen from a national/regional average for women. Beck and Stelcner advise that care should be taken in the choice of benchmarks, as a norm and value is inherent in its choice (Beck & Stelcner 1997). There is considerable value to be derived from projects which solely explore women's health. Gender remains a central element, enriching the evidence available about women, by including information and analysis about sub-populations—such as ethnically diverse groups, indigenous women, refugee or migrant women, women who have physical disabilities, and other differences. As Östlin et al. (2007) noted, past confusion that equated women with gender led to oversimplified analyses in which reports about women are seen to be capturing gender dynamics, without the needed context of women's lives and opportunities.

Scope

The scope of the framework and indicators can therefore be wide ranging or specific to a health area or topic that is of particular concern. In Belize for instance, a profile of HIV/AIDS was commissioned with the stated intent to analyze indicators by sex, geography, age and ethnicity (PAHO 2009). The resulting gender-based analysis provides a benchmark for further monitoring and action related to this one disease. Health indicator frameworks specific to mental health or primary care could be used to monitor how and where women's health status changes when new policies are put in place, and to provide context about gender equity and how it influences women's health and their responses to new programs. The scope of the project is often determined by the interests of the users, where a political directive or targeted funding may be the catalyst for supporting the gathering of new evidence.

Whether the project scope is fairly narrow and disease-centred or more broad, it will be necessary to include indicators that fall outside of clinical and medical factors. Consider, for instance, how violence against women affects women's ability to seek care and protect themselves as well as what influence local and cultural norms have in terms of how the immediate society perceives violence against women (reactions by police, family stigma, and so on)(ECHI short-list 2005, GEH 2005). Colman (1999) gave the example of women's unpaid work in daily domestic chores, child care or responsibilities to other family or community members who are ill, which should be considered because it can have direct applicability to the health topic of interest. As noted in Section B, indicators in these domains are included in the PAHO and WHO Leading Indicators frameworks. These are some of the reasons why community consultations can contribute to defining the scope of a health indicator framework.

Analysis

This section provides an overview of gender-based analysis, which is critical to understanding and responding to gender-sensitive health indicators.

Additional Data and Resources Needed

It is not sufficient to merely report surveillance data by sex. A framework and the gender-based analysis should bring together other stratifiers (age, socio-economic level, ethnicity, geography, as possible), current literature and a working knowledge of existing policies and local politics, as outlined here.

Qualitative Studies: may come from community level reports or narrative research conducted locally either as part of the existing project, or from the past. Qualitative research is time-consuming and comparatively labour intensive and so studies are usually small-scale. Nevertheless the data are rich and can provide insight into how and why health conditions are improving or declining; perspectives that cannot be gleaned from survey or administrative data alone.

Other Research is also valuable. Academic research in health-related fields (clinical medical research, community nurse practice, public health, medical anthropology, sociology, epidemiology, for example) conducted in settings that are relevant to the populations of interest can provide additional and more in-depth background information. Medical and clinical reports, reports on new social and health programs, can be resources of what is already known about local health influences and gender differences. However, it is a frequent problem that either research data are not collected by sex, or they are not reported in the literature by sex. Contacting original research authors for further information and original data specific to the women who participated in a study is not always fruitful.

Local Expertise: Local policy makers, programmers, clinicians and NGOs are experts whose knowledge can be invaluable to understanding health related data, particularly where trends have changed over time. They are also often in a position to comment on the limitations of health indicator data, including sub-populations that have particular vulnerabilities, or that are not included in the data at all. Experts can provide details about local data collection and reporting that are necessary to describe comparability of the data from locality to locality.

Community participation - including explicit mechanisms for the meaningful participation of women remains a fundamental resource to identifying and understanding gender-sensitive health indicators. Local women and men have important knowledge to share. Citizen engagement can be ensured by working with community women throughout the development of the framework, including as the data and analysis are compiled.

Gender-based Analysis

Gender-based analysis⁶ is used to understand how the experiences of women and men are different and how they are the same, with the intent of uncovering and reducing

⁶ GBA (gender based analysis) is used here to include sex- and gender-based analysis (SGBA) as well as other analyses that examine the intersections of gender and other health determinants. “Gender and ethnicity” and “gender and diversity” analyses are considered to be part of GBA that is done well, since the analyst must endeavour to consider all the ways that gender influences and is influenced by health and

inequities in society. In the case of health, GBA helps to identify how biological factors, social norms and structured systems (e.g. legal, political, religious) that govern those norms are all important influences on women's and men's health status, and to clarify the different and similar ways that women and men are vulnerable (Haworth-Brockman & Isfeld 2009). Long-standing international commitments encourage policy-makers at all levels to integrate GBA, but the international record for applying GBA has been patchy at best (WHO 2009, Östlin et al. 2007). This is to some extent a matter of lack of familiarity with the analytical methods, but it can also be partly ascribed to the availability of useable evidence. Nevertheless, as noted in the introduction, there is growing recognition of the need to pursue GBA and in some countries there are policies that not only enable but *require* the use of GBA in health research, programming and planning (with mixed results to date).

Clow et al. (2009) ground GBA in terms of four core concepts, sex, gender, diversity and equity. *Sex* and *gender* have already been defined in this paper. While each of them is truly represented and experienced along continua, most health data are collected by the binomials of male and female and thus are used in this document. However, because not all people are just male or just female, the concept of *diversity* can take into account physical differences (and genotypes of individuals) or sexual orientation and gender identity. The diversity among women and among men is core to GBA because different life circumstances and experience can contribute to vulnerabilities and health inequities. GBA can expose vulnerabilities that are not visible in aggregate data. Lastly, the intent of GBA is to identify and rectify where there is inequality in health created by inequity. *Equity* of resources and opportunities provides the means to achieve the goal of equality (PAHO 2009).

Presenting and articulating any differences between the sexes is the minimum requirement, but cross-tabulation by other variables is ideal, if the datasets are sufficiently robust to do so. Even where several cross-tabulations are not possible (or desirable as the indicator framework should remain manageable), two or three cross-tabulations can provide more precise information than totals would alone. Sen et al. (2009) provide advice on statistical methods to analyze

Just as indicators have been developed and adopted with particular values (Beck and Stelcner 1997), statistical analyses are also intrinsically value-laden. Harper et al. (2010) noted, "Producers and consumers of health inequality data must pay more attention to the normative choices inherent in measurement" (page 22). Using five case studies the authors demonstrate how the choice of rate ratio or rate difference, for instance, can affect interpretation of health indicator data and the understanding of where (gender) inequities arise (Harper et al 2010).

socio-economic factors. The reader will find domestic and international documents that use either or both terms.

intersections of health indicators and socio-economic indicators.

GBA becomes an iterative process that reflects the four core concepts, and is neither linear nor uni-directional, but rather one of “regularly reflecting on content and process and adjusting to address gaps, inconsistencies and oversights as well as to accommodate new knowledge or insights” (Clow et al. 2009, page 19). As with Beck and Stelcner’s (1997) comments on the potential for bias or unspoken values in the choice of indicators, each health indicator can be analyzed according to the issue it endeavours to capture and describe; the population described; the evidence used; the implications for women’s health; and recommendations for policy, programming or health care.

The iterations continue when the health indicator data are integrated with the other resources described above. Relevant findings from other studies or community projects allow for inter-regional or international comparisons and bring in new information about women’s experiences of biological, social and systemic factors that interact with the indicator.

Qualitative studies provide personal insights on the mechanisms and outcomes related to health indicators. Jackson and Haworth-Brockman (2007) noted that in health policy circles there have been repeated calls to complement descriptive quantitative surveillance data with qualitative research and analysis, but this has rarely led to the *systematic* application of qualitative research in evidence-based decision-making. In other words, there is ‘buy-in’ but little ‘uptake’. Including qualitative data in GBA reveals what makes women vulnerable and where gender-related sensitivities lie. Inclusion of the personal stories, including those that seem to be “outliers”, recognizes individual testimony as credible evidence to at least be noted. Otherwise the individual or small group vulnerabilities can be erased by standardization and population statistics. However individual experience must also be analyzed in the context of social and power relationships; it is not sufficient to ‘add qualitative data and stir,’ but qualitative evidence can sensitize us to inequities otherwise overlooked (Jackson and Haworth-Brockman 2007).

Gender-based analysis is thus strengthened by understanding that social locations (like gender, race, class) are not simply attributes of individuals, they are the product of social relations and should be situated within social structures (e.g. diagnostic practices, gendered relations of care). The analysis should move between different levels of analysis and diverse sources and types of evidence, moving both horizontally (from situation to situation) and vertically (from particular to general, micro to macro-structural). That is, the analysis moves between levels of aggregation, looking for and learning from analogies and discrepancies among cases and conditions. This analysis acknowledges and respects commonalities and observable trends, but does not do so at the expense of particular experience or knowledge – it remains open to both generalized

knowledge (e.g. prevalence of osteoarthritis in women and men) and particular experience (e.g. an individual's reports of pain and disability).

Thus, different kinds of evidence (qualitative, quantitative) at different levels of analysis (individual, institutional, structural) can be included through different lenses of analysis (e.g. sex- and gender-based analysis) – without privileging one approach to knowledge production.⁷

For example, GBA conducted this way allows us to link the *incidence* of disease, to the pain women *feel*, to how it is *diagnosed*, to how women's pain and disease are *perceived* by physicians, and to *why* women's responsibilities may prevent them from seeking or receiving the *treatment* they need.

⁷ BE Jackson wrote: “Individual-level variables (like income, smoking behaviour, attitudes, disease diagnosis) are described by individual-level data but may be aggregated and expressed as measures of central tendency (e.g. mean, median) or as rates/ratios (e.g. suicide rate, prevalence of infectious/chronic disease, level of income inequality). Of course, these aggregated measures do not represent any particular individual's experience. Some ‘structural’ or ‘relational’ variables are described by group-level data which reflect the *pattern of relationships and interactions between individuals* belonging to the group (e.g. social networks). Other structural, ‘contextual’ or ‘global’ variables measure attributes of groups, organisations or places, and are not reducible to individual persons/units. They are fixed for all, or nearly all, individual group members (e.g. social (dis)organisation; social capital; legislation or regulation). So, individual-level variable data may be aggregated, but this does not mean the variable addresses structural-level phenomena/relationships. This ‘underscores the need for multilevel thinking; i.e. we need to simultaneously examine the circumstances of individuals at one level, *in the context of* the different levels shaping their circumstances’ (emphasis added, Subramanian et al., 2009: 349)” (from Jackson *in* Haworth-Brockman et al. 2010).

D. Dissemination

Producing evidence on women's health with gender and equity informed frameworks provides a rich resource for policy and planning, effecting change and ultimately reducing gender inequities. *Using* the evidence is made possible through ensuring that the information collected and reported is the information needed, but also by effective communication and dissemination of the information. The following describes some key considerations for developing useful communications products and effective dissemination processes to engage stakeholders in action to improve the health of women.

Knowledge of Stakeholders

As for any knowledge translation activity, the starting point is the identification of relevant audiences or stakeholders. Most often, these are the decision makers in national, regional, and local governments, the policy makers, planners and program managers who continually need new insight on issues affecting public health and welfare. Other stakeholders including civil society organizations, NGOs, community-based advocates, the media, and the broader public, also carry considerable influence or have intermediary roles in the larger policy context, as those who activate broad support for policy change.

Communicating the results of gender and equity analysis to stakeholders requires a conscious and systematic plan, not only for appropriate audiences, but for the mechanisms, message, form and format suitable to the audiences we target as potential users of data. Moreover, it involves fostering relationships and cultivating active dialogue between the producers of data and intended beneficiaries of their work. User consultations both strengthen the appropriate development of indicators and promote wider application and utilization (Abdelaziz 2007a). The European Union's Directorate General for Research has characterized the mutually beneficial relationships in this way: "Without fresh, reliable evidence to base their decisions on, policymakers have only tradition and ideology to guide them", and conversely, "The participation of policymakers helps to ensure that research addresses key societal questions and is not only theoretical." Although benefits are seen by both parties, the onus largely falls on data producers to gather information about data users' priorities, and changes in those priorities over time.

Monica Fong observed that because gender-sensitive indicators are increasingly adopted by mainstream users who are more diverse than data users of the past, the need to understand and account for users' distinct needs and interests has grown. "The community of users for gender health indicators is large and has widely varying

requirements in terms of timing, frequency, level of detail, geographical coverage, and cross-tabulations (Fong 2007, p S9). Fong went on to describe the inherent tension between producers' goals of maintaining consistency in the provision of indicator data and data users' needs for innovation to remain responsive to emerging priorities. Regular consultation with stakeholders is suggested as the key to maintaining relevance and timeliness in the face of changing priorities.

Tools & Mechanisms for Communication

The channels of communication between data producers and users of data often remain underdeveloped. A number of tools and mechanisms for communication may be considered for their suitability for the range of stakeholders involved. The most common and effective tool for communicating with policy makers is the policy brief; policy panels and briefing meetings may also be possible where time, resources, and established relationships with policy makers allow. Effective presentation of data evidence in policy briefs gives priority to new knowledge; defines and maintains focus on policy-relevant questions; links these issues with current policy directives, program areas or government commitments; and is clearly tied to recommendations for action. Prioritizing the evidence and analysis is more efficient when it reflects a strategy for collecting data. Policy briefs are specialized and highly effective communication tools for which detailed guidelines are available (European Union 2010). Ideally, consultations with stakeholders have been employed in identifying the policy-relevant issues and prioritizing results.

While briefs and media releases are often the first tools employed to capture the attention of decision makers and other stakeholders, full reports remain useful as detailed records of data and analyses, substantiated with technical and methodological information. For those who have the time to read them, full reports are invaluable resources, offering more in-depth analysis which can relate results to other data and monitor change over time. Local agencies and community residents may appreciate plain-language summaries that discuss the key findings or highlights. Executive summaries may be tailored to more informed audiences, like policy makers, but are equally straightforward and succinct. Both audiences will want to have an idea of what the implications of the new information are and what actions may be taken to respond more appropriately.

Brochures and bulletins are often highly accessible tools for communicating the results of data analysis for broad audiences. Technical details are limited, while key findings are summarized and formatted in ways that facilitate skimming by readers. For example, succinct but descriptive section titles and small paragraphs are effective and engaging. One example of an accessible and well designed brochure that includes these features is the Millennium Development Goals: Gender Equality and Women's Empowerment Progress Chart 2010, which can be found on the UN Statistics Division website.

Producer-user Relationships

Data producers also have to consider the format of actual data sets, which are now commonly provided on public websites and used by various stakeholders, such as advocating agencies or community-based researchers, who take a direct role in data analysis and the production of publications. Here the demands on data producers can be high, as data users' preferences and needs for various data formats can range widely, from tabulations readily available on websites, to micro-data files that can be manipulated, readymade tables in report format, or custom-made tabulations (Fong 2007). Despite the challenges, there are advantages to this relationship, as stakeholders' greater involvement promotes ownership and responsibility in the policy process, and may enhance gender-based analysis through greater input from agencies with knowledge of women's issues.

In other instances, gender and health data analysis may be developed in close collaboration with key stakeholders. Cooperation as well as timing may be key to ensuring successful uptake of the results of the analysis. It is valuable to time the release of results with relevant policy developments. For instance, the release of a report on gender-based violence may be timed for when the local government or community are also interested in redressing violence, opening a new shelter and so on. Of course these examples are somewhat idealistic. Often, the news and the evidence are not favourable, from government or health authority standpoints, and here champions both internal and external to government are needed as allies to endorse and support the findings of the new document. It can also be valuable to provide government offices with advance copies of results, or to brief decision-makers on key findings, both the good news and bad news. It does not help to have a government department dismiss a document, and on the other hand, it can help if a department endorses your document. Ideally decision-makers would appreciate the presentation of good new evidence to assist with their future planning.

Communication Principles & Practices

Regardless of the specific communication tool that is used, several basic principles and practices can increase uptake of the products of data analysis among a wide range of stakeholders, including community organizations.

Language use and terminology - All users benefit from materials written in clear, succinct and non-technical language, free of jargon and with sparing use of acronyms (which are defined upon first use). Intersectoral and cross disciplinary work in the field of women's health is beneficial, yet fraught with risks for misunderstanding. Thus, where

technical terms are used—including medical, social sciences, epidemiological and statistical terms—they should be clearly defined. Social concepts and abstractions such as ‘elderly’, ‘youth’, or ‘low income’ should be defined, particularly as they are often used indiscriminately in public vernacular. Clear and consistent definitions of ‘gender’ and ‘sex’ which reflect the distinct meanings given to these terms in the social sciences, are particularly important to gender and equity based analyses.

Gender sensitivity can also be carried through to both language use and dissemination activities. Care should be taken to ensure that the publications do not reinforce gender stereotypes, that gender neutral language is employed (Kols 2007), and that gender-sensitivity is maintained when results are translated into other languages (Clow et al. 2009). As well, equitable distribution of results can be ensured through awareness of where stakeholders’ primary language differs from that used in research and technical settings (Kols 2007)

Data description - Although technical aspects are often most appropriately kept brief in the formats described above, it is certainly important to represent data in ways that ensure accurate interpretation of findings, even if those details are only provided in glossaries, appendices or accompanying documents. Indicators should be clearly defined and frameworks referenced. The data used for each indicator should be described in terms of what is measured, case definitions, how the data are collected, the populations included and excluded in the data collection or sample sizes attained, and the year/s represented. Limitations of the data that may affect their validity, reliability or the applicability of results should also be described (see Isfeld & Haworth-Brockman 2009, pages 22-23).

Graphs and tables help convey important observations about data, and make it easier to convey comparisons. However, many women and men are not comfortable reading charts. It is valuable to provide a written narrative to accompany graphs and tables, which highlight the same key observations, such as statistical differences demonstrated in results for women and men. Where possible, it is useful to reinforce the importance of considering diversity among women (by age, ethnicity or socioeconomic status) through graphic illustrations of results for these groups. Where results illustrate only comparisons for sex and age-standardized populations, the influence of gender and questions of equity remain invisible and unanswered. Graphs and tables should also be clearly labeled and designed in a manner that ensures that they can be clearly reproduced when photocopied and that variables are easily distinguished in black and white.

Although the tools and mechanisms described above may seem of little importance next to what is implied by the results of gender and equity analyses, such results are only as useful as the communication and dissemination practices applied to transform information to action.

Conclusions

Global action to improve health surveillance and monitoring and to reduce health inequalities has not consistently integrated evidence about women's lives or been sensitive to gender differences for women. There are considerable gaps in knowledge about women's health status, how the interactions of sex and gender affect women's ability to get the health care they need, and how well health policies and systems can respond to women's health needs. Even where such data exist, there is often an unwillingness or lack of technical capacity to apply gender-based analysis and apply the information to improve women's health.

Health indicator frameworks provide purposeful and systematic organization to surveillance and monitoring and can be adapted or developed to allow for reporting and analysis on gender related determinants and their relationships to women's health status. Creating new data sets and surveillance systems should not be necessary, as long as data are recorded by sex and there is systematic gender-based analysis across and between indicators and categories. Health indicator frameworks should explicitly include gender and analysis of women's diversity in health status, health determinants and response of health care systems. Gender statistics should be included in frameworks to provide context of women's opportunities to be involved in decisions related to their own health and the delivery of health services and programs.

This paper reviewed five frameworks used internationally for their ability to take gender into consideration. Choosing a health indicator framework will depend on the project objectives and scope required, but should be initiated with consultation from stakeholders (producers and users) and community representation, so that the framework, the indicators and the policy actions taken are meaningful to the women they represent.

Producing evidence on women's health with gender and equity informed frameworks provides a rich resource for policy and planning, effecting change and ultimately reducing gender inequities. *Using* the evidence is made possible through ensuring that the information collected and reported is the information needed, but also by effective communication and dissemination of the information.

References

- Australian Institute of Health and Welfare. 2010. Health and wellbeing of young Australians: indicator framework and key national indicators. Bulletin no. 77. Cat. no. AUS 123. Canberra: AIHW.
- Ben Abdelaziz F. 2007a. Consensus building for developing gender-sensitive leading health indicators. *Int J Public Health*; 52 (Supplement): S11-S18.
- Ben Abdelaziz F. 2007b. Women's health and equity indicators. *Int J Public Health*; 52(Supplement): S1-S2.
- Beck, T and Stelcner, M. 1997. Guide to Gender-sensitive Indicators. Canadian International Development Agency: Hull
- Beck, T. 1999. Using Gender-sensitive Indicators: A reference manual for governments and other stakeholders. London: Commonwealth Secretariat.
- Bent, K., and A. Wilson 2006. Aboriginal Women's Health Indicators: Framework document. Ottawa: Native Women's Association of Canada.
- Canadian Institute for Health Information. 2010. Health Indicators 2010. Canadian Institute for Health Information: Ottawa.
- Clow B, Pederson A, Haworth-Brockman M, Bernier J. 2009. Rising to the Challenge: Sex- and gender-based analysis for health planning, policy and research in Canada. Halifax, NS: Atlantic Centre of Excellence for Women's Health.
- Colman, R. 1999. Gender Equity in the Genuine Progress Index. Presented at: Made to measure: Designing research, policy and action approaches to eliminate gender inequity. Halifax, NS: Atlantic Centre of Excellence for Women's Health. .
- DesMeules M, Kazanjian A, MacLean H, Payne J, Stewart D, Vissandjee B. Synthesis : Pulling it all together. *BMC Womens Health* 2004 Aug 25;4 Suppl 1:S30.
- Donner L, Haworth-Brockman MJ, Isfeld H, Forsey C. 2008. A Profile of Women's Health in Manitoba. Winnipeg: Prairie Women's Health Centre of Excellence.
- Esplen, E, and E Bell. Gender and Indicators: supporting resources collection. 2007. UK: Institute of Development Studies.
<http://www.bridge.ids.ac.uk/reports/IndicatorsSRCfinal.pdf>

- European Union. 2010. Communicating Research for Evidence-based Policymaking; A practical guide for researchers in socio-economic sciences and humanities. Luxembourg: Publications Office of the European Union. Directorate-General for Research, Socio-economic Sciences and Humanities. 56 p.
- Fong, MS. 2007. Gender health indicators for whom? Responding to the needs of different users. *Int J Public Health*; 52 (Supplement): S9–S10.
- Gender Equity and Health 2002 GWH Guidelines on gender-relevant indicators in health research.
- Gender, Ethnicity and Health Unit. 2005 Basic Indicators for Gender Equity Analysis in Health. Pan American Health Organization.
<http://www.paho.org/english/ad/ge/basicindicators.pdf>
- Harper S, King NB, Meersman SC, Reichman ME, Breen N, Lynch J. 2010. Implicit value judgments in the measurement of health inequalities. *Milbank Quarterly* 03;88(1):4-29.
- Haworth-Brockman M, Donner L, Isfeld H. 2007. A field test of the gender-sensitive core set of leading health indicators in Manitoba. *Int. J. Public Health* 52(Supplement):S49-S67.
- Haworth-Brockman M, Isfeld HK, 2008. Guidelines for Gender Based Analysis of Health Data for Decision Making. Washington DC: Pan American Health Organization 2008; 38.
- Haworth-Brockman, M., A. Pederson and B. Jackson. 2010. Evidence for Equity: Population statistics, narrative accounts and gender-sensitive indicators. Presented at 6th Australian Women's Health Conference. Hobart: Tasmania.
- International Organization for Standardization. 2001. Health Informatics – health indicators conceptual framework. Preparatory technical specification working draft, prepared by ISO Technical Committee TC 215.
- Isfeld HK, Haworth-Brockman M, 2008. Guidelines for Developing a Population Based Gender and Health Profile. Washington DC: Pan American Health Organization 55.
- Jackson BE, Haworth-Brockman M. 2007. The quality of evidence: enhancing uptake of qualitative evidence. *Int. J. Public Health* 52: 265-266.

- Jackson BE, and K Willson. 2005. Bringing Women and Gender into “Healthy Canadian A Federal Report on Comparable Health Indicators 2004”. Toronto: Women and Health Care Reform.
<http://www.womenandhealthcarereform.ca/publications/womengenderhealthindicators.pdf>
- Jeffery, B., Abonyi, S., Hamilton, C., Bird, S., Denechezhe, M., Lidguerre, T., Michalyluk, F., Thomas, L., Thorassie, E., Whitecap, Z. 2006. Community Health Indicators Toolkit. University of Regina and University of Saskatchewan: Saskatchewan Population Health and Evaluation Research Unit.
<http://www.uregina.ca/fnh/>
- Kols, A. 2007. A Gender Guide to Reproductive Health Publications: Producing gender-sensitive publications for health professionals. Baltimore: Johns Hopkins Bloomberg School of Public Health. 19 p.
- Lin V, Gruszyn S, Ellickson C, Glover J, Silburn K, Wilson G, et al. 2003. Comparative Evaluation of Indicators for Gender Equity and Health. World Health Organization. WHO/WKC/TECH.SER/03.2.
- Lin V, Gruszyn S, Ellickson C, Glover J, Silburn K, Wilson G, et al. 2004. Comparative Evaluation of Indicators for Gender Equity and Health: From adequacy to usefulness. Forum 8, Global Forum for Health Research: Health Research to achieve the Millennium Development Goals: Mexico City.
- Lin, V, L’Orange H, Silburn, K. 2005 Developing Gender-sensitive Health Indicators: Relevance and practices. Prepared for the Bureau of Women’s Health and Gender Analysis, Health Canada: Ottawa.
- Manitoba Health. 2004. Injuries in Manitoba: A Ten Year Review. Winnipeg: Province of Manitoba
- Misra, D, ed. 2001. Women’s Health Data Book: A profile of women’s health in the United States, 3rd edition. Washington, DC: Jacobs Institute of Women’s Health and The Henry J. Kaiser Family Foundation.
- Organization for Economic Co-operation and Development. 2002. OECD Health data 2002: Definitions, sources and data. Paris: Organization for Economic Co-operation and Development

- Östlin P, George A, Sen G, National Collaborating Centre for Determinants of Health, WHO Commission on Social Determinants of Health. Women and Gender Equity Knowledge Network 2008. Unequal, Unfair, Ineffective and Inefficient. Geneva: .
- Pan American Health Organization. 2009. Plan of Action for Implementing the Gender Equality Policy of the Pan American Health Organization. Washington DC
- Pan-Canadian Public Health Network. 2009. Indicators of Health Inequalities. <http://www.phn-rsp.ca/pubs/ihi-idps/pdf/Indicators-of-Health-Inequalities-Report-PHPEG-Feb-2010-EN.pdf>
- Sen, G., A. Iyer, C. Mukherjee. 2009. A methodology to analyse intersections of social inequalities of health. J Human Develop and Capability: 10(3):
- United Nations Statistics Division. July 2010. Millennium Development Goals: Gender Equality and Women's Empowerment Progress Chart 2010. United Nations Department of Economic and Social Affairs (DESA). <http://mdgs.un.org/unsd/mdg/Default.aspx>
- World Health Organization, Regional Office for South-East Asia. 2000. Women of South East Asia: A Health Profile. 2000. New Delhi: Regional Office for South-East Asia. http://www.searo.who.int/EN/Section13/Section390/Section1376_5513.htm
- World Health Organization. Regional Office for the Western Pacific. Core Indicators 2005. http://www.wpro.who.int/internet/resources.ashx/HIN/core_indicator_end_notes.pdf and <http://www.wpro.who.int/internet/resources.ashx/HIN/MDG/core+indicators+brochure+with+definitions.pdf>
- World Health Organization Centre for Health Development (Kobe). 2005. Report of the Consultative Meeting to Finalize a Gender-sensitive Core Set of Leading Health Indicators. Japan: WHO Kobe Centre. http://www.who.or.jp/library/cm_report.pdf
- World Health Organization. 2005 World Health Statistics. Geneva: World Health Organization. <http://www.who.int/healthinfo/statistics/whostat2005en1.pdf>
- WHO Commission on Social Determinants of Health, World Health Organization. 2008. Closing the Gap in a Generation: Health equity through action on the social determinants of health. Geneva, Switzerland: World Health Organization, Commission on Social Determinants of Health.

World Health Organization. 2009. Women and Health: Today's evidence tomorrow's agenda. Geneva: World Health Organization.